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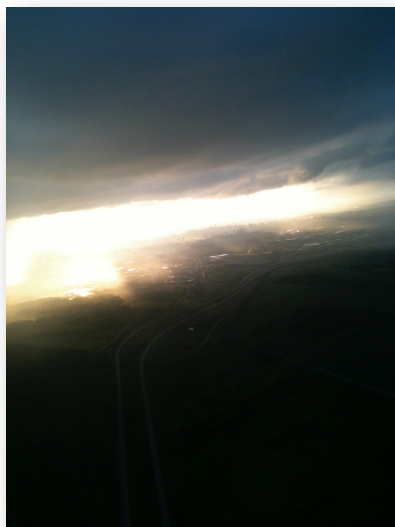
PROVINCIAL CLINICAL AND PREVENTIVE SERVICES PLANNING
FOR MANITOBA

Doing Things Differently and Better

Final Report

Submitted to Deputy Minister

Ministry of Health, Seniors, and Active Living



February 1, 2017

healthintelligenceinc.

and associates



Note to Reader

This report is aligned with ***Provincial Clinical and Preventive Services Planning for Manitoba: Environmental Scan*** (December 1, 2016).

The scan provides both context and detail that supplement the information and analysis presented in this report.

Where relevant, abstractions from the scan have been distilled for inclusion in the report.

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Applications of the Report

This report is the beginning of a planning process to do things differently and better in Manitoba, with the continuing acquisition of quantitative and qualitative data from across multiple sites and healthcare stakeholders in Manitoba. It provides a planning tool that is navigational, not prescriptive, and positions the provincial leadership for an incremental implementation that aligns with the strategic direction of government, its priorities, and the fiscal realities.

The multiple forecasting tables provide layers of evidence-based conclusions that offer a predictable future on a rolling ten-year basis for clinical and preventive services planning in the province. The process of transition and implementation will lead to granular planning at multiple levels in the province with flexibility at decision points where variables and assumptions are confirmed or modified using ongoing real time data.

The report and its recommendations are founded on the principle that healthcare is a provincial resource that is operationalized regionally, but always in the context of provincial planning and integration. It is a work-in-progress that will continue to be shaped and re-shaped, never with an endpoint. The constant touchpoint for the province is quality care that is patient-centric and provided by healthcare professionals committed to collaborative models and role optimization.

The convergence of qualitative and quantitative analyses is further adjusted through innovative models of care with the potential to be transformative. All of the requirements to succeed are in place in Manitoba in the context of care driven by a belief in the values of a safe and sustainable healthcare system that is equitable and accessible.

While all sectors in the plan are important, some have been identified as priorities by the consultancy and without argument from the stakeholders and organizational leadership.

The challenges are not insignificant; some sectors in healthcare face the imperative for change to a degree much greater than that in other sectors. Some of the pressures are immediate and have been identified for early action by an implementation group.

The long-term success of the plan will reflect policy persistence, provincial thinking, and clinical governance that measures outcomes and adjusts for standards and best practices as lessons are learned.

If it is not being done for the patient, why is it being done?



Letter of Introduction

February 1, 2017

Ms. Karen Herd

Deputy Minister
Ministry of Health, Seniors, and Active Living
Government of Manitoba

Dear Deputy Minister:

Attached is the final report of Health Intelligence and associates on *Clinical and Preventive Services Planning for Manitoba*. Using an adjusted population needs-based methodology, this report has progressed through phases of a project charter, qualitative and quantitative acquisitions and analyses, and a detailed environmental scan, underpinned by a data compendium that has been provided as a companion document.

The overview schematic and recommendations are provided as an executive summary. The details are within the report and reflect the environmental scan, modeling, and forecasting that converge into the plan.

The data that inform the report have been acquired with careful attention to validation and harmonization. The merger of data with informed qualitative observations is the basis of assessing the current state in Manitoba and forecasting the future state in a ten-year rolling model that is founded on evidence and incorporates redesigned models of care. It is notable that even the most thorough examinations of Canadian healthcare are based on remote data, a fact particularly relevant in times of rapid change and fiscal constraint. Much of what has been presented here is a cross-sectional picture of a constantly evolving, often reactive, group of stakeholders, the structures they have developed and on which they depend, and the economic and societal forces shaping their decisions.

This plan is the beginning of a journey, not the end. Throughout, stakeholders have urged boldness; the forecasting and recommendations are far-reaching. It has been our experience, however, that a carefully considered clinical and preventive services plan can be implemented in an incremental fashion that is sensitive to government policy and fiscal reality, while upholding evidence-based decisions that are patient-centred and reflect articulated principles. Further, the shaping of health policy is more dependent on interactions among different components and sectors of the system than on determining the best solution for any one group in isolation.

Change can be difficult in a large, complex organization; that notwithstanding, there are immediate pressures that warrant attention, and these have been stressed. It has been observed that upfront costs in health care, if carefully selected, will not only improve the quality of outcomes, but also can decrease system costs, both directly and through redistribution. However, the downstream direct and

indirect savings can be difficult to quantify as healthcare often does not lend itself to typical cost-benefit models. It will be prudent, however, to embark on clinical and preventive services planning with a parallel process of measuring clinical outcomes and their subsequent longitudinal analyses as a central piece of clinical governance.

Successful planning provides better services for patients and their families, and opportunities to address inequities. To achieve successful planning in the long-term requires commitment across the system, belief in the values of the system, and the imperative for change that maintains the patient at the centre of that system. Making progress will be incremental and the full engagement of stakeholders across the system will be inevitably staggered; however, policy persistence and an unwavering dedication to “our system” will lead to a successful endpoint.

It must be noted that failure to support an expanded reach of public health in Manitoba will diminish the overall impact of clinical and preventive services planning. Further, the plan must transform the sectors of mental health and addictions, palliative care, care of the older adults, home care, and primary care. These actions alone will distinguish the province as a leader in care and outcomes. Combined with the other dimensions in the plan, there is a real opportunity to reshape healthcare boldly in an evidence-based and cost-efficient manner.

Many individuals contributed to the understanding of the issues, challenges, and history of the elements under consideration. Their commitment and participation made possible the acquisition and assimilation of validated qualitative and quantitative data. We have benefited substantially from the willingness of diverse stakeholders and clinical working groups who shared their perspectives and insight, and to the support provided by the project management and the oversight and technical committees.

While these diverse contributions have been invaluable, there should not be any attribution. The acquisition, collation, harmonization, and analyses of the data have been the responsibility of the consultancy alone. Transforming an environmental scan into an evidence-based clinical and preventive services plan that is patient-centered and driven by quality and measurement necessitates a fundamental shift in contextual thinking. Inevitably, there will be variation in the comfort with and capacity for change, whether as a political leader, senior administrator, funder, manager, or provider of care. However, as referenced, the hallmark of this study has been wide support for bold change.

The consultancy is indebted to the perseverance, patience, good humour, and organizational skill sets brought to the study by Robin Carels, and also to the Assistant Deputy Minister, Health Workforce Secretariat, Ministry of Health, Seniors, and Active Living and the Senior Vice President, Clinical Services and Chief Medical Officer, Winnipeg Regional Health Authority, for enabling her time to include administrative support to the study.

Respectfully submitted on behalf of the consultancy,

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ES

Executive Summary

William Hsiao has described a healthcare system as a means to an end (**Hsiao WC: Comparing health care systems: What nations can learn from one another. J Health Politics Policy Law 1992; 17(4): 613-636**).

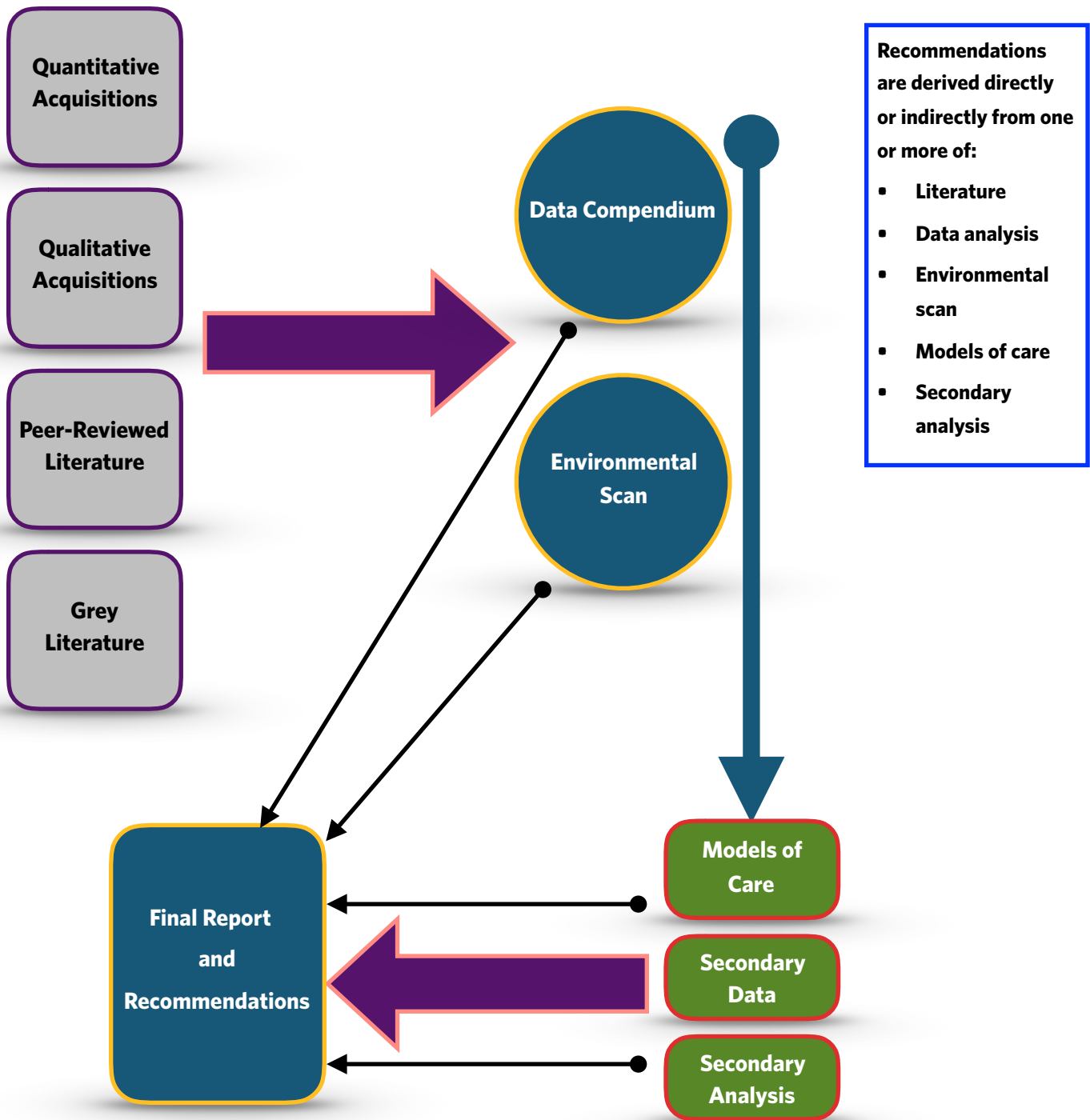
Such a system will need to embrace the goals of universal and equal access to reasonable healthcare, control of expenditures at a reasonable level, and effective resource allocation.

This is the underlying premise of implementing an evidence-based clinical and preventive services plan to improve quality and to measure outcomes of the care provided by collaborative teams, characterized by role optimization and providing safe care as close to home as possible. Clarification of socioeconomic and political objectives facilitate a synergy of funders, providers, and consumers to ensure that the consequences are manageable and the legacy is one of equity.

Integrating these goals into legislative and policy frameworks can be realized.

ES.1 Overview

The following schematic summarizes the study over the past 15 months and the derivation of the final report and recommendations.



ES.2 Process and Outcomes

The health system in Manitoba is considered a provincial system; however, much of the planning and service delivery has been in silos in five regional health authorities, Diagnostic Services Manitoba, CancerCare Manitoba, and, for some services, Ministry of Health, Seniors, and Active Living.

This has resulted in fragmented services, concerns over quality and access, redundancy and inefficiency, and challenges for those responsible for planning health human resources, capital investments, and digital technology.

On a positive note, commitment to this study has provided a substantial opportunity to improve health services, to improve the health of the population, and to make the system more sustainable, by planning and managing health services from a provincial perspective.

Given that this is the first time Manitoba has embarked on clinical and preventive services planning from a provincial perspective, it has been impressive to witness the level of engagement by organizations, providers, and members of the public. The planning process brought groups of people together from across Manitoba, often for the first time, to focus on how health services are really delivered and how they can be improved.

This report is a continuum of the environmental scan submitted on December 1, 2016, and is, effectively, a critical narrative built around an evidence-based nucleus of forecasting tables. Rather than a roadmap, it is the beginning of an ongoing exercise in the province, one which will never end. The environmental scan addressed details of the critical roles of non-physician providers of care and the need to expand those roles to the full capacity and knowledge of individual providers and groups of providers.

Section four of this report segregates details of the identified priorities; these are described in parallel with the section nine on models of care and converge in the recommendations. The major directions of this study can be considered through the following lenses:

- Recommendations
- Forecasting tables
- Models of care
- Clinical governance
- Equity
- Population health

It became evident that the process of planning has been as important as the recommendations; individuals have begun to work together across what, in fact, have been artificial boundaries and barriers. Equally evident are the data that reveal examples of a larger number of providers, with exceptions, in Manitoba, as a ratio of population, than elsewhere in Canada. This holds true even with

consideration of the vast northern geography and rurality in the province. The ultimate health workforce challenge, in the simplest sense, is one of distribution and optimization.

The recommendations are an apt starting point for further planning and deliberations. The initial clinical and preventive services plan presented in this report should be viewed as a continuing and dynamic work-in-progress that provides broad directions to be shaped and reshaped over time, and to be subject to further planning through broad stakeholder engagement.

An effective planning processes never has an endpoint - - it is always forward-looking and the use of qualitative and quantitative data only improves until the applications are second-nature.

With a diverse range of activities underway in the province, the early implementation of this plan is essential, starting with the identification of the leadership and a transition team.

Doing things differently and better will take place in Manitoba's healthcare system. It is the unreserved opinion of the consultancy that all the pieces are in place in the province.

ES.3 Recommendations

The recommendations have been aggregated into seven sections and eleven subsections without prioritization in the order of presentation:¹

- A. Clinical governance**
- B. Core services**
- C. Models of care**
 - i. Indigenous peoples**
 - ii. Home care**
 - iii. Maternal health**
 - iv. Mental health and addictions**
 - v. Older adults**
 - vi. Palliative care**
 - vii. Primary care**
 - viii. Public and population health**
- D. Consolidating services**
- E. Ministry of Health, Seniors, and Active Living**
- F. Digital health**
- G. Future planning**
 - i. The foundation**
 - ii. The model**
 - iii. The data**

¹ See pages 197-208



Context

1

Much of healthcare policy can be characterized as derivations from an ignored legacy.

An analysis for the the Organization for Economic Cooperation and Development (OECD) evoked questions that continue to be succinct reminders of the pressures faced by healthcare systems today (**Schieber GJ, Poullier JP, Greenwald LM: Health system performance in OECD countries, 1980-1992. Health Affairs 1994; Fall: 100-112).**

- How can nations deal with underlying socio-economic stressors?
- How can healthcare systems stem the increasing medicalization of social costs at both ends of the age spectrum?
- Can reductions in waste and inefficiency really underwrite the costs of healthcare reform?
- Can market-oriented efforts lead to efficient consumption and provision of health services?
- How can nations deal rationally with the increasing advances in technology?
- Can healthcare costs be constrained with socially affordable boundaries?
- Can healthcare costs be constrained without rationing?

The corollary to these questions is central to the evidence-based development and implementation of a clinical and preventive plan that is patient-centred and sustainable:

Can preventive and services planning improve the quality of care with a holding or decrease of costs?

The conclusion of this study is that these parallel goals can be achieved.

1.1 Purpose

The **primary objective** of the CPSP is to provide a planning tool to deliver a quality, expertly led, collaboratively developed services plan that is evidence-based, sustainable, equitable, and detailed.

The **purpose** of clinical and preventive services planning can be considered a convergence of “**3D**” and **Triple Aim**:

In 2008, the Central Region District Health Boards in New Zealand completed a regional clinical services plan (www.rcsp.org.nz). The articulated purpose was to provide “**3D**” for the region:

- **Details** about what clinical services can be sustained and developed in the lower North Island and how they can be best organized
- **Direction** in the form of a draft plan for hospital services over the next 10 to 15 years, describing what types of clinical services will need to be provided where, and to what level, in order to best meet the needs of the population of the region; direction is also provided in relation to the enablers—the services and functions that need to be developed further in order to support the proposed changes in hospital care—including transport, information systems, and primary and community services
- **Decisions** to be made locally and regionally in order to implement this plan; in particular, a decision-making framework is proposed that will make it easier and faster for district health boards to make decisions jointly

Triple Aim is a learning initiative of the Institute for Healthcare Improvement to understand models of care in a framework to optimize system performance (www.ihl.org/Engage/Initiatives/TripleAim):

- **Improve** the individual patient experience (quality and satisfaction)
- **Improve** the health of populations
- **Reduce** the per capita cost of health care

1.2 Scope

Clinical and preventive services planning requires consideration of many determinants that impact **population need**, including:

- Population
- Growth, age, gender, distribution, culture, fertility, mortality rate, in/out migration (permanent and seasonal), and socio-economic status (family income, employment, education)
- Disease incidence and prevalence
- Access to services
- Target time to being seen, to diagnosis, and to treatment for defined core services
- Services delivered locally, regionally, territorially, and out-of-territory
- Clinical programs
- Factors impacting service sustainability, such as on-call intensity/frequency, and maintenance of competency, with an appropriate caseload
- Evidence-based technology innovation
- Facility capital projects

Following is a non-prioritized summary of **categories of determinants of need**:

- Socio-economic status
- Incidence of disease
- Prevalence of disease
- Access targets
- Health status
- Quality indices
- Epidemiology
- Utilization
- Population demographics
- Clinical programs
- Core services

Clinical services forecasting and planning requires consideration of many determinants that impact the **supply of providers**:

- Demography and mobility
- Age, gender, in-migration and out-migration, retirement, and separations
- Education and training
- Key determinants of supply, by discipline
- Professional profiles
- Productivity
- Enhanced collaborative care

Following is a non-prioritized summary of **categories of determinants of supply**:

- Full-time equivalency measures
- Service models
- Baseline rosters
- Additions
- Attrition
- Workload and productivity
- Provider demographics
- Special interests and competencies
- Benchmarks
- Academic linkages and mandate

The **scope**, therefore, is comprehensive, and includes the following:

- All communities and facilities
- All health services
- All residents
- Specified providers, such as specialist and general physicians, nurses including licensed practical nurses, registered nurses, registered psychiatric nurses, nurse practitioners, and clinical nurse specialists, dietitians, midwives, physiotherapists, occupational therapists, physician assistants, and mental health professionals, including psychologists and counselors
- Relevant indices of population health

The contextual basis of this scope includes, but is not limited to, the following:

- Strategic direction of the Government of Manitoba
- Economic and fiscal realities in Manitoba, with the highest quality return on the investment of public funds
- Alignment with academic mandates
- Evidence-based care, based on population health needs and inclusive of:
 - Changing scopes of practice
 - Increased use of alternative providers of care
 - Adoption and expansion of collaborative, inter-professional team-based care
 - Key influences in primary care, acute care, and shared care
- National and jurisdictional approaches to quality of care
- National and jurisdictional approaches to core services
- National and jurisdictional approaches to collaborative care
- Support for primary care and specialty groups in efforts to incorporate effective health promotion and prevention strategies into their specific provincial clinical services plan
- Providers as partners in team-based care, founded in mutual respect and an ability to achieve and support role optimization
- Consideration of cancer promotion and prevention strategies, in particular, and to ensure coordinated efforts among CancerCare Manitoba, RHAs, and Manitoba Health, Seniors, and Active Living
- Support for the integration of various health promotion and prevention strategies across Manitoba to ensure they are delivered in a cost-effective manner
- Cultural competency and sensitivity
- Responsiveness to expectations of patients and families
- Opportunities to deploy nurses more cost-effectively (collaborative care models; role optimization to full scope; overtime and agency cost reduction; and, an increasing ratio of full-time positions)
- Opportunities to deploy physicians more cost-effectively (utilizing physicians more appropriately within multidisciplinary collaborative care models)

1.3 Principles

Project **principles** anchor the complexity of a ten-year clinical and preventive services plan and demand quality, evidence-based care that is sustainable and based on population health needs.

The principles are explicitly evident in how clinical and preventive services planning is designed, conducted, and applied to the project.

- i. Transparent**
All aspects of methodology, data acquisition and analysis, decision-making, and modeling are easily understood or able to be explained
- ii. Patient-Centred**
Decisions, modeling, and related considerations are focused on the patient as the centre of the care delivery system; patient-centred means a health delivery system that is organized around the holistic needs of patient and family; culturally safe; culturally sensitive
- iii. Appropriate to population need**
Identify and apply evidence-based markers of population need, such as growth, aging, mobility, gender, disease incidence/prevalence rates, and morbidity and mortality rates
- iv. Affordable now and sustainable in the future**
Consistent with the economic base and its annual real growth
- v. Equitable across the geographic distribution of the population**
Incorporate local access to core services; additional access to referred services
- vi. Preserve and enhance quality of care**
Apply defined standards for acceptable, appropriate, accessible, efficient, effective, and safe care
- vii. Supports appropriate access to needed services**
Identify needed services and define access standards and progressive targets for locally, regionally, territorially, and extra-territorially delivered services
- viii. Active, robust provider engagement**
Define and implement actions to ensure effective practitioner input at each phase and with each component deliverable
- ix. Aligned with appropriate inter-professional and intra-professional, innovative, delivery models**
Define and integrate collaborative models of care; role optimization of health professions
- x. Designed in context of government, including First Nations and Métis, and stakeholder health system strategic priorities and plans**
Government, health authorities, faculties, colleges, professional associations

xi. Inclusive of relevant determinants of current and future human resources for health supply

Integrate age, gender, national and provincial UGE/PGE, international graduates including IMGs and RFAs,² practice profiles, and other relevant determinants

xii. Predicated on productive, sustainable, quality, benchmarked workload

Define and integrate the concepts of full-time equivalence, sustainable call rota, sentinel qualitative and quantitative metrics, and productivity benchmarks

xiii. Decision-making based on evidence

Requires validated qualitative and quantitative evidence

² UGE is Undergraduate Education; PGE is Postgraduate Education; IMG is International Medical Graduate; RFA is Return from Abroad

1.4 Data Limitations

Each data source comes with limitations. Mitigation strategies include the application of a number of research techniques, including the use of corroborating evidence, standardized interview questionnaires, and iterative data refinement to improve accuracy and quality, and to conduct testing, revision, and validation of preliminary analytic results.

Analyzed data include five-year and ten-year periods. This time frame is long enough to permit trend identification and analyses. Key limitations are, as follows:

Access to services

An indicator of access to services is one of a number of important indicators of population need. The quality of data on access to services varies, typically, by service, location, and specialty.

Active disciplines

Achievement of an accurate provincial roster of active disciplines is very important as a baseline data input to the model. Roster accuracy is difficult to achieve and maintain due to factors such as constant coming/going and changes in work status, practice scope, and location. Sources include some, or all, registries, Faculty of Health Sciences appointments, and alternative payment plan lists. Corroboration across multiple sources add substantial integrity to the resulting roster.

Academic apportionment

Accurate apportionment of full-time equivalency between clinical and academic work (didactic teaching and research) is important but is made complex by issues of “budgeted” versus “actual” and overlapping work. The consultancy is reliant on on the educational institutions, including the University of Manitoba Faculty of Health Sciences for percentage academic FTE apportionment data by individual. The model provides, specifically, for disaggregation of an FTE into clinical (clinical and leadership/administrative), and academic (didactic teaching, research, and leadership/administrative) components by individual.

Certified Specialty

Readily available data on specialty of certification by individual is not assured for the physician workforce. Working from the College of Physicians and Surgeons of Manitoba (CPSM) license status and cross-referencing to related sources, the consultancy will recommend changes where necessary, such as from a general adult or paediatric specialty (general internal medicine or paediatrics) to a subspecialty (such as, cardiology or paediatric nephrology).

Full-time Equivalency

- Current or baseline starting roster of providers by discipline in the province – full-time equivalency (FTE) is an essential but contentious concept, filled with competing interpretations and definitions. The consultancy uses fee-for-service and individual status within alternative payment plans, academe (full-time, part-time, retired), and College of Physicians and Surgeons of Manitoba (CPSM) registry.
- Change in FTE over the forecast period – in addition to the sources, as identified, expert specialist opinion is integrated to the model to make future supply requirements more clinically relevant.

Functional Specialty

Functional specialty (such as a cardiologist who spends 50% of professional time doing “general internal medicine”) is a complex, time-intensive construct to define, refine, and maintain. For example, an individual may change functional status in response to changes in local physician supply (recruitment of a general internal medicine specialist enabling a cardiologist to revert to full-time cardiology, which, in turn, decreases cardiology referrals to another region). A second complication is blurring of the definitional line between licensed and functional specialty, such as practising cardiology being linked to a requirement to practise general internal medicine. In the case of physicians, the model uses licensed discipline or specialty except in a few (less than 2%) instances where an individual is licensed in one specialty but has, often for many years, functioned totally in another specialty. In these instances, the individual is reassigned to the functional specialty.

Timing

Changes in physician counts and FTEs occurring after the effective date of source data will not be reflected in the baseline of the forecast projections.

Model Uncertainty

Workforce supply and needs modeling occurs under conditions of uncertainty. As such, it is necessary to make note of the key areas of uncertainty.

Independent variables are not mutually independent

- The central problem in forecasting is that cases (that is, the source data by time period) used to make forecasts do not represent the future time periods about which predictions are made.
- A second problem that arises in forecasting is the nature of variable interdependency. For example, to what extent does supply influence demand? To what degree does demand for services represent need for services (a source of constant challenge for practitioners necessitating case-by-case judgment decisions)?

Impact of single events

The possible effects of overlooked events can be substantial as can over-estimating or under-estimating identified future events. For example, the launch of a new cancer screening program may be known, but the percentage uptake by the population may be highly uncertain and the impact on service need is proportionately uncertain.

Causal patterns

Correlation does not imply causation. For example, specialty supply may have less to do with the volume of physician residents entering the workforce than the relative inter-provincial and intra-provincial job prospects. A more extreme example might be a strong statistical correlation between the incidence of left knee arthritis and cardiology service utilization, namely, correlation without causation. Expert panels can mitigate this source of uncertainty.

A second problem is that correlation with causation in one time period may not hold true in a subsequent time period(s). For example, the demand for renal services and changes in the incidence of diabetes mellitus may have a strong historical and short-term future statistical relationship, but introduction in forecast year five of a program (single event) that transfers the bulk of secondary level care to other providers can substantially alter the statistical relationship. Controlling statistically for co-variates can be accomplished to a certain degree.

1.5 Strategic Direction of Government of Manitoba

It has been demonstrated that one-time strategic investments that act as a catalyst to systemic reform in health care, if carefully considered, will not only improve the quality of outcomes but can decrease system costs.

This study is a significant undertaking that is underpinned by opportunity, timing, the necessity of performance measurement and accountability, and fiscal concerns reflected by the largest year-over-year increase in the health sector budgets of Canadian provinces.³ The increases are sensitive to the baseline values for each jurisdiction but, nonetheless, provide compelling evidence of substantial investment by the province. Also, typical among the jurisdictions is the absence of full awareness of value provided by these major expenditures, particularly at the level of population health.

In the broadest sense, qualitative and quantitative analyses, beginning with a current state needs assessment and environmental scan, converge in support of resource and clinical services planning in the province.

Providing quality, evidence-based health services in a timely fashion to the residents of Manitoba, dispersed widely across a vast geography, and within a sustainable and flexible model, carry significant challenges. The challenges are exacerbated when applied to the continuum of care from antenatal to end-of-life, focused, therefore, not only on acute care services, but evolving to a chronic care (non-acute) model. The system that underpins such care can be defined by infrastructure, facilities, and providers, working at a level of role optimization in a delivery model that is non-hierarchical and patient-centred.

Healthcare systems that are unplanned rarely, if ever, reach this potential; the level of commitment begins with high political office and senior management, and extends through an interdependent management structure and providers, characterized by having mutual respect and a collective commitment to integrated, collaborative care.

On November 21, 2016, the Government of Manitoba set a new course for Manitoba as articulated in the Speech from the Throne. Three themes were highlighted:

- Fixing finances
- Repairing services
- Rebuilding the economy

³ 2014-2015 \$5,378,783 and 2015-2016 \$5,653,292 (5.1%)

Comparison values:

British Columbia (2.9%)

Alberta (-0.4%)

Saskatchewan (2.7%)

Ontario (1.2%)

Quebec (1.0%)

New Brunswick (0.3%)

Nova Scotia (0.8%)

Newfoundland and Labrador (1.5%)

The outlined direction merged needs with fiscal responsibility and sustainability; this study is consonant with that strategic direction. A plan for sustainable quality and evidence-based care is achieved through an **adjusted population needs-based methodology** and is focused on patient-centred care.

The clinical and preventive services plan is comprehensive, reaching out to all residents of Manitoba and including all providers with optimized roles. Within the comprehensiveness, ten priorities have been identified and are seen as consonant with the direction of government:

- Care of older adults
- Collaborative care models
- Consolidated services
- Emergency medical and health services
- Home care
- Indigenous peoples
- Maternal health
- Mental health and addictions
- Palliative care
- Public and population health



Profiles of Manitoba

2

As indicated, the environmental scan is notable by the granularity of detail; the profiles of Manitoba in the scan are no exception, and include:

- Geography and rurality
- Demography
- Cultural diversity
- Population health indicators
- Utilization and demand
- Regional trends
- Interprovincial comparisons
- Inpatient trends
- Access to services
- Chronic health management
- Academic programs
- Manitoba Centre for Health Policy
- Provincial Health Contact Centre
- Health status of Manitobans
- Measuring performance
- Chief Medical Officers
- Regulated Health Professions Act
- Older adults

Following are bulleted abstractions from the profiles of Manitoba; these are intended only as a sampling.

The analytic details are incorporated into models and recommendations.

- Population density is low (2.2 per sq. km in 2011, compared to 3.7 nationally)
- Approximately 28% of the population live in rural settings, nearly 10% higher than the national average, but in the middle among the provinces
- Area of Manitoba is 650,000 sq. km, mainly flat with about 15% freshwater bodies
- Population of rural Manitoba is growing, albeit asymmetrically
- Population growth of 5.2% from 2006 to 2011 is moderate, relative to the rest of Canada; from 2011 to 2015, internal figures place growth at 5.6% (higher than the national average of 4.4, based on Statistics Canada figures)
- Manitoba's population is projected to grow by more than 15% from 2016 to 2027, adding more than 200,000 people (with an even greater planning impact when adjusted for age and gender)
- Like all jurisdictions across the country, the population is aging
- Figures representing the number of Indigenous peoples in the province vary; most reported figures underestimate the Indigenous populations.
- Statistics Canada national health survey (NHS) results place the number of Manitoba residents who self-identified as Aboriginal (First Nations, Métis and Inuit) at 195,895 in 2011; this represented 17% of Manitoba's population and is higher than any other province in Canada
- Manitoba's dependency ratio is 66.1, above the national average of 59.1; only Nunavut at 79.1 and Saskatchewan at 68.1 exceed Manitoba on this indicator
- Updated atlas indicators highlight increasing disparities **moving north through the province:**
 - The Socioeconomic Factor Index (SEFI)
 - Census-based Pampalon indices: the highest level of deprivation in material terms, but more notably, the lowest level of social deprivation, indicate stronger community and relationship ties in the north
 - Lower life expectancy, and no increase, is in contrast to the other regions
 - Higher prevalence and incidence of chronic physical illness
 - Highest prevalence and incidence of diabetes mellitus
 - Highest prevalence and incidence of ischemic heart disease and congestive heart failure, but the largest drop in recent years

- Highest levels of acute myocardial infarction (AMI), stroke and lower limb amputations among residents with diabetes
- Twice the provincial level of substance abuse
- Conversely, the northern region has the lowest and a decreasing level of respiratory disease
- The following are highlights from indicators retrieved from HIIT:
 - Acute myocardial infarction and hospitalizations for stroke and injury have decreased in Manitoba from 2007 to 2013
 - Disaggregation by income quintile illustrates the likelihood of being hospitalized increases for those who are lower on the socio-economic scale
 - Manitobans had a higher rates of premature mortality and potential years of life lost (PYLL)
 - Hospitalized hip fracture events in Manitoba exceeded the national average in 2013 by 10%
 - 2010 rates of avoidable mortality in Manitoba exceed national levels
 - Hospitalization for mental health in Manitoba is lower than the national average; hospitalization from self-injury is about 12% lower in Manitoba than the Canadian average
 - The wait time for hip fracture surgery in 2013, as measured by the proportion with surgery within 48 hours, indicates that Manitoba performs marginally better than the Canadian average
- Overall medical payments have risen by over 73% in the nine years from 2005/2006 to 2014/2015 to more than \$1 billion: alternative payments have risen by 90% during that period, compared to fee-for-service (FFS) payments (68%)
- General practice accounts for the highest proportion (36%, or \$265 million) of FFS billings
- The rate of increase in billings for hospital activities rose fastest (by 98%) over the period identified
- Payment for services to First Nations peoples (on or off reserve) rose faster than for non-First Nations peoples
- There were moderately increased numbers of primary care visits for residents of SH-SS and WRHA (4% and 2%, respectively), while there were decreases in other RHAs from 2012/2013 to 2014/2015

- There were substantially increased numbers of specialty visits for residents of SH-SS and NRHA (17% and 14%, respectively), with lesser increases in other RHAs, from 2012/2013 to 2014/2015
- FFS billings in SH-SS rose the greatest amount, by 85% over the same period; billings in IERHA also rose greater than the provincial average, by 75%
- There were substantially decreased numbers of primary care visits to providers in IERHA and NRHA (-12% and -11%, respectively) and modest increases in SH-SS and WRHA
- There were substantially increased numbers of specialty visits to providers in SH-SS, NRHA, and IERHA (30%, 20%, and 11%, respectively).
- Manitobans' perceptions of their health, self-reported by those aged 12 and older, are lower than the national level, and roughly the same level as Saskatchewan and New Brunswick
- Manitoba and Alberta show a level of chronic obstructive pulmonary disease (COPD) lower than the national average and the other provinces
- Manitoba has one of the lowest levels of current smokers
- Manitoba's heavy drinking levels are somewhat higher than the national average
- Regular access to a medical doctor has been seen as a fundamental requirement for maintaining good health; Manitoba falls below the national average in this measure
- Having access to a medical doctor is important, but it is also important to have contact with a medical doctor on a regular basis; Manitoba falls below the national average in this measure
- Manitoba maintains 73 acute inpatient facilities across the province, a relatively high number given the size of the population
- Twenty-seven sites perform day surgeries in the province, with caseloads ranging from 150 to 15,000 per year
- Hospital bed occupancy rates were generally fluctuating between 2007/2008 and 2011/2012, and marginally lower overall by 2011/2012
- Overall, the level of reported hospital activity has remained flat
- Alternate Level of Care (ALC) days rose 16% in four years
- Acute inpatient case intensity increased by 6%; average weight per day remained flat
- About 50% of acute inpatient activity is managed by family/general practitioners (36%) and by obstetricians (14%).
- Level of Care (LOC) is intended to establish a clear and consistent definition of tertiary care, delinking "tertiariness" from academic; 92% of acute inpatient cases treated across Manitoba in 2014/2015 are at the primary or secondary level

- Around 4% of visits to a Manitoba emergency department result in admission to hospital
- Ambulatory care sensitive conditions (ACSC) provide a means of gauging the level of access to quality primary care health services: in 2014/2015, Manitoba was near the national average (335 hospitalizations per 100,000 population younger than 75 years versus 331 nationally); earlier figures over a five-year period (2007/08 through 2011/2012) show gross rates per 1,000 hospital admissions to Manitoba facilities based on DAD data were falling, varying widely across regions
- Emergency department (ED) visits have increased across the province by nearly 17% over the period 2001/2002 through 2011/2012
- The time required to access medical services, especially emergent care, can be critical in some instances; distances create a barrier to service; much of the provincial territory falls beyond 60 minutes to emergent care.
- The first priorities of non-communicable disease have been identified as cardiovascular disease, diabetes mellitus, chronic obstructive pulmonary disease, and cancer
- Two ideologies are strongly supported by those with expertise in chronic health management: health in all policies across government; and, the 8% solution (for every dollar added to the system, 8% must be allocated to prevention).
- The strategic plan of the College of Medicine addresses six areas considered keys for the successful execution of its mission: optimal patient outcomes; meaningful community connections, enriched student support, enhanced professional support and development, allied profession integration, and itemizing priorities and resources
- Allied professional integration is significant in its support of collaborative and integrated care
- The Manitoba Centre for Health Policy (MCHP) is respected nationally for its calibre of work and the use of evidence in pursuit of what works in healthcare and what doesn't
- The Provincial Health Contact Centre (PHCC) is operated by the Misericordia Health Centre, offering technological support for health and social services delivery in Manitoba, in cooperation with MHSAL and the WRHA
- The contribution and impact of the PHCC is highly relevant and valued; the potential to evolve into a provincial resource is of significant importance, as the approach that has been undertaken can form one of the pillars that supports clinical and preventive services planning
- Manitoba showed progress (at least a five percent increase) in meeting hip and knee replacement and hip fracture repair wait times between 2011 and 2015
- Manitoba showed no significant change since 2011 in meeting radiation therapy wait times

- Four provinces, including Manitoba, reported less than 45% of smokers not being offered smoking cessation advice by their doctor according to the Canadian Community Health Survey's (CCHS)
- In Manitoba 58.6% of those aged 50 to 74 were screened for colorectal cancer according to the 2012 CCHS; this is the highest rating in Canada
- Referral-sensitive high-cost and technology-intensive procedures are less well-reported than ACSCs, but also reflect timely consultations and available technology
- Computed tomography (CT) wait times were 28 days (90th percentile) in 2015 which was the lowest by a significant margin in comparison to selected other provinces; Manitoba lagged other provinces in MRI wait times at 189 days (90th percentile)
- The existing use of data across Manitoba is commendable; quality data and their applications distinguish the province, although specific areas have been determined to be deficient
- Examples of data graphed and displayed are:
 - Percentage ambulance off-load <60 minutes
 - Percentage non-admitted ED visits <4 hours
 - Percentage ED visits >24 hours
 - Percentage admitted ED visits <8 hours
 - ALOS:ELOS
 - Long Stay Outliers (LSO) percentage
 - ALC percentage
 - Percentage CTAS 4 and 5
- The Chief Medical Officers (CMO) have a unique perspective on service delivery and population needs
- Three elements were confirmed as the umbrella of clinical governance:
 - Current challenges and systemic difficulties
 - An aggregate voice for the medical profession
 - A voice for individual members of the profession
- Manitoba's proportion of older adults (14.1%) ranked in the lower middle range among the provinces; Saskatchewan ranked highest at 15.4% and Alberta ranked lowest at 10.7%; that proportion has been stable over the previous five years, and Manitoba's median age remained lower than median age for Canada

- Whereas the overall percentage of the population over 65 years is estimated at 15.1% in 2016, this varies from 7.0% (NRHA) to 18.5% (PMH); by 2026, this is anticipated to change to 18.4%, ranging from 9.9% (NRHA) to 24.0% (IERHA)
- The profile reported that 14.8% of the urban population (defined as those living in areas with at least 1,000 people and a population density of at least 400 persons per square kilometre) are older adults.; correspondingly, older adults comprise 12.2% of the rural population
- The highest concentrations of older adults were found in the PMH (Assiniboine 19.5%, Parkland 18.9%, Brandon 14.1%); the lowest concentrations were found in the NRHA (Burntwood 4.0%, Nor-Man 8.7%)
- Whereas those under 50 years of age represent nearly two-thirds of the population in 2014, they represent just more than half of the acute and mental health hospital discharges; the difference declines among those 50-64 years of age after which the pattern reverses where 14.6% of the population (those over 65) represent one-third of the acute and mental health discharges
- Whereas the overall older adult population in Manitoba was around 15%, only 4% of the Indigenous population was aged 65 years and older



Key Concepts

It is typical for themes to be recurrent during the development of a clinical and preventive services plan; some themes are freestanding, but most cross over among clinical settings. All of the analytic approaches and concepts are important; however, five stood apart from the others and are introduced in this section of the report, supplementing their presentations in the scan.

- Core services
- Rurality and remoteness
- Role optimization
- Patient-centred care
- Return on investment in healthcare

To varying degrees, each of these key concepts can be aligned with providers and settings in the plan.

3.1 Core Services

Conceptually, core services are uncomplicated, described as an evidence-based understanding of population health service needs that carry expectations of timely and efficient access.

The consensus practice in Canada is to include the following as physician core services: comprehensive family practice, emergency medicine, general internal medicine, general surgery (and corresponding anesthesia services), and general psychiatry, general pediatrics, and obstetrics, supported by general laboratory (specimen collection and transport, ECG) and medical imaging (screening, routine diagnostic and imaging) services.

Detailed clinical service planning across all services is required to successfully implement a core services model. Some of the key planning determinants include:

- Definition of reasonable access time (“x” minutes driving time to PHC)
- Definition of community categories (rural, hamlet, village, town, city)
- Criteria for rurality/remoteness and determinants of a service delivery model that is unique to remote communities (air ambulance, fly-in PHC)
- Balancing need for appropriate access with factors such as maintenance of competency and affordability in low volume situations, recruitment realities in rural and remote areas
- Critical mass of a given specialty to function in a sustainable manner (can a single specialist function in a sustainable manner or is there a minimum number of specialists required in a given catchment area).

Section 9.2 of the report provides granular details of the recommended approach to core services, followed by community-based details for core specialists in base, low, and high case scenarios.

3.2 Rurality and Remoteness

The assessment and measurement of rurality have important implications to the planning and delivery of health care services. Much of the seminal work in this area originated in studies conducted in the United States and Australia, with particular attention paid to nursing practice. Not uncommonly, survey tools have been utilized as the vehicle for database development. The subjectivity of a survey methodology minimizes the usefulness of the information collected. In matters of resource planning and allocation, an objective rurality index can be much more meaningful.

Areas of rural and remote populations have been identified statistically as experiencing lower health status than urban populations. This can include life expectancy, overall mortality, mortality rates, and infant mortality rates. While there are many social and age factors that underlie this disparity in health status, it can be surmised that difficulties in recruiting and retaining health care providers to rural and remote areas are compounding factors, as well as the time and distance to receive medical services.

Even the definition of “rural and remote” is not uniform in the related literature. It has been referenced as narrowly as “not urban” or defined by strict geographic criteria, unfortunately applied variably in different jurisdictions. No single definition has been accepted nor applied in research, policy, or planning. Statistics Canada uses the “not urban” standard, with urban defined as an area with a population concentration of at least 1,000 and a population density of at least 400 per square kilometre. Other initiatives utilize various population thresholds relative to distance from a population base of another threshold.

Perhaps, more important than a definition is an understanding of the characteristics of rural and remote communities. From these characteristics, it becomes possible to develop objective rurality indices.

An attempt to measure rurality was undertaken as a multistakeholder initiative of the Canadian Medical Association, the Society of Rural Physicians of Canada, the Canadian Nurses Association, and the Canadian Pharmacists Association.⁴ This project used expert resources from the sponsoring organizations and commissioned an external survey. It determined ten factors, by ordinal ranking and profession, from which a scoring system from 1 to 5 was developed for each factor. This is a useful piece of work as part of the development of national thinking about rurality indices; however, the scoring and its application lacked the rigour to be applied broadly.

In 2002, the Ministries of Health Services and Health Planning in British Columbia constructed provincial standards of accessibility to ensure services as being the most appropriate within available resources.⁵ This report offered a framework for sustainability and quality of care for emergency services, acute inpatient services, and specialty services. Not in the format of an actual rurality index,

⁴ **The Development of a Multistakeholder Framework/Index of Rurality. Final Report to Health Canada: Rural and Remote Health Innovations Initiative; 2003**

⁵ **Standards of Accessibility and Guidelines for Provision of Sustainable Acute Care Services. Ministry of Health Services and Health Planning, British Columbia; 2002**

the report developed provincial standards, based on access time for each element of service, applicable to 98% of a regional population and 95% of a health service delivery area population. The following factors were deemed important in reviewing the quality of acute care services: population and demographics, professional competence, critical mass, and distance and geography.

The most relevant undertaking to measure rurality, as an empirical measure, was carried out for purposes of health care planning and initially reported in 2000.⁶ Kralj's work represented the first attempt to operationalize a continuous measure of rurality, and only the second attempt to address it in a substantial manner.⁷ Leduc measured variables that included remoteness (distance to basic and advanced medical care), population, physician numbers, and the presence of an acute care hospital, with the greatest weighting afforded to remoteness.

Kralj quotes results from a Canadian Medical Association survey of rural physicians in which respondents ranked 21 possible characteristics and factors that define a rural community from their professional perspectives. The resulting ten factors defining rurality were:

1. High level of on-call responsibility
2. Long distance to secondary referral centre
3. Lack of specialist services
4. Insufficient numbers of General and Family Physicians
5. Long distance to tertiary referral centre
6. Absence of diagnostic equipment
7. Difficulty in obtaining locum tenens support
8. No ambulance service
9. Inability to provide obstetrical and surgical services
10. Sparsely populated catchment area

The paper identified three categories within which to consider factors of rurality:

1. Community and lifestyle
2. Nature of rural practice
3. Professional isolation and support

In developing the rurality index for Ontario (RIO), Kralj adhered to three basic principles:

⁶ Kralj B. Measuring "rurality" for purposes of health care planning: an empirical measure for Ontario. *OMR*. 67 (9); 2000

⁷ Leduc E. Defining rurality: a general practice rurality index for Canada. *Can J Rural Med* 1997 Summer; 2 (3)

1. Policy relevance, where the derived index must serve a clearly defined purpose, with specified analytic and/or policy objectives in its application
2. Empirical reliability, where the index must be built on available and timely data, and within resource limitations
3. Analytical reliability, where the index must have a sound scientific basis, with the analytical concepts founded on strong theoretical models

Using the rural factors, as ascertained, and consistently applying the basic principles, Kralj constructed a rurality index using ten distinct components. The lengthy formula and scoring system rates communities by rurality parameters, with a higher overall point score considered more rural than a lower score. The final values can be transformed so that the values range from a low of zero (least rural) and a high of 100 (most rural).

3.3 Role Optimization

Exhibit 3-01 examines the change in many of the health professions between 2009 and 2013 in Manitoba and nationally, and compares the number in the profession per 100,000 population. The in-scope professions for this study are:

- Emergency health services
- Mental health counselor
- Midwife
- Nurse practitioner
- Nurse specialist
- Occupational therapist
- Pharmacist
- Physician
- Physician and clinical assistant
- Physiotherapist
- Psychologist
- Public health nurse
- Registered nurse

Traditional models of care anchor the professional lives of health professionals to related physician activity. To some degree, this is still true; however, models of care and professional autonomy are in transition, as are scopes of practice and the ability to fulfill role optimization at the top-of-license. As change continues and models become refined, there will be an impact on both service and resource planning.

Typically, Manitoba has a greater number of specific health professionals per 100,000 population than the national average, with the notable exception of psychologists where there are 19 per 100,000 population (compared to 49 per 100,000 nationally).

Exhibit 3-01
Health Professionals in Manitoba, 2009 - 2013

Number of providers in selected health professions, Manitoba, 2009 to 2013											CANADA			
Profession	Count						Per 100,000 population ‡		Female (%)†	Per 100,000 population ‡			Female (%)†	Variance/100k pop
	2009	2010	2011	2012	2013	% Change /Yr	2009	2013	2013	2009	2013	2013	2013	
	Audiologists§	55	56	59	60	63	3.6%	5	5	..	4	5	77.9	(0.5%)
Chiropractors	250	257	266	277	274	2.4%	21	22	24.8	23	25	38.2	(14.9%)	
Dental assistants§	..	..	1,173	1,200	1,194	0.9%	..	94	..	..	NG	E	u/a
Dental hygienists	649	667	676	716	739	3.5%	54	58	96.8	71	81	E	(38.8%)	
Dentists	635	640	633	635	660	1.0%	53	52	..	59	62	E	(18.5%)	
Dietitians	402	393	412	398	422	1.2%	33	33	96.7	28	31	94.4	7.5%	
Environmental public health professionals*	66	73	76	76	81	5.7%	5	6	..	4	5	..	28.0%	
Genetic counsellors**, ††**	..	..	4	3	4	n/a	..	<1	..	..	1	..	u/a
Health information management professor	157	157	165	168	167	1.6%	13	13	89.8	14	13	E	(1.7%)	
Medical laboratory technologists§	1,012	1,025	1,042	1,020	1,028	0.4%	84	81	83.1	57	NG	E	u/a	
Medical physicists**	22	23	23	18	19	(3.4%)	2	2	10.5	1	1	27.1	16.1%	
Medical radiation technologists§	700	688	683	687	692	(0.3%)	58	55	79.8	51	54	80.2	1.9%	
Midwives§	42	46	48	61	68	15.5%	3	5	100.0	2	3	99.9	37.9%	
Occupational therapists	508	534	555	573	596	4.3%	42	47	90.8	39	41	91.5	13.3%	
Opticians	..	..	322	330	299	n/a	..	24	..	..	22	..	7.3%
Optometrists	118	129	136	141	147	6.1%	10	12	39.5	14	15	52.8	(32.8%)	
Paramedics	..	..	2,180	2,238	2,344	n/a	..	185	31.4	..	NG	E	u/a
Pharmacists	1,233	1,330	1,307	1,333	1,382	3.0%	102	109	56.4	91	101	E	8.0%	
Physician assistants§, ††	..	..	..	..	42	n/a	..	3	..	..	1	..	73.6%
Physicians (excluding residents)	2,238	2,311	2,490	2,462	2,596	4.0%	185	205	33.3	203	221	38.2	(7.7%)	
Family medicine	1,165	1,217	1,315	1,305	1,364	4.3%	96	108	35.6	103	112	43.1	(4.0%)	
Specialists	1,073	1,094	1,175	1,157	1,232	3.7%	89	97	30.8	99	109	33.2	(11.8%)	
Physiotherapists	693	719	728	726	674	(0.7%)	57	53	75.8	52	55	76.5	(2.8%)	
Psychologists	219	209	218	227	239	2.3%	18	19	54.4	48	49	71.0	(158.0%)	
Regulated nurses	14,753	15,311	15,880	16,033	16,068	2.2%	1,221	1,270	91.5	1,036	1,069	92.4	15.8%	
Licensed practical nurses	2,651	2,732	2,836	2,935	2,952	2.8%	219	233	92.2	229	266	91.6	(14.2%)	
Nurse practitioners	64	98	101	100	107	16.8%	5	8	..	6	10	91.2	(23.0%)	
Registered nurses (including NPs)	11,153	11,630	12,090	12,140	12,174	2.3%	923	962	92.3	792	788	92.9	18.1%	
Registered psychiatric nurses	949	949	954	958	942	(0.2%)	79	74	78.9	50	48	78.3	35.5%	
Respiratory therapists§	254	292	185	303	310	5.5%	21	24	64.8	28	31	75.2	(27.9%)	
Social workers§	723	851	863	892	987	9.1%	60	78	E	104	125	E	(59.7%)	
Speech–language pathologists§	340	350	360	365	376	2.6%	28	30	..	23	26	92.6	14.1%	

Source: Health Workforce Database, Canadian Institute for Health Information.

Models of care that emanate from experience and logic inherently encompass role optimization. These models are collaborative and built on mutual respect among professions in a non-hierarchical arrangement characterized by a shared responsibility for quality.

3.4 Patient-Centred Care

Patient-centred care (PCC) receives greater reference than attention in Canadian health care. That notwithstanding, a tenet of clinical and preventive services planning is the central position of the patient and, in many circumstances, this requires a shift in thinking and models. Perhaps most importantly is an understanding that PCC is a care model and not a simple concept.

Initial interest in patient-centred care emerged in opposition to the prevailing, traditional model of provider-centred decision-making, with seminal thinking having been undertaken in 1985 by Dr. Ian McWhinney, then Professor of Family Medicine at the University of Western Ontario. Described as seeing the world through the eyes of patients and their families, the paradigm shift to PCC can facilitate patients and their families to better inform the therapeutic process, taking into account their desire for sharing information and an equally shared role in decision-making.-

The four attributes of patient-centred care, described by the Institute of Medicine in 2001, are, as follows:

- Comprehensiveness of care
- Coordination and communication
- Support for the patient and his or her empowerment
- Timely access

The core of primary care reform requires a clearly defined, patient-centred “medical home” that can be a role assumed by emerging practice models. The College of Family Practice of Canada described the core elements of patient-centred medical homes, summarized as follows:-

- Each patient has a personal family physician⁸
- Patients have access to nurses or nurse practitioners and other health professionals, as needed, either in the practice or through formal links to other settings
- Health professionals work as well-coordinated teams; each offers unique skills to ensure optimal patient benefit
- Systems are in place to ensure timely appointments with the family doctor and other members of the care team
- Arrangements for and coordination of all other medical services are carried out through the medical home
- Electronic medical records are in place to facilitate appropriate information storage and sharing

⁸ This core element is restrictive and needs to be expanded to a more general term, namely primary care provider

These core elements form the basis of a collaborative care model and the role optimization of health professionals working in an integrated team and an environment of evidence-based, quality care. The patient-centred medical home has all of the elements to transform primary care, an evolutionary process well underway in several national and international jurisdictions.

Steven Lewis described the fundamentals of patient-centred care in a 2009 paper prepared for the Government of Saskatchewan, in which he posed the central questions:

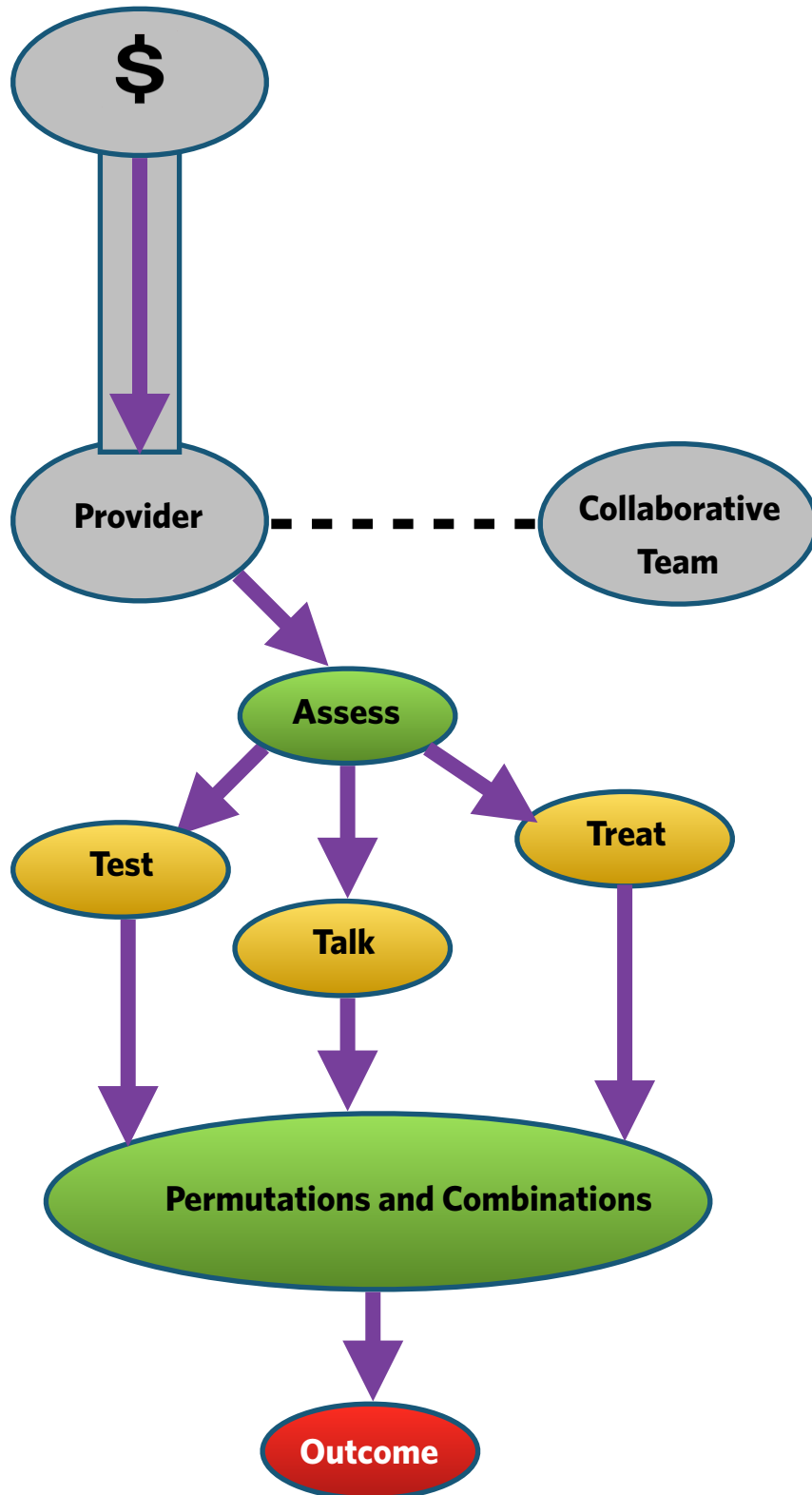
How would you know if the care you received was truly patient-centred? How would providers know if they were delivering patient-centred care? How would system managers know? What indicators best reflect a patient centred approach? PCC is in some ways in the eye of the beholder. Providers might think they are delivering PCC but their patients might disagree. Different aspects of PCC will be more relevant to some patients than others.

Lewis continued with the premise of health care as a service industry - - he stressed the differences from a commercial undertaking, but reinforced the one concept fundamental to the commercial world is relevant to health care: the customer is always right. Of course, customers are not always right; but, Lewis reminds us that a dissatisfied customer is one whose needs have not been met and, . . . the essential insight is to recognize this as a failure and reflects, . . . failures of disrespect, inconvenience, poor communication, and fragmentation.

One way around this is to espouse health care as a collaborative service industry that is responsive to needs. Attributes that underpin these needs can be any combination of structural, organizational, attitudinal, and behavioural.

3.5 Return on Investment in Healthcare

On one hand, the funding of healthcare can be anticipated as a simple marketplace exchange, as demonstrated schematically in Exhibit 3-02.



There are reasonable assumptions associated with this schematic of a clinical sequence:

- ➔ The funding is adequate and is measurable
 - The provider is seen in a timely fashion
 - The provider is trained to provide the service and is working within the scope of this training
 - The provider is part of a collaborative team and can share care when required
 - The drivers of decision-making are patient-centred
 - The tests are actionable and chosen wisely
 - Talking and treating are linked
 - The subsequent permutations and combinations are clinically sound
- ➔ The outcome is good and is measurable

Ultimately, the return on the investment in healthcare pivots on the first and last bullets. The challenge in reforming care is that the first bullet is generally easy to measure and the constituent elements, fairly precise; however, in times of fiscal constraint the addition of a service to the front end is, not infrequently, viewed dimly. The last bullet exacerbates the concerns, as it is generally difficult to measure and almost never precise.

This scenario does not diminish the need for new services and planning - it makes them more difficult to achieve; the balance comes from the outcomes for patients and families (not “measures of satisfaction”).

The outcomes can be material (disability years and other measures of productivity) or they can be “savings” - this is where the return on investment becomes difficult for the funder of care. The savings may be distant in time (and not clearly able to be linked to the original action) or they may be speculative (especially with interventions of public health, prevention and health promotion, and mental health and addictions).

The other key variable is that the provider is able to provide services that are most appropriate, timely, and based on evidence.

The lens through which the schematic is viewed will often vary according to the funder, the provider, or the patient. Ultimately, there is a strong element of trust that is able to surpass the possible absence of a precise outcome linked to an earlier decision, process, provider, or infrastructure. This is the essence of quality-driven clinical and preventive services planning that can maintain or improve outcomes, most frequently with associated savings to a healthcare system or to society.

Equally important is the understanding that health status has little to do with a healthcare system - it is strongly linked, however, to the social determinants of health.



Cross-Links and Ten Priorities

4

As referenced, the Environmental Scan is the source of highly relevant details - - some of these carry forward directly to recommendations and others are identified as priorities that warrant a bridging section in this report to stress urgency and to further inform the recommendations.

Ten priorities became evident during the course of the quantitative and qualitative acquisitions and analyses. Identifying these priorities in no way diminishes the importance or impact of the many other clinical programs and related planning; all are interdependent and part of the woven fabric of delivering evidenced-based and patient-centred care to the residents of Manitoba.

The ten priorities are, as follows:

- Care of older adults
- Collaborative care
- Consolidated services
- Emergency medical and health services
- Home care
- Indigenous peoples
- Maternal health
- Mental health and addictions
- Palliative care
- Public and population health

This section of the final report starts with tabular cross-links to the Environmental Scan; following this, the ten priorities are presented through abstracts from the scan and updated information since the scan was completed.

The significance of identifying these ten priorities, whether a service, a program, or a demographic, is that these can provide insight into essential reform, especially in the context of healthcare in Manitoba being transformed to a truly provincial resource.

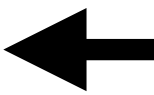
Boundaries, geography, and legislative frameworks and agreements all warrant respect; however, they cannot be drivers of provincial decision-making nor governors on the rate of progress in achieving the goals of clinical and preventive reform.

4.1 Cross-Links to Environmental Scan

Exhibit 4-01
Cross-Links to Environmental Scan

Themes and Sectors	Pages	Priority Status
Context for Provincial and Preventive Services Planning	18 - 37	
Methodology	38-57	
Notes on Literature	58	
Service Planning Parameters in the National Environment	59 - 118	
Professional Profiles	119 - 145	
Overview of Manitoba	146 - 250	
Clinical Working Groups	251 - 303	
▪ Cardiac sciences, critical care, internal medicine	255 - 265	<input checked="" type="checkbox"/>
▪ Diagnostic imaging	266 - 270	
▪ Emergency medical services	271 - 273	<input checked="" type="checkbox"/>
▪ General surgery, otolaryngology, orthopaedic surgery	274 - 277	<input checked="" type="checkbox"/>
▪ Anaesthesiology	278	<input checked="" type="checkbox"/>
▪ Mental health and addictions	279 - 281	<input checked="" type="checkbox"/>
▪ Palliative care	282 - 285	<input checked="" type="checkbox"/>
▪ Public and population health	286 - 288	<input checked="" type="checkbox"/>
▪ Primary care	289 - 292	<input checked="" type="checkbox"/>
▪ Renal program	293 - 296	
▪ Women's and child health	297 - 303	
Stakeholders and Providers - What We Learned	304 - 577	
▪ CancerCare Manitoba	304 - 315	
▪ Child health	316 - 324	
▪ Diagnostic Services Manitoba	325 - 331	
▪ Manitoba eHealth	332 - 337	
▪ Emergency health services	338 - 340	<input checked="" type="checkbox"/>

Themes and Sectors	Pages	Priority Status
▪ Genetics	341 - 343	
▪ Geriatrics and rehabilitation	344 - 349	<input checked="" type="checkbox"/>
▪ Health Canada	350 - 352	
▪ Indigenous peoples	353 - 369	<input checked="" type="checkbox"/>
▪ Maternal health	370 - 371	<input checked="" type="checkbox"/>
▪ Mental health and addictions	372 - 384	<input checked="" type="checkbox"/>
▪ Midwifery	385 - 387	<input checked="" type="checkbox"/>
▪ Ministry of Health, Seniors, and Active Living	388 - 390	
▪ Non-acute care	391 - 401	<input checked="" type="checkbox"/>
▪ Northern Medical Unit	402 - 407	
▪ Nursing	408 - 413	
▪ Occupational therapy	414 - 419	
▪ Oral health	420 - 424	
▪ Orthopaedic surgery	425 - 426	
▪ Palliative care	427 - 432	<input checked="" type="checkbox"/>
▪ Pharmacy	433 - 435	
▪ Physicians	436 - 440	
▪ Physician and clinical assistants	441	
▪ Physiotherapy	442 - 448	
▪ Primary care	449 - 451	<input checked="" type="checkbox"/>
▪ Psychology	452 - 461	<input checked="" type="checkbox"/>
▪ Public	463	
▪ Public and population health	464 - 473	<input checked="" type="checkbox"/>
▪ Regional Health Authorities	474 - 478	
▪ Churchill (WRHA)	479 - 484	
▪ Interlake-Eastern Regional Health Authority	485 - 497	
▪ Northern Regional Health Authority	498 - 514	

Themes and Sectors	Pages	Priority Status
▪ Prairie Mountain Health	515 - 533	
▪ Southern Health - Santé Sud	534 - 562	
▪ Winnipeg Regional Health Authority	563 - 577	
Physician Datasets	578 - 630	
▪ Academic medicine	578	
▪ Physician counts	579	
▪ Location of service	580	
▪ Specialty FTEs by RHA	581	
▪ Demographics	585 - 591	
▪ Age	592 - 596	
▪ General and family practice	597	<input checked="" type="checkbox"/>
▪ Practice categories and special interests	598 - 601	
▪ Turnover	602 - 603	
▪ Care of older adults	604	<input checked="" type="checkbox"/>
▪ Patient gender	605	
▪ Major service groupings	606 - 610	
▪ Newborn deliveries	611 - 616	
▪ Fee-for-service billings for First Nations populations	617	
▪ Benchmarks	618	
Governance and Clinical Governance	631 - 637	
▪ Fundamentals	631	
▪ Principles	632	
▪ Clinical governance	632 - 634	<input checked="" type="checkbox"/>
▪ The missing piece of the puzzle	635 - 636	<input checked="" type="checkbox"/>
Appendices	638 - 686	
Please note that the appendices apply equally to this final report and, therefore, have not been replicated		
▪ Acronyms and initialisms	639 - 642	

Themes and Sectors	Pages	Priority Status
▪ Terminology	643 - 644	
▪ Bibliography	645 - 660	
▪ Interview and meetings	661 - 669	
▪ Membership on committees	670 - 672	
▪ Membership on clinical working groups	673 - 679	
▪ Data compendium	680 - 686	

The following sections (4.2 - 4.11) provide abstractions from the Environmental Scan for the ten identified priorities, with augmentation to reflect further considerations

4.2 Care of Older Adults

All jurisdictions are experiencing an older population that continues to grow. There may be some academic dispute on the relative burden placed on the healthcare system by older adults; however, there can be no argument that clinical and preventive services planning must incorporate an examination of the available care for this segment of the population, especially as many older adults remain productive members of society for longer, their numbers increase, and their needs change (including eventual level of care).

Beyond the population growth, the following issues characterize many older adults and are significant in planning for the following reasons:

- Longer in the workforce
- Greater physical activity
- Co-morbidities
- Polypharmacy
- Lower thresholds for interventions
- Lack of preparation for seamless transition within levels of **non-acute care**:
 - Home care
 - Chronic care
 - Continuing care
 - Personal care homes
 - Rehabilitation services
 - Cognitive dysfunction⁹

The most frequently referenced deficiencies during related stakeholder interviews were the lack of capacity and training for home care and personal care homes.

In 2010, the Centre on Aging at the University of Manitoba released a *Profile of Manitoba's Seniors*. The report provided a comprehensive overview of details critical to those who are mainly 65 years and older, and to those who work with people in that cohort. The report describes the anticipated changes by age cohorts as evolving from a "pyramid" to a "rectangle" as baby boomers age (those born between 1946 and the early 1960s).

Based on 2006 data, it was anticipated that within 20 years, the proportion of older adults (defined as 65 years and older) would increase from 14.1% to 19.9% of Manitoba's population. Further, it was

⁹ **Although, recent evidence suggests that the incidence and prevalence of dementia may be decreasing**

anticipated that by 2031, nearly 3% of the population would be 85 years of age and older, and predominantly women.

In 2010, Manitoba's proportion of seniors (14.1%) ranked in the lower middle range among the provinces. Saskatchewan ranked highest at 15.4% and Alberta ranked lowest at 10.7%. That proportion has been stable over the previous five years and Manitoba's median age remained lower than median age for Canada.

More recent population estimates for 2016 and projections for 2026 are presented in [Exhibit 4-02](#). These indicate that the proportion of older adults in 2016 had risen to 15.1% and is anticipated to rise to 18.4% by 2026, or 1.5% lower than previously estimated. The expected rise in those 85 years of age and older also seems less likely, given the modest increase from 2.3% to 2.4% from 2016 to 2026.

Exhibit 4-02
Proportions of Population by Age Cohort by Region 2016 and 2025

2016	Interlake-Eastern			Northern			Prairie Mountain			Southern			Winnipeg			MB
	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T	
00-49	58.1%	59.0%	58.6%	78.4%	77.9%	78.1%	60.3%	63.2%	61.7%	68.4%	69.7%	69.0%	63.5%	66.9%	65.2%	65.4%
50-64	23.4%	23.7%	23.6%	14.5%	15.3%	14.9%	19.9%	19.7%	19.8%	17.9%	18.0%	17.9%	19.5%	19.8%	19.6%	19.5%
65-74	10.8%	10.9%	10.9%	4.6%	4.8%	4.7%	9.8%	9.7%	9.8%	7.3%	7.4%	7.3%	8.7%	7.9%	8.3%	8.4%
75-84	5.3%	4.9%	5.1%	2.0%	1.7%	1.8%	5.9%	5.1%	5.5%	4.1%	3.5%	3.8%	5.0%	3.9%	4.4%	4.4%
85+	2.4%	1.5%	1.9%	0.6%	0.3%	0.4%	4.1%	2.3%	3.2%	2.4%	1.4%	1.9%	3.3%	1.6%	2.5%	2.3%
2026	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T	MB
00-49	54.6%	56.0%	55.3%	76.0%	75.9%	75.9%	59.3%	61.9%	60.6%	67.5%	68.6%	68.0%	62.7%	65.7%	64.2%	64.2%
50-64	20.9%	20.5%	20.7%	13.9%	14.4%	14.2%	17.4%	17.1%	17.3%	16.1%	16.1%	16.1%	17.5%	17.7%	17.6%	17.4%
65-74	13.6%	13.9%	13.7%	6.5%	6.5%	6.5%	11.9%	11.6%	11.7%	9.1%	9.0%	9.1%	10.2%	9.5%	9.9%	10.1%
75-84	7.9%	7.5%	7.7%	2.9%	2.7%	2.8%	7.5%	6.9%	7.2%	5.0%	4.7%	4.9%	6.5%	5.2%	5.9%	5.9%
85+	3.1%	2.2%	2.6%	0.7%	0.5%	0.6%	3.9%	2.5%	3.2%	2.2%	1.6%	1.9%	3.2%	1.9%	2.5%	2.4%

Also of note in [Exhibit 4-02](#) is the variation in proportions of the population by age groups across regional health authorities. Whereas the overall percent of the population over 65 years is estimated at 15.1% in 2016, this varies from 7.0% (NRHA) to 18.5% (PMH). By 2026, this is anticipated to change to 18.4%, ranging from 9.9% (NRHA) to 24.0% (IERHA).

While most older adults, at the time the report was prepared, were born in Canada or a European country, it was noted that one-third of immigrants on the threshold of entering the older adult cohort (those currently 45-64 years old) were born in Asia, signaling the growth of a more diverse population. Older adults were also more likely to be immigrants than younger cohorts, about one in five.

The profile reported that 14.8% of the urban population (defined as those living in areas with at least 1,000 people and a population density of at least 400 persons per square kilometre) are older adults. Correspondingly, older adults comprise 12.2% of the rural population. As reported, older adults are more concentrated in urban settings (75.2%) compared to the population as a whole (71.5%). Older

adults were also noted to be more stable and not to move, signaling that this situation is likely to persist.

Proportions vary by RHA as well. The **highest concentrations of older adults were found in PMH** (Assiniboine 19.5%, Parkland 18.9%, Brandon 14.1%). The lowest concentrations were found in the NRHA (Burntwood 4.0%, Nor-Man 8.7%).

Older adults were less likely to have advanced education. One way this is manifest is through the use of technology, which was demonstrated to decrease with age. Literacy levels have an impact on the understanding and use information in broad terms, and more specifically with respect to health.

Indications are that more people work longer into their older years. Some may be out of economic necessity; others find a benefit from gainful occupation. Volunteering is also seen as a source of occupation post-retirement. These are dependent on health status at retirement age and may affect health status over time.

Economic status is a recognized determinant of health. According to figure report in the profile, senior women had incomes over \$10,000 less than their male counterparts (2005 figures). Nearly half of older adults living alone had incomes below \$20,000 during the same period compared to 20% of those living in family households. Nearly 17% of Manitoba seniors living alone lived below the low income cut-off where low income is a term defined by Statistics Canada. Only one-in-five older adults report income other than Old Age Security (OAS) and/or Guaranteed Income Supplement (GIS).

Older adults living in one-person households spend 30% of their income on shelter. Those living in multiple person households spent 20% on shelter. The Employment and Income Assistance Program (EIA) provides financial help to Manitobans who have no other way to support themselves or their families. This includes benefits from the Rent Assist Program that helps with housing costs. For people who are able to work, EIA will help them go back to work by providing supports to employment. [<http://www.gov.mb.ca/fs/eia/>]

In addition to economic circumstances, social connections have been recognized as a key driver of wellbeing. Living alone is a major component of social connection. Those widowed increase with age. In 2006, one-third of older Manitobans lived alone (44% of women and 20% of men); 26% of seniors saw relatives at least weekly, and half communicated with relatives at least weekly. More detailed information about living arrangements, social networks and loneliness are detailed in the profile.

Although 40% of Manitobans over 65 years of age describe themselves as being in excellent or very good health and may not have had any identified chronic health conditions (about 20%) nor reported cognitive problems (70%), the need for services and supports increases with age. This includes assistance with activities of daily living (ADL, about 25% of Manitoba seniors) through complex medical requirements. Most assistance with ADLs (about three quarters) is provided by those between 45 and 64 years of age. Support for higher level needs rests with skilled professionals.

Exhibit 4-03 demonstrates a well recognized pattern related to patient age. The table confirms that the need for medical and hospital services rises with age. Whereas those under 50 years of age represent nearly two-thirds of the population in 2014, they represent just more than half of the acute

and mental health hospital discharges. The difference declines among those 50-64 years of age after which the pattern reverses where 14.6% of the population (those over 65 years of age) represent one third of the acute and mental health discharges.

This pattern for those under 50 years of age is replicated for physician services where a higher proportion of people in the overall population show lower activity and consume less. Again, those over 65 consume proportionally more. Of note is the 50-64 year old group who also consume more physician services.

Exhibit 4-03
Utilization of Physician and Hospital Services FY 2014 Relative to Population Size by Age Cohort

Age Group	Population	Physician		Hospital
		Distinct Patients	Payments	
00-49	65.9%	50.4%	43.0%	50.6%
50-64	19.5%	24.5%	24.9%	16.1%
65-74	7.9%	12.9%	15.5%	12.3%
75-84	4.4%	8.2%	11.0%	11.8%
85+	2.3%	4.0%	5.6%	9.1%

The profile of Manitoba's older adults shows a different picture for older Indigenous peoples compared to the overall population of Manitoba. Whereas the overall older adult population in Manitoba was around 15%, only 4% of the Indigenous population was aged 65 years and older. The report indicates that nearly 75% of older Indigenous peoples live off-reserve. About one-third live in Winnipeg and 27% live in rural non-reserve areas. The report goes on to identify those 75 years and older as the fastest growing group among older adults, with an expected increase of 77%. Approximately 30.5% of older Indigenous peoples were living alone, comparable to the overall population. Again, older female adults lived alone more often than men (33.4% versus 27.0%). In 2005, income levels averaged around \$19,000 for those 65 and older (median \$15,000).

Of the earlier identified characteristics of older adults, the planning challenges are:

- **Co-morbidities and polypharmacy**
- **Thresholds for medical interventions**
- **Capacity and raining for home care and personal care homes**
- **Sufficient team-based care for geriatrics and psychogeriatrics**

4.3 Collaborative Care

The evolution of primary care in Manitoba bears similarity to the rest of Canada, with support for collaborative models and comprehensive care, tailored to geography and needs assessments. This has included a willingness to learn from experience outside of Manitoba, but also to develop a made-in-Manitoba solution, built on principles to ensure care that is patient-centred and family-centred.

Evident during the study was the lack of understanding, by many, that **collaborative care in any setting is a learned art that is non-hierarchical** and not defined simply by a common workplace. Rather, it is founded on mutual respect among providers and a shared responsibility for quality that is based on evidence. This elevated level of patient-centred care requires all providers to develop and maintain team-based thinking; to date, this has been a gap for not only some physicians, but also other provider groups.

Collaborative modeling was referenced positively across specialty services, including the need for expansion. **This was particularly true for mental health and addictions, palliative care, care of older adults, and specialty clinics.**

Three areas of discussion were prominent; **trauma-informed care, Physician Integrated Networks**, and **MyHealthTeams**.

Trauma-Informed Care

A traumatic event can involve a single experience, or enduring repeated events, that completely overwhelm the individual's ability to cope or integrate the ideas and emotions involved in that experience. Traumatizing events can take a serious emotional toll on those involved, even if the event did not cause physical damage. This can have a profound impact on the individual's identity, resulting negative effects in mind, body, soul, and spirit.¹⁰

It is stressed that trauma is determined, not by the triggering event(s), but the individual's experience and its meaning to the individual. Further, trauma can be classified, as follows:

- Interpersonal
 - *Childhood abuse: sexual, physical, neglect, psychological, witnessing domestic violence*
 - *Sexual assault: any unwanted sexual contact*
 - *Historical trauma: colonization and the residential school experience of forcible removal from the family home, destruction of culture and language*
 - *Domestic abuse: physical, sexual, financial, spiritual, cultural, psychological*
 - *Loss due to homicide*

¹⁰ Web site Manitoba Trauma Information and Education Centre; www.trauma-informed.ca

- *Torture and forcible confinement*
- *Elder abuse: physical, sexual, financial, spiritual, cultural, psychological*
- *Suicide*
- External
 - *War: combat, killing, fear of being killed, witnessing death and extreme suffering, dismemberment*
 - Being a victim of crime
 - Sudden death of a loved one
 - Suicidal loss
 - Loss of a loved one to homicide
 - Sudden and unexpected loss: of a job, housing, relationship
 - Living in extreme poverty
 - Natural disasters
 - Accidents: such as, vehicle, plane
- Developmental
 - *Child Abuse and Neglect*
 - Witnessing violence in the home
- Historical
 - *Disconnecting certain cultures from their families, relationships and cultural practices*
 - *Residential school*
 - *Holocaust*
 - *Ethnic Cleansing*
 - *Sixties scoop*

In the Fall of 2004 Mi'kmaw elder Albert Marshall offered the Mi'kmaw term, Etuaptmumk, or, in English - "Two Eyed Seeing" as a way of understanding the integration of Indigenous and Western world views or forms of knowledge.

A trauma informed system:

- *Realizes the widespread impact of trauma and understands the potential paths for healing*

- *Recognizes the signs and symptoms of trauma in staff, clients, and others involved with the system*
- *Responds by fully integrating knowledge about trauma into policies, procedures, practices and settings*

Trauma Informed Care provides:

- *The foundation for a basic understanding of the psychological, neurological, biological, social and spiritual impact that trauma and violence have on the individuals we serve*
- *Incorporates proven practices into current operations to deliver services that acknowledge the role that violence and victimization play in the lives of most of the people entering our systems¹¹*

Physician Integrated Networks

The foundation pieces of My Health Team (MyHT) can be identified in Physician Integrated Networks (PIN), first introduced in Manitoba in 2006 as a significant part of primary care renewal in the province. Twelve PINs, developed through phases, continue to provide care to greater than 150,000 patients. Feedback from physicians and patients during each phase have informed changes to the initiative.

PIN has four main objectives, as follows:

- Improved **access** to primary care
- Improved access to and use of **information** by the primary care physician
- Improved **work life**
- Demonstrated **quality** with a **focus on chronic disease**

Measurement and evaluation¹² are central to the model that has focused on five strategies to achieve the objectives:

- Practice change plans
- Manitoba primary care quality indicators
- Electronic medical records
- Interprofessional practice
- Physician engagement

¹¹ **Ibid**

¹² **Evaluation reports are available on the web site of the Ministry of Health, Seniors, and Active Living**

MyHealthTeams

Like most jurisdictions, Manitoba has had a strong focus on primary care renewal, largely in pursuit of access and quality. The long-term history includes the Physician Integrated Network (PIN) since 2006. PIN has provided a foundation of lessons for the development of MyHealthTeams (MyHT) as a partnership model. Currently, MyHT are sited in various regional locations and continue to evolve.

There are **five models of primary care in Winnipeg**:

- Fee-for-service
- Fee-for-service with incentive payments
- ACCESS Centre
- Community Health Clinic
- Teaching Clinic

Of the five, patient profiles at the incentive-based clinic have the lowest percentage of three or more **social complexities** and the community health clinic has the greatest. Using primary care indicators, MCHP studied quality in the different models and determined a mixed picture: some prevention measures were better in fee-for-service and care for heart disease was better at community health clinics. Factoring in social complexity led to the conclusion that no single model stood out in providing higher quality care.

Reference continues to be made to the 1978 discussion of primary care resource policy by the Institute of Medicine where four features were identified as constituting “good” care:

- First content access for new medical issues
- Long-term patient-focused care (not disease-focused or provider-focused)
- Comprehensive scope
- Care coordination when referral is required

Ultimately, the forces to overcome will be those that separate community care (and its multiple levels and providers) and hospital care (and its multiple acuties) and then expect that the end product is still a “system.” Further, a sound principle is to **maintain what is working (and, conversely, to stop funding what isn't)**.

The continuing discussion of primary care renewal and transformation in Manitoba should support pluralism as it is unlikely to develop a single model that aligns with every geography and population. That notwithstanding, **the opportunity afforded to the province by advancing MyHT is substantial and warrants active support during its evolution; there is no comparable model in Canada with the same potential.** The progression of MyHT should not be delayed by partial model development; the full model with a common base of providers across geographies should be encouraged and include remote care relationships with vulnerable communities.

Building on Lessons

With a focus on delivery rather than reform, MyHT offers an opportunity for true collaboration in a non-hierarchical model that is patient-centred and based on evidence within an environment of measurement and quality. This collaboration can be characterized by mutual respect among providers who work at the top-of-license with a shared responsibility for outcomes.

The minimum roster of providers is not fully defined, but consideration should be given to:

- Physicians
- Nurses
- Nurse practitioners
- Psychologists
- Dietitians
- Physiotherapists
- Occupational therapists
- Pharmacists

As well as the MyHT catchment population, **each MyHT would be linked to a remote community** where day-to-day care would be provided by an NP and PA, and have access to an advanced care paramedic serving a cluster of communities. Each remote community would have a single telephone number to call for problem-solving, prescription renewal, and urgent care advice (complemented by PECS). As well, rotations of the MyHT disciplines would go to the remote community at scheduled intervals for enhanced preventive services and required clinical services. This remote care component would increase quality overall and, most likely, enable patients to receive increased amounts of care at home and to avoid costly medical travel; it would not only expand the available care (and could include a link to a provincial palliative care model) but also would establish a continuity of care framework not previously imagined. As an example, the current challenge for the otherwise successful renal program is the low risk populations identified at screening. The intermediate and high risk groups are picked up by the program at the time of diagnosis; the low risk groups frequently do not have available follow-up care due to the absence of stable primary care. **This is also a further example of where the separate federal and provincial funding streams are in conflict to the disadvantage of the patient.**

An extension of the benefits to the patient from an integrated strong renal program and collaborative primary care model is the ability to achieve standards of care locally (including potable water). Unknown to many patients is that home dialysis is not only safer than institutional hemodialysis, but also that the outcomes are better.

Ultimately, successful implementation of MyHT will depend on the model breaking down decades of episodic silo care and standing on its own merits. In essence it would be “implementation by standing

ovation” whereby success and enthusiasm for a provincial care model and measurement drives expansion.

It is important to complement MyHT with additional primary care strategies in an integrated and strategic approach, such as Family Doctor Finder, Quick Care, and ACCESS Centres. No single model of delivery will address all of the primary care needs of the province.

Support for MyHT is significant although not universal. The expanded focus for MyHT and a more rapid uptake may further increase the support. However, an argument can be raised that despite the strength of the evolution of collaborative primary care in Manitoba, there are connotations to nomenclature and branding, and it may be worthwhile to contemplate an alternative name for moving forward and advancing the model.

Examples are provided throughout program summaries where other providers would welcome inclusion in MyHT.

A funding model will need to be determined at an early date as well as a defined process for ongoing evaluation of the model and outcomes of care.

4.4 Consolidated Services

Where appropriate, consolidation of services is logical to improve quality and to decrease system costs. Opportunities to consolidate should always be considered (and include attention to geography and travel); however, where safe, **care closer to home is an equally compelling goal.**

This report does not include restructuring of facilities in its mandate or recommendations; ultimately, that is a responsibility for clinical governance and healthcare leadership across Manitoba. That notwithstanding, services planning, by definition, offers opportunities for improved quality through consolidation. Decreased costs will follow this approach; however, it requires a fundamental shift in thinking, especially at regional and political levels.

Following are realities that compel careful consolidation of services:

- **All surgical, anaesthesiology, and other major specialty services should be planned provincially, not regionally**
- **Critical mass is directly aligned with improved quality; the greater the number of times that something is performed, the better the outcomes**
- **The converse of the previous reasoning is equally true; the infrequent provision of a service can be directly linked to outcomes that are not satisfactory**
- **Services that do not work should not be funded; this aligns with provincial standards across disciplines**
- **The absence of consolidation can be a financial drain, especially with respect to the need for more on-call staff, replication of costly infrastructure and inventory levels at multiple sites, and the risk of increased costs due to quality compromise**
- **There are 73 hospitals in Manitoba; this is a large number for a population of 1.3 million, even if dispersed; it is not uncommon in a rural setting that patients will call before going to a hospital or emergency department to see if it is open that particular day**
- **Many smaller, rural hospitals are, de facto, providers of long-term and personal care even though funded as hospitals**
- **Data for day surgery procedures reveals wide variation in service volume across Manitoba**
- **There are hospitals outside of WRHA, but reasonably close to Winnipeg, with capacity and resources to relieve WRHA hospitals of service burden for those patients who wish to travel a short distance**
- **Surgical and other general specialty services outside WRHA can be centred in regional hubs and not provided in smaller numbers at several sites**
- **Anaesthesiology in Manitoba can be reconsidered as a single provincial resource that provides care by both fellowship anaesthesiologists and general practice**

anaesthesiologists; the number of physicians providing anaesthesiology services can be held or decreased through an increased use of anaesthesia clinical assistants;¹³ provincially, it will likely be better to consider anaesthesiology as a program incorporating a mix of providers, rather than a single specialty

- **Inpatient surgical and anesthesiology services in WRHA are also provided at too many sites; this is particularly true for general surgery and orthopaedic surgery**
- **If general surgery and orthopaedic surgery are realigned in WRHA and provided at a reduced number of sites, some existing general hospitals can be rebranded for rehabilitation care (still under the care of surgical specialists in concert with rehabilitation specialists); this will increase critical mass at some sites and eliminate the need for costly renovations at others¹⁴**
- **Critical mass for procedures may require transfer of these services**
- **Some high volume ophthalmology services can be transferred out of health centres into independent sites and be funded publicly through a tendering process at decreased cost to the public purse**
- **Critical care units in Manitoba are, essentially, those in Winnipeg and Brandon; in Winnipeg, these services are currently provided at six centres (see below) when three centres with strong physician complements, well trained nurses and respiratory therapists,¹⁵ and an increased number of physician assistants can provide high quality, standardized services with equal access to technology; all sites would be characterized by in-house 24/7 staffing¹⁶**
- **Cardiac critical care is considered separately from the other critical care services; as well, critical cardiac services require collaboration between cardiac surgeons and invasive cardiologists, including removal of volume incentives; it is understood that subsets of cardiac surgeons will continue to provide highly specialized services, although volumes have been decreasing**
- **The head count for cardiac surgeons should be viewed with caution; that head count of 12.0 is actually 4.8 clinical FTEs; benchmarking suggests the need for approximately 6.0 clinical FTE cardiac surgeons in Winnipeg (using the catchment area of Manitoba, northwest Ontario, and eastern Saskatchewan¹⁷**

¹³ It is noted that the ACA is an expensive model, but that the system and quality benefits are material

¹⁴ This aligns with the principle of avoiding infrastructure costs, wherever possible; the savings will be in the millions of dollars

¹⁵ There is a high recurrence of nursing shortages in critical care sites today

¹⁶ It is recognized that closing three critical care units will shift the emergency room function at those sites as well as the staffing by surgical and anaesthesiology specialists

¹⁷ This may vary in the future depending on the uptake of the cardiac program in Thunder Bay

- **Complex thoracic surgery should be maintained at a single site; in the future, low dose CT screening is likely to increase the early diagnosis of carcinoma of the lung and subsequent interventions will require lower technology**

Adult Critical Care Program - Summary

- Compelling arguments have been advanced by critical care specialists to address inefficient redundancy in the WRHA critical care system; there is a legacy of ineffective reorganization in the Adult Critical Care Program (ACCP) that can be corrected only with a concerted effort across multiple programs
- The ACCP is a resource to the entire province, portions of Nunavut, and, on occasion, northwest Ontario; the total catchment population is 1.5 million people and, other than seven ICU beds in Brandon, all critical care is provided in Winnipeg:
 - Health Sciences Centre (Medical ICU-15 beds; Surgical ICU-12 beds; Intermediate ICU-6 beds)
 - St. Boniface (ICMS) - 10 beds
 - Grace General Hospital - 8 beds
 - Concordia General Hospital - 7 beds
 - Seven Oaks General Hospital - 7 beds
 - Victoria General Hospital - 7 beds
- Outside the ACCP and within the WRHA, the Cardiac Sciences Program is responsible for Intensive Care Cardiac Surgery (ICCS - 14 beds) and Adult Coronary Care Unit (ACCU-6 beds)
- Other hospitals in Manitoba have designated clinical areas as “special care units;” however, these are, functionally, extended surgical recovery or “step down” units
- It is evident that the net effect is a low ICU capacity compared to centres across Canada; when the Misericordia was declared non-acute in 2000, the inpatient wards, ED, and ICU were closed; the remaining six centres that continue to provide critical care have been challenged with capacity to sustain delivery of these essential services
- Following institution of the ACCP, a Critical Care Transport system was established to accommodate the safe transport of critically ill patients to another site with an available critical care bed or specialized service; progression from this point has meant that some patients may require transfer among multiple sites
- The ACCP is on record with a proposal to consolidate critical care to four sites (HSC, SBH, GH, and SOH) in concert with an adjustment in other regional programs (Emergency, Medicine, Surgery) with respect to care being provided to critically ill patients; in this model CH and VH

would provide site-based support to less acute patients through transformation of ICUs to Special Care Units (SCU)

Following are points of support for elements of the ACCP proposal:

Nursing

- Acuity of patient care is limited and variable at the four smaller sites where units have lower nurse-to-patient ratios; also lacking is renal support, at some sites, and mechanical cardiac support
- Smaller units are more adversely effected by short-term vacancies in staffing
- The appropriate requirement of completion of the Winnipeg Critical Care Nursing Education Program (WCCNEP)¹⁸ is challenged in ensuring adequate enrolment to provide ongoing coverage for six sites

Medicine

- It is proving difficult to ensure in-hospital coverage (especially overnight) in all units (six sites), despite application of multiple models that include resident replacement, house medical officers, and physician/clinical assistants

Allied Health

- Community sites have limited access to necessary multidisciplinary teams
 - Three community sites have no dedicated pharmacy or nutrition services
 - Three community sites have limited respiratory services
 - All four community sites have limited access to physiotherapy services

Quality Improvement Initiatives

- Quality improvement is characterized by standardized care
- Standardized care is absent across multiple sites, largely due to site-specific issues that are contrary to expectations of the Outcomes Improvement Committee of the ACCP
- Accurate and harmonized data are difficult to achieve across the six sites, often as a consequence of resource issues

Site-Specific Services

- The complex requirements of critically ill patients require multidisciplinary care; such care is not consistent across six sites
- Two community sites have limited internal medicine support

¹⁸ Operates as a six-month raining course twice annually

- Three community sites have limited general surgery support
- Three community sites have limited after-hours diagnostic imaging support
- All four community sites have limited access to subspecialty services

Site-Specific Infrastructure

- The actual ICU space at three of the community sites is not adequate to deliver current critical care needs
- Renovations or construction costs at the sites have been estimated in the millions of dollars; priorities need to be established

The ACCP solution is focused on the consolidation of the delivery of critical care services and the related variation to the current state; three interdependent actions have been identified:

Critical Care consolidation must align with other WRHA programs to deliver care to the acute patient population. It would be inefficient and illogical to attempt to change a site's ICU to a SCU without also adjusting the Emergency Department function to urgent care. Likewise, the provision of acute surgical services would need to align with critical care supports. What the ACCP is proposing is a transition in service delivery that would be in concert with other changes to the roles of WRHA hospitals.

Maximizing existing space (minimal infrastructure investment required) in the ICUs in HSC/SBH/GH would realign the 14 current ICU beds at VH and CH through reorganization of staffing to open the extra two unfunded spaces in GH, four unfunded spaces in HSC, and four unfunded spaces at SBH. It is assumed that the 10 new spaces would be funded at closer to 1:1 nursing to match the current 14 spaces which are funded with eight nurses.

Accurate dissemination of information will be essential to a successful implementation of this approach. By coordinating the change in the role of hospitals, care delivery is more efficient and consistent with the rest of the province.¹⁹

Realignment of Internal Medicine Services²⁰

The WRHA Internal Medicine Program has constructed a vision document built on the premise that the current state of acute medicine delivery is inefficient and cannot be sustained. As well, it was noted that the quality of care is not standardized across all hospitals, even within the same program. The context in which to consider these issues is one of a provincial internal medicine program with standardized care and consistent provision of on-call services.

¹⁹ This approach contemplates three of the community sites assuming less acute (but essential) roles. It would not be logical to attempt to maintain a full service ICU at that site. Currently in the province, there are sites that deliver surgical, medical and emergency care without the presence of an onsite ICU (Selkirk Hospital is one such site and the closest ICU is at the SOGH - - over 30 km distance; for CH, the farthest other ICU (GH) is less than 20 km away, with both the SBH and HSC being less than 9 km away.

²⁰ Following is an abstraction from this document prepared by the WRHA Medicine Program

The program is responsible for acute inpatient and ambulatory care services provided by Internal Medicine and subspecialties of Medicine.

The range of health services provided by the WRHA Medicine Program is available to patients from Manitoba, Northwestern Ontario, the Northwest Territories, and Nunavut. Patients are received from emergency departments, rural facilities, family practitioner's offices, ambulatory care, community clinics and other inpatient programs.

Patients served by the program have multiple diagnoses, which often require the coordination and collaboration of several medical subspecialties and the involvement of a variety of multidisciplinary caregivers to address complex physical and psychosocial needs.

In addition to the secondary and tertiary care provided to patients, the Medicine Program is committed to supporting undergraduate, graduate and post graduate education. The Medicine Program values, supports and promotes research by the various disciplines involved in the provision of health services to medicine patients.

In summary:

In Winnipeg, internal medicine is responsible for inpatient medicine care at HSC and GH and the bulk of medical beds at SBH and VH. Family medicine (part of the Primary Health Care Program) is responsible for inpatient medicine care at Concordia General Hospital and Seven Oaks General Hospital, and for some inpatient beds at St. Boniface General Hospital and Victoria General Hospital.

Both programs involve family physicians and internists in the care of patients, and both programs are struggling to staff their respective care models. Discussions are ongoing with regard to how the two programs could create a single coverage model, that includes both internal medicine and family medicine physicians and staff, to cover all medicine beds in Winnipeg Hospitals. This would also allow for developing more consistent staffing ratios across all hospitals, adjusted for acuity, and more consistency in how care is organized and provided across sites.

With regard to Brandon, internal medicine is a critical resource, however, the internists in Brandon are not obligated to provide after-hours call services - - this needs to be addressed.

1. Background and Issues

The demographics of Canada (and Manitoba), with an overall increasing population and, in particular, an increasing older population, leads to a continuing increase in the demand for inpatient and ambulatory internal medicine services.

The program provides **acute care** inpatient services for the majority of the inpatients admitted for acute medical illnesses to four hospitals within the WRHA.

Two of these are tertiary care hospitals. They largely provide the inpatient and outpatient specialist medicine services for the province. The other two hospitals are community hospitals and also provide inpatient and outpatient care.

The number of patients seeking medical care in the ED of all hospitals is increasing. Many of these patients do not need the level of care provided by an acute care internal medicine service, but, for various reasons (including lack of adequate social support), cannot be discharged home safely. Lacking another disposition, the majority of these patients currently end up being admitted to an acute care internal medicine service.

Similarly, a proportion of patients where an acute problem has been treated and resolved during admission, and the level of care of an acute care internal medicine service is no longer required, continues to require rehabilitation or convalescent care before being able to be discharged to the community. These patients often have no place to go and, therefore, stay in an acute care bed for days, up to many months beyond their medical need, for the level of care provided. Many of these patients are not well served in an acute care setting, as they would benefit from more allied health support (in particular physiotherapy and occupational therapy) than what is available in an acute care setting.

On any given day, up to 30% of the bed base of 538 beds in the WRHA internal medicine program are occupied by patients who do not require that level of care, but, for various reasons, are not able to be discharged. This hinders the admission of patients from the ED (and, also from ICU) who require the level of care provided by acute care internal medicine services.

Ambulatory care is instrumental in keeping patients out of the ED and hospitals, especially if provided in the form of problem-oriented multidisciplinary chronic health management clinics (diabetes mellitus, chronic heart failure, chronic kidney disease).

Internal medicine ambulatory care for the province is largely provided by the two tertiary care hospitals within the WRHA Medicine Program. This can necessitate significant travel to Winnipeg for a number of patients. In addition, the capacity of specialist ambulatory care resources within WRHA is limited. The demography-related demand is increasing and leads to lengthy waiting times. This, in turn, results in patients seeking care in an ED, often leading to avoidable admissions.

There are too few convalescent and rehabilitation beds available in the WRHA. On average one-third of available (and costly) acute care beds are occupied by patients who do not require that level of care.

2. Proposed Solutions

- **Reorganize all acute care internal medicine beds into three of the six hospitals within WRHA (two tertiary care and one community hospital)**
- **Restructure the internal medicine and family medicine beds in the three remaining community hospitals within WRHA into less intense level of care beds (convalescent type)**
- **Develop ambulatory care programs that bring multidisciplinary specialist knowledge to the patients in their (rural) community using telemedicine tools**

It is recognized that this alignment of inpatient and outpatient services within the WRHA Internal Medicine Program cannot be successful in isolation, but would require concerted actions of many other WRHA and provincial programs, including Critical Care, Surgery, and EMS.

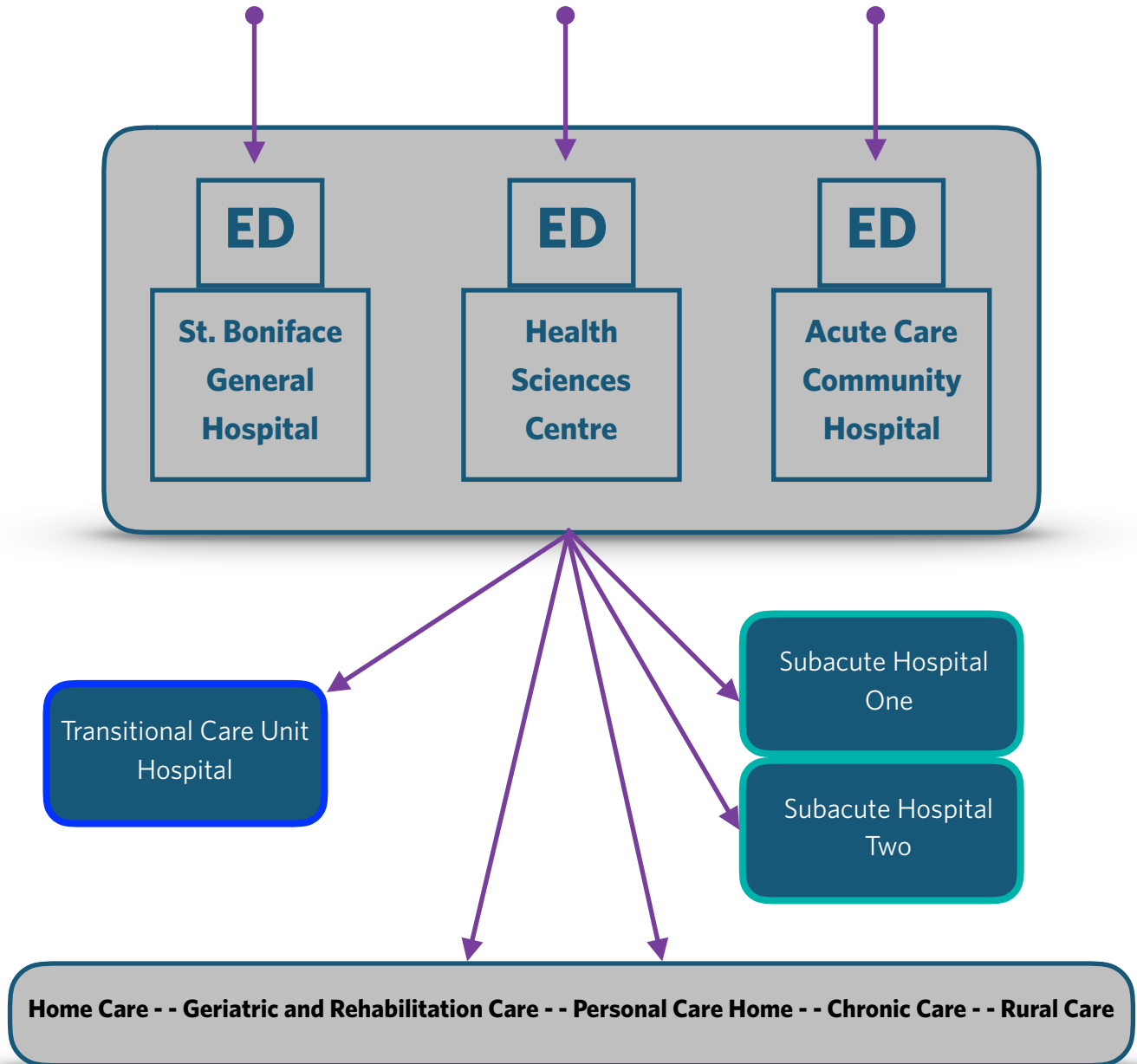
In summary, currently, all hospitals in the WRHA are considered to be acute care facilities. This means that they all have emergency departments, they all have critical care units, and they all strive to provide the same level of acute care on the medical wards. By doing this, the system has evolved into an expensive, unsustainable model that is failing patients and potentially could result in harm. **The actual number of patients that require an acute level of medical care could be consolidated into three hospitals.** The majority of patients in medical beds in the WRHA do not require this level of care, and in fact are at the level of convalescence or simply waiting for a non-hospital option.

The future system should look at concentrating acute care in three of the six hospitals. The two tertiary hospitals are default choices. One community hospital should retain acute care and, in fact, augment its services where necessary to support acuity. The other three hospitals should be re-branded to the level of convalescent and rehabilitation transitional care, with one designated as interim care PCH/chronic care/behavioral units.

To do this, emergency care, acute medicine care, critical care, and inpatient surgical care would be provided by only the three hospitals. The three remaining EDs should be expanded to allow for a greater volume of patients, based on the number of acute care versus minor treatment that presents on an average basis to the closed EDs (CTAS 4 and 5 scores could be the initial proxy for this determination, which will no doubt change over time) Potentially, urgent care type departments could be developed in these remaining sites.

The three new acute care sites would also benefit from the development of clinical assessment units as proposed proposed for St. Boniface General Hospital or as established at HSC in their CCDU..

Exhibit 4-04
Proposed Consolidated Acute Care Hospital Services in WRHA



4.5 Emergency Medicine and Health Services

Emergency Medical Services (EMS) provides pre-hospital care to those who are sick or injured, requiring assessment, treatment, and transportation as a core service of health authorities and MHSAL. The services include:

- Dispatch
- Response and care (land and air)
- Transport
- Inter-facility transportation (land, stretcher, specialized, basic air)

EMS continues to benefit from provincial standardization wherever possible. As well, the proposed Provincial Emergency Consultation Service (PECS)²¹ is considered to be an essential growth area and a key component of retention of healthcare providers in rural and remote Manitoba. PECS would provide a consultation service with a single point of contact for all Manitoba RHAs and, eventually, Nunavut and Northwestern Ontario. The objective is to ensure appropriateness of patient transfer to a higher level of care facility and to provide ongoing/real-time support to rural physicians, nurse practitioners, nurses and other healthcare staff, including paramedics in WFPS (Winnipeg Fire Paramedic Service). The backbone of PECS would be staffing 24/7 by an experienced emergency medicine specialist providing a dedicated service in eight-hour shifts.

The provincial delivery of emergency care will be incomplete without collaborative emergency centres, as established in Nova Scotia and Saskatchewan. There is movement towards all emergency physicians in Brandon and Winnipeg being certified over time in the specialty (no FRCP ED physicians anticipated outside Winnipeg); it seems inevitable that there will be an urban stream of emergency care and a rural stream.

Provincial standards and competencies are required to improve ED care; otherwise, the variability in quality will not be overcome; as well, a message conveyed throughout the acquisition of information was, **“If it isn’t an emergency department, then don’t call it an emergency department.”** Efficiencies can be achieved if rural centres are paired with urban centres (and there are comparable supports at the urban centres).

The largest EMS problems in the north are staff retention and distance; as an example, Split Lake, with a population of 5,000, has no ambulance service and is up to two hours from Thompson; this is one further example of the **absence of equity** that repeats itself across health authorities. Challenges are exacerbated by City of Winnipeg salaries being greater than those offered in more remote settings.

Following is a summary of ED volumes in WRHA and the related CTAS scores.²²

²¹ Expansion of the potential impact of PECS is provided in the Stakeholder section on EHS

²² Presented April 27, 2015 by Paul Kuwornu, PhD Candidate, Department of Community Health Sciences, University of Manitoba

Exhibit 4-05
ED Volumes by Site in WRHA, 2012-2013

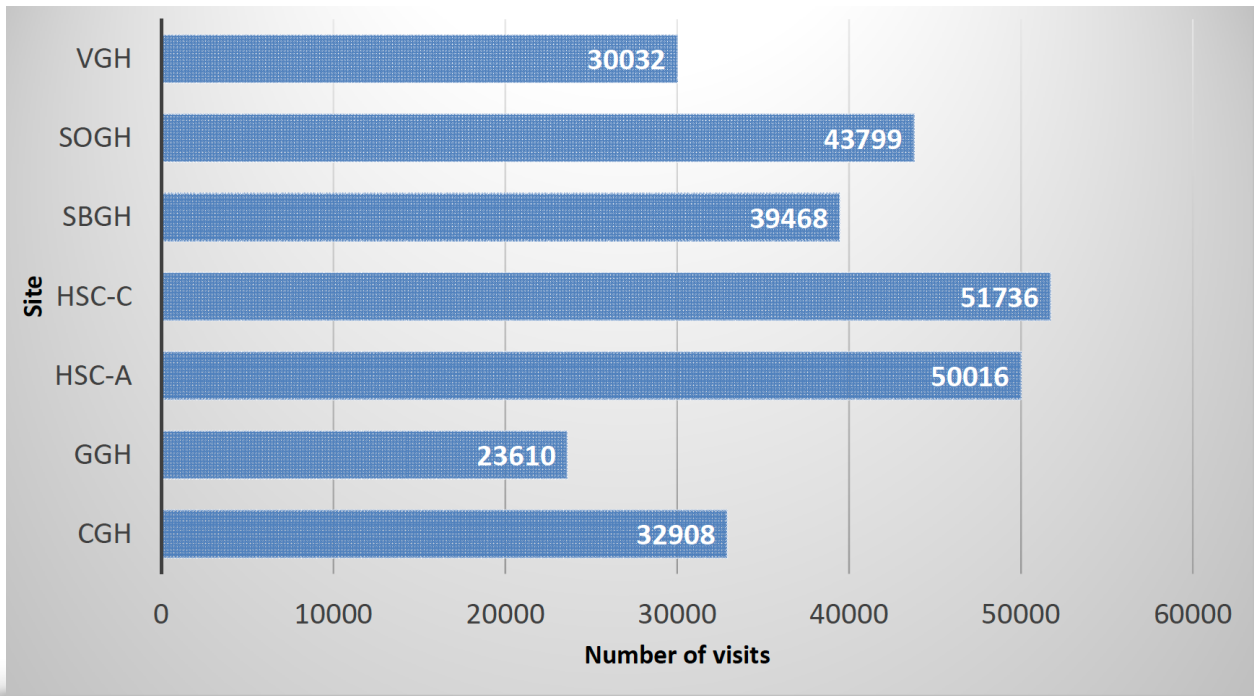


Exhibit 4-06
WRHA ED Visits by Volume and CTAS Aggregates, 2012-2013

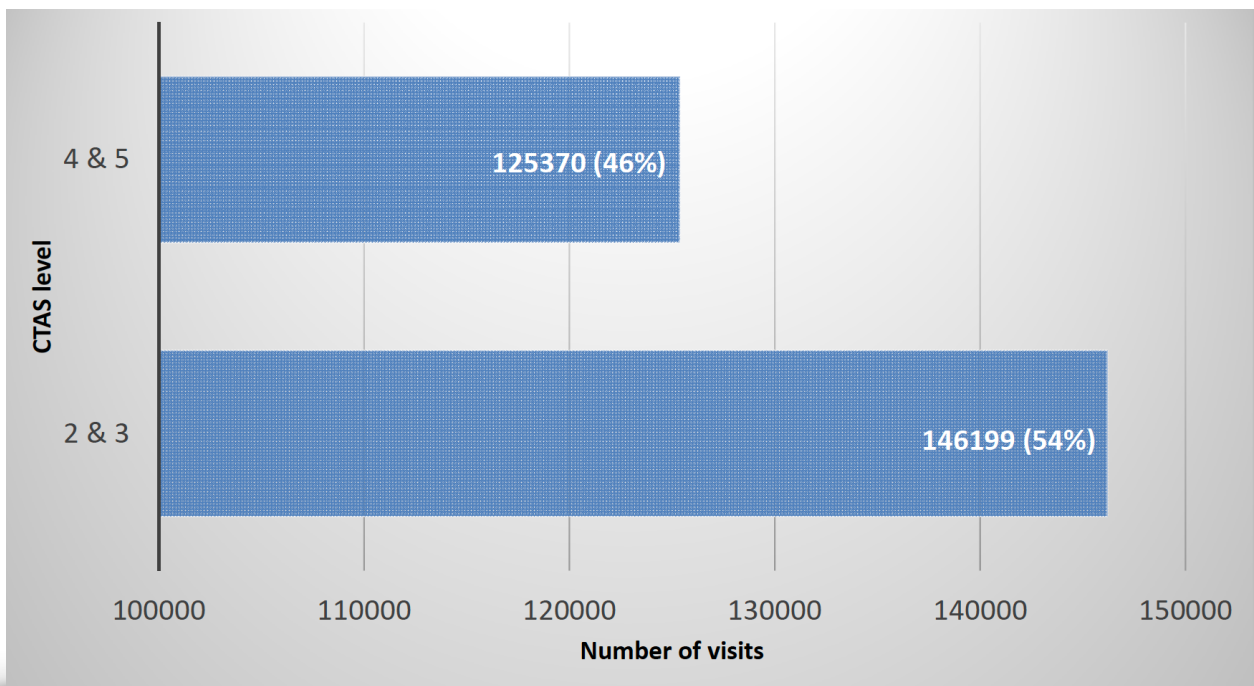
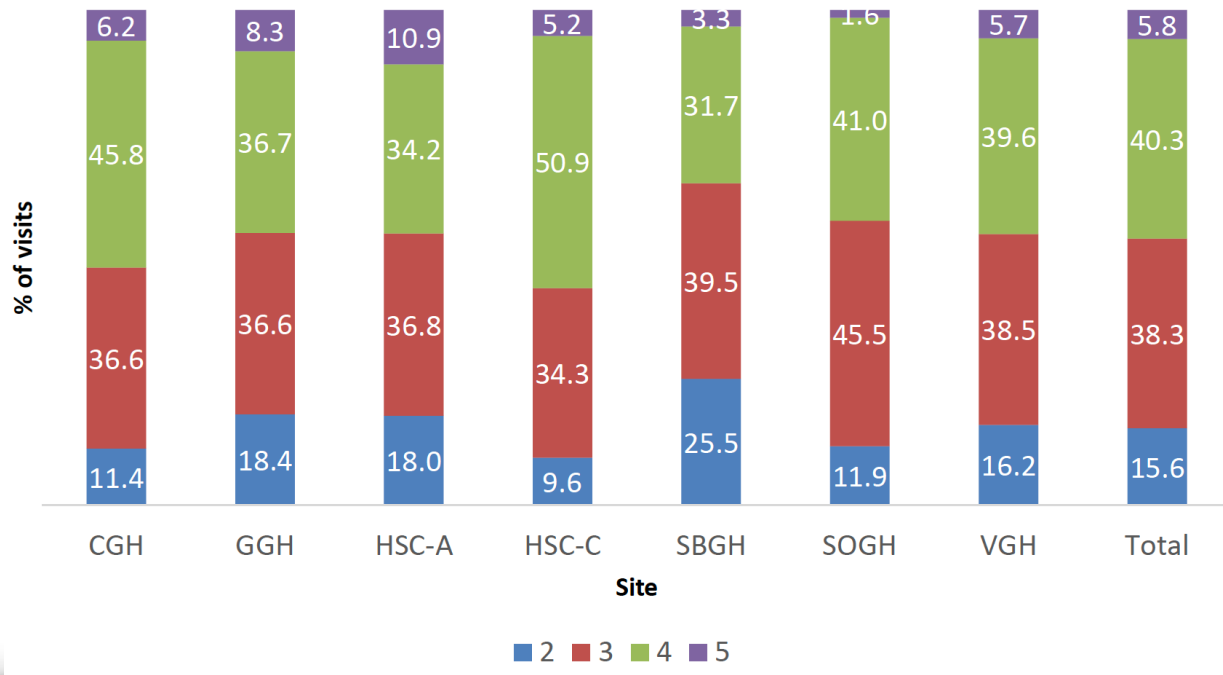


Exhibit 4-07
WRHA Site Visits by CTAS (2, 3, 4, 5) Percentage, 2012-2013



Emergency Health Services (EHS) in Manitoba²³ are integral, not only to EMS, but also to system planning, particularly in the context of a vast geography and dispersed population. Not unexpectedly, remote services are notably expensive and, as consistently reported, not infrequently an unnecessary level of care. The system status is as follows:

- 176 ground ambulances
- 24 basic air ambulance fixed wing aircraft
- 2 lifeflight jets
- 1 rotary wing aircraft

Prior to regionalization, the basic service was provided at the level of towns and municipalities with ambulance services operated by private companies, using a mix of full-time and part-time volunteers who have received 16-80 hours of training. In the late 1990s, increased training was enacted and EMS devolved or contracted with RHAs as 911 became widespread, although not inclusive.

- Rural EMS was established as a career option
- Volunteers became employees
- Providers became unionized

²³ A valuable resource document is the 2013 Manitoba EMS System Review (2013)

Thereafter, the National Occupational Competency Profile was adopted as the provincial standard and aligned with higher training demands. MTCC-provincial dispatch was introduced along with a provincial fleet program. Roles were established for paramedics in an integrated primary healthcare setting characterized by community paramedicine and, subsequently, merged regions. The status today is, as follows:

- Rural and Northern
 - 92 stations
 - Mixed staffing with full-time, part-time, and on-call (casual)
 - Mixed training levels
 - Emergency Medical Responder (EMR) providing emergency patient services, cardiopulmonary resuscitation, immobilization, oxygen therapy, and base assessments
 - Primary Care Paramedic (PCP) with a scope of practice that includes manual defibrillation, glucometry, pulse oximetry, IV maintenance, and specific drug administration
 - Intermediate Care Paramedic (ICP) with a scope of practice that includes cardioversion, ECG interpretation, IV therapy, intraosseous infusion, direct laryngoscopy for removal of foreign bodies, and administration of wider range of medications
 - Advanced Care Paramedic (ACP) with a scope of practice that includes needle cricothyrotomy, needle chest decompressions, endotracheal intubation, nasogastric tube insertion, advanced assessment, external transcutaneous pacing, synchronized cardioversion, and administration of a full therapeutic range of medications
 - Community medical first response by MOA with regions
- Urban
 - Winnipeg Fire Paramedic Services (WFPS) integrates an ACP on every fire call
 - All paramedics are full-time with mixed PCP and ACP training levels
 - Community paramedic program
 - Routine inter-facility transfers supported by a private stretcher service
- Manitoba Health, Seniors, and Active Living
 - Lifeflight

- South Air Ambulance Program
- Private Airline Carriers
 - Basic air ambulance services

The **provincial volume** is 151,237 calls annually (80,527 rural and northern; 70,710 WFPS). **Rural** inter-facility transfer volume is 30,636; primary calls are 49,891 and primary transports are 28,309. WFPS provides 6,707 inter-facility transfers; primary calls are 63,003 and primary transports are 46,445.

The EHS demands are growing substantially:

- Service volume for high utilization areas grow from 8% to 15% annually
- Provincially, there has been a 24% growth over the last five years (59% over the last ten years)

The EMS Review assumes an essential role with the appropriate goal of, ***evolving the EMS system in Manitoba into a more integrated, responsive, reliable, and sustainable system in Manitoba.***

Paramedic training is constituted, as follows:

- EMR training is measured in hours
- PCP training is one year; this provider group is largely concentrated in Winnipeg and serves as the “backbone of EMS”
- ICP training bridges that for PCP and ACP
- ACP training is three years (college and private); very few ACP work outside of the WHRA

It was noted that, outside of Winnipeg, there are no EMS data prior to 2006. As well, services provided through EMS, WFPS, and STARS have electronic record keeping (remainder are still paper-based and much less robust).

Looking to the future, a key element will be a fully integrated EHS system with provincial 911 service (unpredicted impact on volume). Discussion with the EHS leadership also suggests **support for a CEC model** that would be made available in underserved communities and be team-based with an NP, PA, and ACP. This model would, by necessity, be preceded by optimizing the core services in rural and remote Manitoba, and would include the evolving Provincial Emergency Consultation Service (PECS) as described elsewhere in the scan and report. It is estimated that conversion of 300 Medevacs to scheduled services is both realistic and achievable out of the tens of thousands of annual servicing. **The resulting efficiencies and savings are more than sufficient to fund PECS reform and expansion.**

The overall operational structure that is anticipated is rooted in a provincial 911 service, with delivery of services at the regional level. **The missing piece is operational oversight,** Dysfunction that has evolved because of the absence of such governance and oversight can be corrected.

4.6 Home Care

Home care services are provided to Manitobans, based on assessed need and balanced by other available resources. These services are referenced, as well, in the sections of the scan that deal with RHAs. It became **evident that access to and the quality of home care varies significantly across the province**. The essence of home care is to provide services that require neither hospital care nor that available in a PCH. The ideal is not achieved regularly or predictably, namely a seamless transition between levels of care.

There are **defined responsibilities** of the two major players in home care services:

- **Manitoba Health, Seniors, and Active Living**
 - Strategic planning and priorities
 - Policy development and interpretation
 - Monitoring and analysis of services and outcomes
 - Research on benchmarks and best practices
 - Information system standards
 - Provincial and national liaison
- **Regional Health Authorities**
 - Operational responsibility including the planning, delivery, and management of home care services
 - Home care service logistics
 - Care plans and allocation of resources
 - Continuity of care
 - PCH placements where and when required
 - Quality improvement
 - Data acquisition and analysis

It is noted that First Nations peoples who live on reserve are not eligible for the service.

FNIHB does fund home care services for First Nations on reserve; however, the programs have differing criteria for service delivery, as well as the employment qualifications of the staff. Further, a shift to single-stream funding for these services requires acknowledgement of high service delivery costs, including travel.

Viewing home care in Manitoba from multiple perspectives suggests it shares characteristics and problems experienced by most, if not all, Canadian jurisdictions. **Home care is a large machine with**

countless moving parts, performing essential services while lacking a solid infrastructure and adequate human resources despite strong management. Like mental health, it has been studied incessantly without fundamental change.²⁴ The challenges are going to be exacerbated with an aging population, increasing complexity and acuity, and non-alignment with hospital care. Rather than seamless, the system is at risk of becoming dysfunctional

There is a great deal of internal regional variation; the heterogeneity of each region precludes a single answer. The only uniformity across regions appears to be at the senior level, despite a single policy manual. The backdrop to this explains part of the problem: it is estimated that 80% of home care is informal and 20% is formal. It is evident, however, that home care can deal with the greater and growing acuity and morbidity with a more skilled workforce. At the same time, answers are required for two fundamental questions:

Does home care exist to provide a place for hospitals to send people?

and

Is home care a community service that also receives transfers from hospitals?

Equally significant is the challenge facing Manitoba: **How can home care become equitable?** The range of services that are included are: assessment, care planning and coordination, and direct services (nursing, personal care, rehabilitation assessment, meal preparation, home support, and respite). Referrals are managed by the individual's regional health authority and can be made by any of a physician, health care provider in general, family member, friend, or self.

The number of clients that receive home care services in Manitoba has been fairly steady since FY2006-2007, reflected further in the annual average of 39,000 between FY 2008-2009 and 2012-2013. The majority of these referrals come from hospitals (57%) and the remainder from family or friends (15%), physicians (10%), and self (5%). The age cohort of greater than 65 years accounts for almost 75% of service recipients.

Planning for a home care workforce is made more difficult as the drivers of workload become an admixture of age cohorts (an 80% driver is care of seniors, but care of complex paediatric patients is also significant), home oxygen therapy, and home ventilation. **It is increasingly evident the capacity and planning for home care is not adequate for the increasing acuity.** Part of the requirement for change will be information technology that can satisfy the need for data and analysis. **The current data at MHSAL are not thought to be representative or useful.**

Lessons that Span History

In 1992, the then Director of the Office of Home Care in Manitoba presented to an international symposium on social care for older adults with the title of, "Community Care System for older adults in Manitoba, Canada." The paper is worth reviewing today as the relevance and impact suggest little has changed in almost 25 years.

²⁴ See, for example, **Advancing Continuing Care: A blueprint to support system change. Manitoba Health, June 2013; also, the November 2015 Project Charter for A Long-Term Plan for Home Care**

The section on issues for the home care program is still applicable, as follows:

To date, no one has defined or set limits to the boundaries of community care. The primary area of concentration has been on providing support care to individuals to remain in the community. It is likely that the money and resources developed for the target population will continue to be eroded if the community care system has to respond to both support care programs for older adults and primary care programs for the hospital and chronic care facility discharges.

If home care is to remain a program primarily focused on meeting the needs of older adults in the community care system, service will have to be expanded in the area of support to primary caregivers who themselves are becoming older and frailer. More ways of providing community-based service to cognitively impaired clients will have to be developed (approximately one-third of the clients on home care are cognitively impaired). Home care will have to be prepared to meet increased needs of larger numbers of the old, old population (85 years plus). This is the population who use the home care system as an alternative to personal care home placement to an ever increasing amount. It is this population additionally who use higher percentages of service in order to receive the support required to continue to remain in their own home. The program capacity to respond to the younger disabled and handicapped population's needs and expectation of having a lifestyle of self-directed and self-managed care in a "managed care at home system" for sick, old, and frail people often produces conflicts. How can the resources dedicated to the community care system for older adults be equitably distributed amongst the above-named populations?

Risk assessment and risk management for both the program and the client population must be more specifically examined and articulated as the program becomes involved in more and more complex care. Ways and means of pursuing cost containment exercises continue to be the greatest challenge facing the home care program.

Home care in Manitoba is not equitable, especially across regions.

- The complexity and medical acuity of clients in home care is increasing, but the model of home care has not changed
- Training does not meet that required for the acuity of care
- Need and demand for services continue to grow
- Integration between home care and other services is lacking
- Patient profiles are changing
- There are particular challenges with handoffs and care planning

- Required services are not always available
- Rurally the lack of resources is more acute due to lower volumes, lack of allied health professionals, geography, and recruitment and retention Differences between regions in regards to access to home care
- There is no provincial home care provided in First Nations communities

There is a particular service deficit for the under 65 years of age population with early onset dementia/intellectual disabilities/behavioral problems or brain injury. The system is not prepared for this influx of chronic care.

Integration with family services and MyHealthTeams would be beneficial for providing home care services, as would improved access to geriatric teams and clinical psychologists.

A recent provincial home care review provides substantive details of the strengths and weaknesses of home care in Manitoba.

The **key points to be considered for improving home care services** are, as follows:

- Significant regional variation and inequity
- Absence of a seamless interface with the rest of the healthcare system
- Absence of provincial services in First Nations communities
- Under-trained providers to meet acuity levels

4.7 Indigenous Peoples

The indigenous population in Manitoba is large in number (230,000, or approximately 12.5% of the total population). Approximately 33% of Manitoba's indigenous people live in Winnipeg with 40% in the north, and the remainder scattered, but mostly in IERHA, with smaller populations SS-SH and PMH. Winnipeg has the largest First Nations and Métis populations in Canada. Seven Tribal Councils are geographically based in Manitoba and can be characterized as both political and service-oriented.

The overarching allocations between federal and provincial governments are defined by a 1964 agreement. The current federal government is approaching service delivery to indigenous people with greater energy and funding than has been seen for several years.

There is uncontested agreement among the various provider groups and organizations in the north (albeit from silo positions) and provider groups elsewhere in the province that indigenous care is inequitable, fragmented, and anything but patient-centred. This is most obvious in the areas of mental health and addictions, public health, acute care, and palliative care. **A legacy of bandaid therapy must be brought to an end.**

A context for examining and planning care for indigenous populations in Manitoba should include, but not be limited to:

- There does not appear to have been effective communication and alignment among the provincial government, the federal government, and the First Nations leadership; inefficiencies and gaps have not been addressed well
- Up to 40% of urban hospital patients are indigenous
- Indigenous peoples utilize hospitals and medical services at a rate two to three times greater than other Manitobans
- The College of Medicine has included Indigenous health as a significant part of curriculum renewal²⁵
- An important first step would be a common and unified front provided by the federal and provincial governments, standing together with leadership from First Nations, Métis, and Inuit to signal change and mutual support
- The relationship between the MMF and the provincial government differs from the overlay and infrastructure for First Nations
- MMF would welcome an opportunity to participate in receiving the types of services that FNIHB provides

²⁵ While we spend a great deal of time discussing very difficult topics such as racism and colonial oppression, we also want students to recognize the strengths within the Indigenous communities and how the physician can play a role in supporting the work and programs being undertaken within the community.

- Linda Diffey, Coordinator, Indigenous Health Curriculum

- The impact of FNIHB has been diminished by service inefficiencies
- First Nations, Métis, and Inuit would all benefit from strategic alignment with the province; major savings and efficiencies can result from redressing the use of medical travel; wherever possible, services are better received and with greater uptake and compliance, when brought to the people
- Indigenous leaders value autonomy in managing their healthcare, incorporating existing resources and moving forward with additional resources that are required to achieve and maintain:
 - Quality
 - Safety
 - Ongoing identification and resolution of deficiencies in the care model
- Small upfront investments must be recognized for the significant long-term savings; for example, renal program screening; proper footwear that protects against infection

Traditional Healing

It is neither in scope, nor possible, to provide a cogent appraisal of traditional healing and integrative medicine. That notwithstanding, comments on perspective, in light of the mandate of this study, may provide opportunities for ongoing consideration:

- Traditional healing is an integral part of cultural sensitivity
- There is much to learn about traditional healing, and there are many teachers, both within and outside Manitoba
- Trust and mutual respect are the essential elements in consideration of the interface between traditional healing and western medicine
- There is no conceptual model that integrates traditional healing and western medicine
- A realistic goal, particularly in light of a significant indigenous population in Manitoba is one of comfort and opportunity where access is seen as equal and non-threatening
- Strategic implications of the dual roles of traditional healing and western medicine may be founded on the developed role of regional aboriginal liaison officers that are knowledgeable and able to assist in the complex navigation required to demonstrate trust and mutual respect
- Clinical services planning may not be able to critically incorporate traditional healing; however, a strategy and commitment by the planners, funders, and providers of care are a reasonable goal

Evolution of care for indigenous people follows two paths: one is access to required care provided by western medicine; the other, traditional healing. In both instances, the presence of timely and effective care in the home and the community is of primary importance. The evidence supports that the two can exist together comfortably,

Eight Steps Toward Addressing Indigenous Health Inequities²⁶

The health inequities between Indigenous and non-Indigenous Canadians have long been shamefully apparent – the various studies finding infant mortality rates in Indigenous populations to be 1.7 to four times that of non-Indigenous populations; the diabetes prevalence that’s nearly twice that of non-Indigenous people; the fact that Indigenous people are six times more likely to suffer alcohol-related deaths; and many more.

These disparities have become normalized and accepted, says Alika Lafontaine, president of the Indigenous Physicians Association of Canada and an anesthesiologist in Grande Prairie, Alberta. There are signs, however, of increasing recognition from all levels of government that a multitude of efforts and massive, structural changes are required to address the health crisis. “I think many Indigenous leaders have a glimmer of hope now,” says Darlene Kitty, a family physician who serves members of her Cree Nation of Chisasibi community in James Bay, Quebec. Prime Minister Justin Trudeau has promised major funding for Indigenous education and other areas, as well as to implement all 94 recommendations of the Truth and Reconciliation Commission of Canada. One of the recommendations calls for the federal government, in consultation with Aboriginal people, “To establish measurable goals to identify and close the gaps in health outcomes between Aboriginal and non-Aboriginal communities.”

Of course, calling for the health gap to be addressed is one thing. Addressing it is another. That’s why, in support of the TRC’s call, we reached out to 10 people who provide frontline health care to Indigenous people, researchers in Indigenous health and Indigenous leaders. We asked what health system-level changes – big or small – are necessary to begin to address the health crisis facing Indigenous peoples. What follows is meant to provoke a greater understanding and more conversation around the many barriers to health that Indigenous people face at the federal, provincial, local and clinic levels.

1) Better support for health workers in Indigenous communities

Many nurses who serve on-reserve populations are expected to do everything from obstetrics to immunizations to diabetes treatment to mental health counselling. “The turnover rate of registered nurses in Indigenous communities is extremely high,” says Shelly Gladue, director of community and public health for

²⁶ Reproduced from the January 7, 2016 article published in *Healthy Debate*, authors Glauser W, Tepper J, and Konkin J
healthintelligenceinc and associates

the Bigstone Health Commission, which provides home and community health programs for the Bigstone Cree Nation in Alberta. "It's a really big learning curve. It overwhelms the individual." She thinks that providing training and mentorship opportunities can go a long way to help federally funded nurses feel better supported. As Kitty points out, "I hear a lot of stories of nurses providing care on reserve communities but they don't have the trauma training or the Advanced Cardiac Life Support training that they need." But increased funding for nursing staff is necessary, too; the Canadian Association of Nurses recently pointed out that nurses are often unable to leave work to attend training sessions due to inadequate staffing levels.

Kitty adds that the health workers should also be provided time to interact with the culture and people they care for – time that isn't always afforded in communities with staffing issues. "Health workers should be invited to events at youth centres, to go fishing or hiking, to learn some of the language or to have meals with families," she says. "You need to engage with the community and culture to appreciate its challenges and its resilience, to build good relationships with patients, and to feel rewarded in the work you do."

2) Address prejudice among health workers

Lafontaine says that, too often, health workers let media narratives prejudice their encounters with individual patients. "We've done tons and tons of health research but I think what we've got out of it is 'Indigenous people are supposed to be a suicidal, they're supposed to be addicted to drugs, they're supposed to not care about their health,'" he says. "Many times, I've overheard other colleagues ask if the Indigenous patient is diabetic and they say no, and they ask the question eight more times, like they're lying or they're ignorant about their health." Examples abound in Canadian health care of missed diagnoses resulting from the assumption that a person's symptoms are related to addiction. Notoriously, Brian Sinclair died of a bladder infection after health professionals largely ignored him for 34 hours, assuming he was sleeping off drunkenness.

In his cross-country lectures, Lafontaine explains that "no health worker wakes up and thinks, 'I'm going to do harm to Indigenous patients today,'" but, without recognizing it, health workers too often treat Indigenous patients based on previous patient encounters and media reports. Some, including Tailfeathers and Kitty, think mandatory cultural competency courses could help – and the TRC is calling for such courses to be required for medical students.

In addition, health workers should question their treatment of Indigenous patients, Lafontaine says, asking, "Am I diagnosing based on what the patient is telling me and test results, or is prejudice factoring in?" says Lafontaine. Janet Smylie, a Métis family physician and research scientist at the Centre for Research in Inner City

Health, has also written an article suggesting ways those involved in health care delivery can advance reconciliation and respect.

3) Provide benefits for Indigenous people not recognized by the Indian Act

Gloria Fraser, director of the Nune Health Authority in Fort Chipewyan argues that many Indigenous peoples not recognized as “Status Indians” by the federal Indian Act should qualify for federal Non-Insured Health Benefits (NIHB). Currently, Métis are not eligible for these benefits, which cover drugs, as well as travel and accommodation to access needed care. “Métis people also went to residential schools and are dealing with the trauma from that in their community, but they don’t receive the same health benefits,” says Fraser. The discrepancy is especially becoming acute as more and more services, including breast cancer screening, are not available in Fort Chipewyan and require a \$500 to \$1,000 round-trip flight. “It’s a huge barrier for our clients,” says Fraser.

The coverage is also necessary for those in urban areas, where most Indigenous people in Canada reside, adds Smylie. Numerous studies show poverty is “a major barrier to accessing required prescription medications and dental care for Indigenous peoples in urban areas who do not qualify for NIHB,” says Smylie.

4) Put less addictive pharmaceutical options on the formulary

At the Blood Indian Reserve in northern Alberta, approximately half of the 70 people who have died in the past year died from an alcohol or opioid addiction – largely Fentanyl, says Esther Tailfeathers, a family and emergency physician who serves the community.

Various estimates suggest opioid-related causes account for upwards of 1,000 deaths of Canadians each year. The epidemic has especially hit Indigenous communities, with more than half of the inhabitants of some communities struggling with dependencies. In some cases, the drug may be prescribed; in many other cases, they come from the black market. Inevitably, however, when Tailfeathers asks her patients how they got addicted to Fentanyl, they explain it started with opioids prescribed by their doctor.

The federal government can curb this crisis by funding less-addictive options, several of which are more expensive and not on the formulary for Non-Insured Health Benefits, says Tailfeathers. For example, Gabapentin, a powder-containing capsule is currently being mixed with crushed Fentanyl in southern Alberta to create a drug known as “Oxy 80”. Its counterpart, Lyrica, which has less potential for abuse, is not on the formulary.

5) Collaborate more across service providers

Sol Mamakwa, health director of the Shibogama First Nations Council in Sioux Lookout in Ontario, recently heard at a regional roundtable discussion that probation officers or police officers made 12 referrals to health professionals for children to be tested for Fetal Alcohol Spectrum Disorder in a year. The children were around 15 and were being referred only after they had broken laws. "The health system and the education system totally missed the boat on that one," says Mamakwa, who points out that early identification of FASD is the first step to accessing educational and social supports that can help prevent children entering the correctional system. Health providers need to work to build better collaboration across government departments, says Mamakwa. "The different service providers should sit down and start with the question, 'How are we going to make an impact on that five-year-old in the community so in 15 years, she is a healthy, engaged productive member of society?'"

6) Make trauma-informed care the standard of care

The trauma of residential schools is not dissipating with generations, but snowballing, says Mamakwa. He explains the phenomenon this way: "People who went to residential schools were abused by strangers, but the youth now, they may be abused, but the abusers may be people they know." As Tailfeathers puts it, "A lot of parents who went to residential schools often abandoned their children because they were dealing with their own trauma, or they ended up losing their children to the system because of their addictions."

Health workers who treat victims of trauma in a way that's perceived as authoritative or judgmental can trigger traumatic memories and lead Indigenous people to avoid health care settings. For this reason, The Klinik Community Health Centre in Winnipeg calls for health providers to provide care that is "trauma-informed." Its Trauma Toolkit provides practical instructions to avoid acting in a way that could be interpreted as coercion or judgement - including making decisions "with" patients rather than "doing to." Health workers should also make it clear to patients that they understand their addictions as necessary "survival mechanisms," while helping them on alternative ways to cope with trauma.

Of course, trauma-informed care will not resolve the trauma that many Indigenous people have been exposed to. As Smylie notes, classic cognitive behavioral therapists typically don't have comprehensive trauma training and can unintentionally re-traumatize clients. Smylie estimates that based on prevalence of severe trauma, 40,000 trauma therapists are necessary for Indigenous people in Canada. "Yet currently, there is not a single readily accessible trauma therapist I can refer to in Toronto," she says.

7) Address smoking rates in Indigenous communities

Almost a third of First Nations and Métis people smoke, while the smoking rate among the Inuit is 39%, according to Statistics Canada. Smylie explains extremely high rates of PTSD and depression in many Indigenous communities – both highly correlated with smoking – provide context to the prevalence of smoking.

“We know that two-thirds of smokers will die from tobacco related diseases,” says Raglan Maddox, a postdoctoral fellow at the Li Ka Shing Knowledge Institute of St. Michael’s Hospital who has studied public health interventions for Indigenous people in Canada and Australia. But mainstream public health messages may not work in Indigenous communities. “There is a need to recognize the significance of tobacco among First Nations and to differentiate ceremonial tobacco and commercial tobacco,” says Usman Aslam, a manager with the Aboriginal Cancer Control Unit at Cancer Care Ontario (CCO).

Indigenous-centred resources for smoking cessation, are available online. In partnership with the CCO’s Aboriginal Tobacco Program, CAMH offers a course to help health practitioners support smoking cessation efforts to First Nations, Inuit and Métis populations.

Maddox warns, however, that a single approach isn’t adequate for Canada’s diverse Indigenous population. “There are massive differences among Indigenous communities in Canada – north and south, east coast and west coast, and the cultural tapestry of First nations, Métis and Inuit people,” says Maddox. “This complicates the public health messaging to some regard.” With research indicating that positive messaging showing to be especially effective, Maddox suggests health workers team up with local Indigenous people to find the positive messages that will resonate most in their community.

8) Implement basic standards for supplies in nursing stations in remote, Indigenous communities

In Canada, the federal government is responsible for health care for Indigenous people defined as “Status Indians,” while provincial governments are responsible for non-“Status Indian” Indigenous people and all other Canadians. The result is a two-tier system, says Lafontaine, with fewer health care resources available for Indigenous people. “Often, federal medical clinics in the north lack basic antibiotics or basic core emergency drugs like Ventolin,” says Lafontaine. “The clinic in Fort Vermillion [in Northern Alberta] is run by Alberta Health Services, and if they run out of these basic supplies, AHS pulls out all the stops to ensure they have continuity of care,” Lafontaine explains. “But when a nearby clinic that serves the Indigenous population under federal jurisdiction runs out of these supplies, they have to phone into Ottawa and wait days for approval.” (The Auditor General’s

report from 2015 noted that the federal government does not routinely assess whether its nursing stations are able to provide essential services.)

According to Lafontaine, the disparities will only be addressed by more advocacy from health providers and the exposure of two-tier standards as unacceptable, says Lafontaine. "Health care professionals need to be more open about sharing these stories, about how ridiculously difficult it can be to access certain kinds of medication and to get approval for transport for Aboriginal patients – things that rarely happen when patients fall under provincial care."

"Do it with us, not for us"

A respected health and social services leader of Indigenous peoples in Manitoba reported on this statement, articulated to her by a youth. In many ways, this statement captures the required action.

To summarize issues as presented to the consultancy and consonant with the information provided in this section:

- Where possible, face-to-face is the preferred service; telehealth is a supplement
- First Nations communities are seeking care as close to home as possible²⁷
- Indigenous populations want more physicians on reserve²⁸
- Racism is rampant; indigenous peoples feel like they don't matter
- There is support from the Indigenous leadership for examination of an Indigenous health system that is First Nations-led
- Self-determination and governance are critical to First Nations; preference has been expressed for local health development²⁹
- The mental wellness initiative holds potential for Indigenous peoples; however, there is still a suicide crisis
- Any planning process must include ongoing engagement of Indigenous peoples through the leadership
- Generation and acquisition of data has been difficult; it is always appreciated when data are shared

²⁷ **The consultancy extends this ideology to all Manitobans, especially those who struggle with remoteness**

²⁸ **The consultancy would extend this to include more providers of care in the broadest sense**

²⁹ **Examples are the new facility in Cross Lake, Opaskwayak Health Authority, and Misipawistik Cree Nation**

Silos

Silos dominate the landscape of non-evolved, unplanned care. This is particularly evident in the care provided to Indigenous peoples and, especially, in the geographic area of NRHA. The silos have developed inadvertently, but are an imposing presence nonetheless and are contributory to a \$100 million medical travel expenditure.

In the north, the silos are comprised of:

- Remote and rural communities with an inadequate transportation infrastructure and inconsistent provider cohorts
- Funding conflicts extending directly from a federal stream (FNIHB) and a provincial stream
- Denied provincial services (First Nations home care)
- Alignment of Churchill with WRHA
- Northern Regional Health Authority
- Northern Medical Unit
- Amdocs

Resolution of the current state impediments is a first step priority. This will require a merging of solutions from the perspectives of the Indigenous leadership, clinical governance, and corporate governance. The existing silos (and, therefore, boundaries) will be challenging to resolve; however, the consequences of failure are severe.

Another issue that warrants careful attention is medical travel and its funding from or within the north:

- NRHA incurs a substantial financial burden that relates to First Nations medical travel; the federally funded medical travel is primarily one-way - - as such, discharge after an emergency department assessment or hospitalization often leads to an unfunded liability where NRHA absorbs the cost of repatriation of the patient to his or her home community.

Included in the solution will be other recommendations in this report:

- Alignment of each remote community with a MyHT
- Integration of cultural respect and traditional healing
- Where possible, diagnostics closer to home
- Where possible, therapies (including palliative and public health), closer to home

4.8 Maternal Health

Maternal Health services in Manitoba are provided by obstetricians, family physicians, obstetrical nurses and midwives. These providers are actively exploring how they can improve and expand the services they provide to address a steadily growing demand for services from an increasing birth rate.

More recently, these providers have come together to explore how they can work more effectively together, particularly in relation to patient referrals. As well, efforts are underway to establish a low risk obstetrics quality council with members from the disciplines of obstetrics, family medicine, and midwifery.

There are 60 obstetricians estimated to be delivering babies in Manitoba:

- Health Sciences Centre - 28
- St. Boniface General Hospital - 18
- Brandon - 5
- Thompson - 4
- Selkirk - will support 1 - 3 when new hospital opens
- Flin Flon - 1 (with outside coverage support)
- The Pas - 1 (with outside coverage support)

As well, obstetrical services provided by family physicians and the nursing profession have been, and will continue to be, an essential component of maternal health in the province.

The service has been expanded through the increased use of telehealth and decentralized colposcopy services. Obstetrical capacity at SBH is 5,400 deliveries annually; the current HSC capacity is 5,600, which will increase to 6,700 on completion of the new women's hospital. A major driver of future workload will continue to be a high immigration rate for women of childbearing ages.

Fetal assessment services provided by MFM subspecialists are driven, largely, by a high rate of gestational diabetes mellitus; 18% of the aboriginal population will become diabetic, so half will become gestational diabetics. Particularly notable is a high rate of gestational diabetes mellitus in the region around Garden Hill; as a result, there is a requirement for a high rate of third trimester transfer for monitoring. It should be noted that fetal assessment ultrasonography can be performed at a distance, as long as there is an interpretation available from an MFM subspecialist.

The postgraduate training program for obstetrics and gynecology at the University of Manitoba graduates three fellowship positions annually. In the most recent year; only one of these could be placed and, in the year prior to that, none were placed. There is a relative oversupply of obstetricians and gynecologists in Winnipeg (most acutely notable with no available operating time). The PGME allocations have not been aligned with a needs assessment.

The subspecialty services provided by the obstetricians and gynecologists are:

- Gynecological oncology (GO) - - five providing 4.0 FTE services - - will require 5.0 FTE to accommodate anticipated family responsibilities
- Maternal-fetal medicine (MFM) - - 5.0 - 6.0 FTE

There is obstetrical support for advancing a model that includes the following elements:

- All Manitoba obstetricians and gynecologists (including those with areas of subspecialty) aligned with a single provincial department responsible for clinical and preventive services, coverage, standards and guidelines, and administration
- The provincial department will include required and defined anaesthesiology and neonatology expertise
- Support for general practitioners with adequate training to perform Caesarean sections in more rural hospital settings
- Distant fetal assessment ultrasonography
- A northern MFM model with bi-weekly travel clinics in addition to remote support
- Support for midwifery services provided in birth centres that are part of a hospital setting

The profession of **midwifery** is less active in Manitoba than in some other provinces and much less active than in various countries. Midwifery was first regulated in Manitoba in June 2000. It was seen as a positive direction due to the provision of comprehensive care (prenatal, natal, postnatal, newborn, and family) and a population seeking this level of care and, ultimately, seeking care and delivery closer to home.

Midwifery takes a low-risk approach to maternal-newborn health that has had positive outcomes for populations in terms of high normal birth rates, reduced preterm deliveries and high rates of breastfeeding initiation that continues to exclusive breastfeeding at six weeks of age.

Midwifery facts and numbers:

- Midwives are employed by the WRHA; the FTE capacity is 29.5 with an FTE of 13.5 practising at the freestanding birth centre
- In total, there are 50 midwives in the province; in addition to Winnipeg, there are four in NRHA, six in Brandon, 12 in SH-SS, and none in IERHA
- Approximately 50 to 60 percent of those who request midwifery services can be accepted into care
- Sites other than the birth centre are also used as offices

- A nurse midwife is not able to maintain licensure in the absence of performing home births; home births are not supported by the College of Nurses, so the number of nurse midwives is decreasing
- Midwifery has not yet succeeded in working with the province to acquire cost-efficiency data
- Maintenance of licensure requires five out-of-hospital deliveries every two years
- Midwifery offices in Manitoba are located, as follows:
 - WRHA (five - community health clinics, access centres, and the Birth Centre)
 - In WRHA, midwives attended births in hospital (69%), Birth Centre (27%), and home (4%)
 - Brandon
 - Winkler
 - Steinbach
 - Thompson
 - Norway House
 - The Pas
- Midwives envision an expanded base in the province that would include regional birth centres; the first two could be in Selkirk with the new hospital, and in Thompson to serve the north along with Norway House; three midwives were thought a reasonable model for each of Thompson and Norway House, plus six to staff Brandon
- Skilled obstetrical nurses are seen as the second birth attendant in the regional sites
- The new women's hospital in Winnipeg will be at full capacity when it opens

Initially, midwifery was seen as a solution for vulnerable populations in remote settings. This has now shifted to non-vulnerable populations and based in Winnipeg. The future state still includes 50% of midwife deliveries for vulnerable populations, especially indigenous communities with a very high cohort population of women in child-bearing years.

The birth centre opened in 2011 with a plan for 12 midwives providing comprehensive care and 500 births annually. Originally, it had been anticipated that family physicians would be part of the centre; however, the CPSM blocked this by declaring deliveries at the birth centre to be equivalent to home births (despite monitoring and resuscitation equipment).

Midwifery services have been characterized, as follows:

- Continuity of care from prenatal through six weeks postpartum including newborn care

- Respect for informed choice - - this has generated some expressions of concern, particularly for no ultrasonography and no induction for premature rupture of the fetal membranes
- Choice of site of birth
- Longer immediate postpartum care (45 - 120 minutes)

The birth centre target of 500 births annually set five years ago has not been achieved. In 2015, there were 156 births at the centre (180 admissions), at the mid-point of 2016, there had been 88 births (with a revised annual target of 200).

The most common reason for transfer of care to SBGH and to HSC is reported as the absence of analgesic support at the birth centre other than nitrous oxide. Maternity experts, other than midwives, can support a birth centre, but only if integrates to a hospital setting.³⁰

Midwifery has identified five relevant issues:

- Manitoba is a large geographical area with a relatively small and significantly dispersed population
- The birth rate will continue to increase, especially in Indigenous populations
- Access and equity are important dimensions in maternity care in Manitoba
- Care close to home is consistently identified as being of high importance to indigenous populations and remote communities
- Manitoba has not articulated a low risk obstetrics strategic plan

Manitoba midwives have targeted 2020 as a year in which to reach 100 practising midwives in the province with 20% of births being midwife-attended. These numbers are high relative to the current state, with current numbers of midwife-assisted deliveries lower than anticipated.

The issues that must be addressed to provide access to quality maternal services to women in Manitoba include the following:

- Geography presents special challenges in planning for safe and accessible maternal services
- Technology, such as remote ultrasonography, will assume progressive importance in providing ongoing risk assessments without unnecessary travel; the parallel requirement is the availability of an MFM specialist to support the service; this can be considered as part of a provincial program of telehealth fetal assessment coordinated by Manitoba eHealth
- A comprehensive perinatal database for Manitoba is a fundamental requirement, to include non-hospital deliveries

³⁰ **The midwifery model in British Columbia has been recommended for consideration**

- The model for maternal care should be one of regional centres developed and coordinated by a provincial lead with the authority within clinical governance to effect change³¹ including the development of provincial standards
- A provincial threshold for a minimum number of annual deliveries at any one facility should be established and aligned with a call rotation of one-in-three at a minimum
- A provincial electronic prenatal record is required with an early implementation coordinated by Manitoba eHealth
- Midwifery services in Manitoba should be expanded to more rural settings and include back-up support for both mother and child; over time, midwifery services are best integrated with rapid hospital access, to be defined provincially

³¹ For example, approximately 200 women from the Steinbach area travel to St. Boniface General Hospital for delivery

4.9 Mental Health and Addictions

MCHP estimates that one-in-four Manitobans experience anxiety or depression; as well, at the level of primary care intervention, the common primary care tool is pharmacology and the use of that tool has been considered both inappropriate and early in a management cycle. In contrast, stepwise layers of cognitive behavioural therapy (CBT) are underused and not sufficiently available, despite the compelling evidence for such services.³²

The state of mental health and addictions (MHA) in Manitoba is not dissimilar from the rest of the country; despite dedicated resources and professionals, the issues of access and service are inadequate, not only in rural and remote areas of the province, but urban³³, as well. Mental health and addiction counselors, psychologists, and psychiatrists all strive to break through the wall of timely access to an appropriate level of care and follow-up, but the difficulties continue. One of several examples of clinical failure are repeated Medevac transfers from the north to Winnipeg (not infrequently under police escort), followed by an emergency department assessment and a return flight without a system capacity to implement follow-up or a treatment plan.

A valuable resource of the WRHA current state has been prepared by WRHA mental health program.³⁴ As well, Women's Health Clinic and Postpartum Depression Association of Manitoba have put forward a carefully considered joint proposal.³⁵

Further, it is essential to better position team-based care for those with acquired brain injury.

Without exception across Manitoba, access to MHA services tops the priority list of providers and patients, alike; that list includes (often with cross-over) care to Indigenous populations, palliative care, primary care, and care of older adults. The underpinning metrics suggest 7% of public sector health spending goes to MHA, with the national estimate closer to 12%. Another economic view is that 4% of GDP is spent on mental health where the gold standard is 6%.

An additional obvious gap is within provincial paediatric mental health services where the most severely effected children have access to a single inpatient unit at HSC. Strategic planning for MHA has included shared care (with 10% of WRHA primary care), the Program of Assertive Community Treatment (PACT), and geographically based mental health teams. Approximately 90% of mental illness can be identified prior to a patient's 25th birthday.

Suicide is a growing problem in Manitoba, as elsewhere; this is especially true for suicide by youth and adolescents. Prevention strategies are being initiated, provincially and nationally.

³² See, **Improving Access to Psychological Therapies**

³³ **There are, for example, 14 community agencies supported by operating agreements with the WRHA; as well, service volume is significant at Selkirk Mental Health Centre and Brandon Eden Mental Health Centre**

³⁴ **Provincial Clinical and Preventive Services Planning Request for Evidence-Based Models for Mental Health; submitted by WRHA Mental Health Program**

³⁵ **Joint Proposal for Perinatal Mental Health Services; submitted by Women's Health Clinic and Postpartum Depression Association of Manitoba**

One cohort of the mental health team in Manitoba is that of **psychiatry**. The head of the department³⁶ has characterized their strengths:

- Increasing number of faculty working in hospitals, community settings, and private practice
- Biomedical and neuromodulation expertise
 - Medication
 - Electroconvulsive therapy
 - Transcranial Magnetic Stimulation
- Psychosocial Interventions
 - Psychodynamic therapy
 - Cognitive behavioural therapy
 - Dialectic behavioural therapy
 - Interpersonal therapy
 - Family therapy
 - Supportive therapy
 - Group therapy

Also identified in the vision presentation is a list of strengths across the province:

- Collaborative care with primary care providers
- Assertive Community Teams
- Crisis Response Centre
- Child and adolescent
- Forensics
- Adult eating disorders
- Operational stress injuries
- Clinical health psychology

Prioritizing care within a strategic plan requires the identification of the most vulnerable groups:³⁷

- Psychosis/bipolar disorder
- Cluster B personality, PTSD, addictions
- Indigenous groups
- Refugee groups
- People with physical illness
- Perinatal mental health

³⁶ **A Vision for Mental Health in Manitoba: Leadership, Innovation, and Team Work; presentation by Dr. Jitender Sareen, April 2016**

³⁷ **Ibid**

- Psychogeriatrics

Provincial Medical Leadership Council (PMLC) Working Group on Mental Health (2013)

The mental health working group worked within the context of mental health being a core component (or service) of the overall health care system. If patients in crisis present to or are brought to mental health centres that are inadequately prepared or equipped, the staff and other patients are at risk of harm.

The assessment of a patient in a mental health crisis requires five related services before making a definitive psychiatric assessment and determining a need for admission to the facility:

- Physical health screening
- Mental health screening
- Risk assessment
- Immediate short-term supportive intervention
- Possibly medication

The viable solution was considered to be expansion of local expertise and support to enable the majority of patients to be managed close to home, reserving the transportation to Winnipeg or Brandon for select complex cases. This overall approach was considered best to align with the objectives of quality, accessibility, and patient-centred. These mental health hubs followed the lead of the successful cancer care hubs.

While geography and case volume were considered the most essential characteristics of centres in the mental hub model, other factors were considered to be:

- Mental health clinical support
- Access to a consulting psychiatrist
- Facility suitability
- Access to mental health admission when needed
- Facility and personnel willingness

Facilities recommended for consideration as mental health hubs in a framework for a provincial mental health strategy were, by health region:

Province

- Selkirk Mental Health Centre (suggested that this facility is disconnected from a provincial model and has not achieved its full potential)

IERHA

- Pine Falls Hospital

SH-SS

- Portage Hospital
- Boundary Trails Hospital
- Steinbach Hospital

PMH

- Brandon Hospital
- Dauphin Hospital
- Swan River Hospital

NRHA

- Thompson Hospital
- The Pas Hospital
- Flin-Flon Hospital

In addition to the further considerations of access to inpatient beds and to on-call psychiatrists, three fundamental issues would require attention:

- Expanded numbers of Crisis Stabilization Units (CSU)
- Significant housing and community supports
- Ability to provide ongoing mental health care

To include mental health care for **child and adolescent populations**, a similar model was recommended, using Winnipeg, Brandon, and Thompson as the hubs, realizing the difference in skillsets required and their relative absence in Thompson.

The lack of extensive mental health services in almost all **First Nations communities** in Manitoba makes these high needs communities much more likely to access Winnipeg based tertiary care and emergency services as a first response. This access often comes by Medevac which is costly in terms

of the dollars involved in air transport or by RCMP transport which is costly both in terms of the overtime costs for the police service, and in terms of the loss of policing resources in the home communities while these members are transporting mental health patients.

Program of Assertive Community Treatment

PACT is one of a range of community services offered as a community health program. PACT is appropriate for a small portion of the population of people with mental illnesses and is particularly suitable for individuals with psychotic disorders who have continuous high-service needs indicated by:

- High use of inpatient psychiatric services
- Frequent use of medical services
- High use of emergency and crisis services
- Residing in hospital or a supervised community residence, but could live more independently if intensive services were provided

PACT is an outreach oriented comprehensive community treatment, rehabilitation, and support service designed to meet the needs of people with severe and persistent mental illness. The service is provided to participants in their homes, at work, and in community settings.

Services include attention to both mental health needs and basic needs such as everyday activities like caring for oneself, taking medications, establishing social relationships, finding and keeping places to live and work as well as managing finances. Services enable participants to regain stability, take steps towards recovery, and achieve personal goals.

A multi-disciplinary team of mental health professionals including a psychiatrist, nurses, social workers, occupational therapists, mental health specialists, addiction specialists and vocational rehabilitation specialists, provides PACT services with a low staff to client ratio, using a team approach and shared caseloads. Each client has an individualized recovery plan, receives assertive outreach and can expect continuous service over the years.

PACT has an unquestioned impact on those requiring the services; however, the rate of growth has not been satisfactory. In the WRHA, the first PACT team was established 15 years ago, the second, nine years ago, and the third, two years ago. It has been a program target to support seven PACT in WRHA; this requires an accelerated stepwise plan.

Rapid Access to Consultative Expertise

Rapid Access to Consultative Expertise (**RACE**) facilitates the provision of minor psychiatric advice when that is all that is required. With Canadian roots in British Columbia, a RACE line provides structure to promote easy accessibility while allowing for sustainability through an organized rotation. Patients may have their healthcare issue dealt with in their FP office instead of needing to see a specialist. This will often render face-to-face consultation or referral to an emergency department unnecessary.

In Manitoba, RACE is a joint service initiative of the Manitoba College of Family Physicians and the WRHA mental health program. One dedicated telephone number provides access to psychiatric advice for primary care providers. The service began in the WRHA in June 2016 and is intended to become provincial - - there is no question that a provincial roll-out needs to be expedited to reflect:

- High use of inpatient psychiatric services
- Access to early psychiatric advice for mental health patients in a primary care practice
- Advice on treatment adjustment
- Reduction in low-priority office referrals
- Ongoing information transfer and continuing education
- Promotion of ambulatory health and reduction in hospital admissions
- Support on choice and timing of investigations

The experience in British Columbia can be characterized as:

- 90% of calls are less than 15 minutes in length
- 60% of RACE contacts avoid face-to-face consultations
- 32% of calls avoided visits to an emergency department

The efficiencies and capacity gains in British Columbia are estimated to save \$200 per call.

Access issues, particularly in remote and underserved communities will improve substantially with the type of support offered by PECS, RACE, and telehealth. Further gains are achievable through the use of **Early Psychosis Prevention and Intervention Service (EPPIS)**.

EPPIS was designed in WRHA for individuals experienced a first episode of psychosis, and provided by a community-based multidisciplinary team that emphasizes a multimodal treatment plan. It is a needs-based service designed to optimize outcomes through early intervention. Eligibility criteria are:

- A diagnosis of a primary psychotic disorder: presence of delusions, hallucinations and/or thought disorder (not related to substance use alone)
- Symptoms not explained by other medical conditions
- Assessed as having the ability to participate in treatment plan within EPPIS
- Living within the Winnipeg Regional Health Authority catchment area

Expansion of EPPIS to a provincial program will require additional resources, but will link with PECS, RACE, and telehealth in achieving progressively improved outcomes in assessing and dealing with mental illness.

A realistic and early step for Manitoba is an encompassing mental health strategy that incorporates provincial leadership as part of clinical governance. This will facilitate the introduction of new services and an improved alignment with existing resources, in keeping with the understanding of core services referenced separately in this scan.

Crisis Response Centre

The Crisis Response Centre (CRC), located at HSC, is a 24/7 service that provides walk-in assessment and treatment for those in mental crisis; CRC also provides referrals to other mental health services.

The Crisis Response Centre is designed for adults who are experiencing:

- Personal distress and who are at risk of harm associated with the immediate crisis, including suicide
- Symptoms of a mental health condition that requires assessment and treatment
- Circumstances which require de-escalation to prevent relapses
- Mental health problems that, if dealt with, may prevent hospitalization
- Emotional trauma, where assessment, crisis intervention and links to longer-term services can be made
- Difficulty obtaining ongoing services after a crisis
- Difficulty obtaining help after hours when mental health service providers are unavailable

Addictions

The administrative isolation between mental health and addictions at MHSAL is being addressed by government, but at a rate that could be accelerated.

Challenges in addiction services can be captured, in part, by the following:

- Need exceeds demand and demand cannot be addressed in a timely fashion
- 350 patients are under the care of an opiate replacement program (Methadone) at Addictions Foundation Manitoba (AFM); another 130 patients are on a waiting list that is expected to grow due to Fentanyl crises
- The only opiate replacement program outside of Winnipeg is in Brandon; that notwithstanding, many patients are from remote communities, including Dauphin, Swan River, Thompson, Selkirk, and Steinbach, and receive care through both the Winnipeg and Brandon programs; as well, in addition to face-to-face appointments, these patients link with their doctor by telephone or telehealth for other appointments
- A recent working group report stressed the importance of expanding opioid replacement therapy (ORT) services in Manitoba; currently, AFM has organized its ORT services in ways to

have broad provincial reach, albeit the total number of about 425 for both programs (Winnipeg and Brandon) still do not address the need; AFM has about 10 doctors providing various clinic time in an ORT program. In addition to assistance provided by a contract psychiatrist for complex and comorbid patients.

- AFM is a longstanding crown agency in the province, with over 400 staff and 26 locations
 - 90% of addiction services are provided by AFM with a \$29m budget
 - 10% of addiction services are provided by other organizations, including specialized residential treatment facilities; the 10% non-AFM cost \$9m annually
 - From 40% to 50% of AFM services are provided to First Nations peoples³⁸
- Primary care addictions screening is considered to be lacking; much need goes unrecognized
- Treatment near to home is the ideal goal (difficult in dispersed populations); the Brandon treatment facility has 22 beds; the central north has 18 beds in Thompson plus six withdrawal beds staffed by a nurse who works closely with the local hospital and clinic; care to women and men in Winnipeg is provided in a 60-bed facility and an apartment block of 30 units; there is a 14-bed youth residential facility in Portage; there is a 22-unit treatment facility in Ste. Rose, near Dauphin
- Data collection in the area of addictions has been inadequate
- There is one 11-bed detoxification centre in Manitoba

AFM serves clients in all categories of treatment; it is estimated that 90% of people that seek services are provided with addictions care. This is a response to demand rather than need, but still reflects good access. Wait time data supplement the core AFM data. However, at a more granular level, in the specialized primary residential category, about 60% receive services and only 30% of those needing detoxification services receive care.

Prevention and early intervention outside of the addiction treatment system can be anticipated to save lives, morbidity, and family distress. An identified underused potential is screening and brief interventions in primary and acute care services.

Substantial work remains to be done and expand addiction resources across the continuum of care.

Equity and Mental Health and Addictions

Inequities characterize much of MHA in Manitoba despite strong programs and professional resources; these inequities have a negative impact across the entire province. Marginalized groups are more likely to experience poor mental health and mental health conditions. As well, these

³⁸ **An elder is on staff at the Brandon facility; as well, there are weekly elder services at Thompson, also the site of a dedicated cultural room**

underserved populations have decreased access to the essential social determinants of health that are essential to recovery, prevention, and positive outcomes.

The stigma of mental illness has not shifted substantially, and those who have lived it still experience discrimination and social exclusion.³⁹

Conclusions

A strategic plan for the mental health and well-being of Manitobans was published by Manitoba Health in 2011;⁴⁰ it continues to be valid, as witnessed in the following introduction abstracted as, *Why a Mental Health Strategic Plan in Manitoba?*

The significant benefits of positive mental health and well-being are well documented. Mentally healthy adults report:

“. . . the fewest missed days of work, the healthiest psychosocial functioning (ex: low helplessness, clear goals in life, high resilience, and high intimacy), the lowest risk of cardiovascular disease, the lowest number of chronic physical diseases with age, the fewest health limitations of activities of daily living, and lower health care utilization.”

Taking a whole population approach to mental health promotion and targeting people who show early signs of mental illness or with high risk factors for developing an illness has been determined to be effective in preventing mental, emotional and behavioural disorders. Mental health problems and illnesses affect people of all ages and from all walks of life, and touch the life of every Manitoban, in one way or another, given that one in four Manitobans experienced at least one mental illness diagnosis in a five-year period from 2001 to 2006.

Approximately one in four Manitobans had one or more of five mental illnesses - depression, anxiety, substance abuse, schizophrenia or personality disorder. Estimates suggest that at least 70 per cent of mental health problems and illnesses have their onset in childhood or adolescence. In Manitoba, the overall prevalence of social and emotional problems in children at age five is at least 20 per cent. Research also indicates that between 20 to 25 per cent of seniors experience mental health problems and illnesses.

Manitoba's Aboriginal population represents approximately 14 per cent of Manitoba's total population and 25 per cent of Manitoba's youth. Evidence suggests that Aboriginal people consistently experience significantly higher rates of mental illness and addiction as compared to the general population. As well, they experience higher rates of suicidal behaviour than the general population.

For example, in a ten-year period starting in 1998, First Nations youth in Manitoba attempted suicide over six times more often than non-First Nations youth. Suicide deaths are almost three times more prevalent among on-reserve First Nations adults than all non-First Nations adults. Suicide attempts in Metis people (age 10 and up) are also higher compared to all other Manitobans. These facts speak to the great need for healing and recovery from past traumas, and the need to address determinants of health.

³⁹ **Advancing Equity in Ontario; understanding key concepts. May 2014; Canadian Mental Health Association, Ontario**

⁴⁰ **Rising to the Challenge**

healthintelligenceinc and associates

Manitoba continues to be a popular destination for new immigrants. In 2006, visible minorities made up almost 10 per cent of Manitoba's population. There is some evidence that immigrants, particularly refugees, are especially vulnerable to significant mental health problems and illness, likely as a result of past traumatic experiences and current determinants of health.

The passage of five years and its continuing high relevance suggests that reading this entire report holds value.

Overall, investing in public health and mental health will carry the largest impact in Manitoba, but that impact tends not to be visible and is not easily measurable.

Four recurring lessons continue to be prominent:

- Don't spend money on solutions for mental illness that are not based on evidence
- Early intervention in mental illness is critical to achieving maximum benefits
- Tele-psychiatry is under-used in Manitoba⁴¹
- Care for addictions and substance abuse is not sustainable without a new approach

Considerations to improve mental health and addictions care in Manitoba include the following:

- **Mental health and addictions should be restored as a single program at the Ministry of Health, Seniors, and Active Living**
- **The driving principles behind assisting mental health and addictions are early interventions⁴² and funding only what works and is based on evidence**
- **Expanded programs are required for forensic psychiatry, sexual assault, victimization and victims of assault**
- **Both children and older adults require access to evidence-based non pharmacological therapies**
- **Whenever possible, treatment and interventions should be provided as close to home as possible and be inclusive of:**
 - **Spiritual health**
 - **Traditional healing**
 - **Trauma-informed care**
- **The current demand for addiction services exceeds the available resources; the need is even greater**

⁴¹ In the United States, six psychiatrists can cover an entire state with tele-psychiatry

⁴² 90% of mental illness is identifiable prior to a patient's 25th birthday

- **Treatment for addiction services should as close to home as possible, acknowledging the difficulty in dispersed populations**
- **The existing approach to providing mental health and addiction services in Manitoba requires restructuring**
- **Provider analysis supports the following:**
 - **There are sufficient psychiatrists in Manitoba with the exception of Selkirk where the number should be increased by four or five in tandem with a redefined role for the centre; what is required is appropriate referrals to psychiatry and timely access**
 - **There is a significant deficiency of clinical psychologists in Manitoba, both in terms of absolute numbers and benchmark numbers (19/100,000 in Manitoba compared to 49/100,000 in Canada)**
 - **Clinical psychologists should be trained at the doctoral level and be integrated into team-based care**
 - **There will be a need for an increased number of mental health counselors, registered psychiatric nurses, and social workers with additional training in mental health and addiction services**
 - **There is a very limited role for primary care providers in the delivery of mental health services (once a full complement of appropriate providers is achieved); the exception to this are general practitioners and family physicians with training in the field**
 - **Other than those primary care providers with appropriate training, funding should be provided or scheduled for these services once a new provincial mental health infrastructure and program is functioning**
- **The Selkirk Mental Health Centre should be aligned with the WRHA, or a provincial entity if one emerges, and assume a role to be defined by the lead in a Manitoba mental health provincial strategy**
- **The role of doctoral clinical psychologists in the delivery of mental health services in Manitoba should be redefined and the number of practising psychologists targeted at the national average with funding through the public purse:**
 - **Existing and effective roles in tertiary centres should be protected**
 - **Clinical psychologists should be included in MyHT, with the number based on catchment population for that MyHT and adjusted for population need**
 - **The community roles for clinical psychologists should include primary services to MyHT patients, regular visits to the remote community aligned with that MyHT, and referral assessments for psychiatrists to determine quickly who requires urgent**

referral based on early diagnosis, who requires mental health and addiction services from other mental health professionals, who requires stepped cognitive behavioural therapy beginning with self-care, who requires dialectical behavioural therapy, and who does not require further navigation but can appropriately remain in a primary care setting

- **The referral role described in the setting of MyHT should also be provided in Winnipeg and Brandon even if affiliation with MyHT is not achievable at a point in time**
- **An adolescent suicide prevention strategy should be supported at the provincial level at the earliest possible date**
- **Early Psychosis Prevention and Intervention Services (EPPIS) should be supported and included within the role described for clinical psychologists**
- **Rapid Access to Consultative Expertise (RACE) should be supported and measured for impact**
- **Program of Assertive Community treatment (PACT) should be expanded under the direction of the provincial mental health lead**
- **Tele-psychiatry should be expanded**

4.10 Palliative Care

Palliative care in Manitoba is provided by a relatively small number of physicians, nurses, and home care aides. It is evident that palliation is responding to demand and that a strengthened provincial model will be required to respond to need, especially with the shifting sands of Medical Assistance in Dying (MAID). MAID will restore a focus on palliation across Canada. The other important component of care is the Palliative Care Drug Access Program. MHSAL operates the drug access program, and the RHAs provide the service. As with most services in the vast Manitoba geography, the more remote the site, the less the access and equity of care.

The numbers of patients receiving palliative care have been reasonably steady, with a slight increase. What is not known or predictable is the future workload that reflects unmet need; it will, however, be significant and the province needs to plan accordingly. Some patients enter palliation early and some, late; early entry is preferred (but, only when the patient is comfortable with the need for support). In addition to the pending operational requirements, the only hospice beds in the province currently are 16 at two sites in Winnipeg. Telehealth is a technological resource that is of assistance, but currently underused.

A provincial palliative care program is an essential component of the clinical and preventive services plan, and will become even greater in impact as more is learned by the public and their providers. The ultimate goal will be a provincial team to lead palliation and regional teams to deliver the care.

Seminal Thinking

The 2013 report of the PMLC Palliative Care Working Group provides the seminal thinking on palliative care in Manitoba using a clear and precise approach that warrants review by decision-makers. To be noted, however, is that the working group was mandated to look at the care through a lens of fiscal constraint which would limit the scope of recommendations. Fiscal constraint is appropriate but requires acknowledgement.

The **key points** distilled and abstracted from the report are, as follows:

Palliative care is comfort-focused care and support for those affected by life-limiting illness. The centre of care is not only the patient but also the family, and in small rural and remote settings, the community as well may experience the impact of the illness. This is particularly the case in First Nations communities, where the burden of illness and loss is often felt and shared by all.

The end of life-limiting illness with care focused on comfort should be an experience shared by the family and community with the peripheral support of health care, rather than a medical event with peripheral involvement of family and community.

The logistics of care provision in First Nations communities are further complicated by jurisdictional issues.

- **Gaps and Barriers**
 - Insufficient funding committed to palliative care services and resources

- Limited support by nursing, Home Care, and medical personnel, particularly 24/7
- Limited availability of local staff with specific expertise in palliative care
- Jurisdictional issues around funding palliative care in First Nations communities
- Palliative care is not an essential element of First Nations Inuit Health Branch (FNIHB)
- Timely medication availability for pain and symptom management
- Palliative care knowledge/skill deficits in health care providers
- Deficits/gaps in cultural competency and awareness regarding palliative and end-of-life care for First Nations, Inuit, and Métis (FNIM) people.
- Limitations in psychosocial support of patients, families, health care teams
- Limited (often absent) respite opportunities for family caregivers
- Out-of-pocket expenses to patients and families incurred related to travel/lodging for care
- Barriers to accessing provincial and federal benefits
- **Potential Initiatives To Improve Palliative Care With Little Or No Funding Implications**
 - Scheduled virtual clinic with twice-monthly telehealth consults
 - Collaborate with the Northern Medical Unit on formalizing palliative care medical support
 - Continue existing 24/7 telephone consultative support to rural/remote health care providers by the WRHA Palliative Care Program; improve awareness of this throughout province, including First Nations communities.
 - Continue providing access to WRHA palliative care beds for all palliative Manitobans whose complex symptom management needs cannot be addressed locally; improve awareness of this
 - Continue existing twice/monthly palliative care educational rounds linked provincially
 - Augment the palliative care content of Community Cancer Programs Network training
 - Telehealth/virtual educational workshops to rural, remote, and isolated settings
 - Travelling educational workshops to rural settings
 - Explore a role for the EPEC (Education for Palliative and End-of-Life Care) curriculum

- Partner with Hospice Palliative Care Manitoba to advocate for improved access to supportive provincial and federal benefits for palliative patients and their families
- Continue WRHA committee examining discharge planning to remote First Nations communities
- Develop symptom management guidelines for palliative care in First Nations communities
- Develop protocols, policy/procedures, and teaching tools for specific palliative care tasks to be used in rural/remote/First Nations community
- Advocate with FNIHB to include palliative care as a core, essential element of its mandate
- **Potential Initiatives To Improve Palliative Care With Funding Implications (Bold font = highest priority)**
 - **Commitment by regional and federal funders for dedicated, stable funding for comprehensive palliative care services in rural areas and First Nations communities**
 - **Establish a multi-jurisdictional standing committee or working group headed by First Nations leadership to continue to explore and address barriers to palliative care in First Nations communities. The challenges - and opportunities for improvement - are sufficiently complex and compelling to warrant sustained collaborative efforts. Each region requires an interdisciplinary palliative care leadership team (core members from psychosocial, nursing, and physician background) with clinical and administrative roles (service delivery, program development, education); the regional Palliative Care Coordinator would be one of these members and would serve as team leader. Ongoing development of palliative care programs and services would evolve through regional needs assessment and project development by the leadership teams. There must be an understanding that the leadership teams will inform the development of palliative care services in a manner that reflects local needs and priorities; they represent a necessary prerequisite for palliative care service development rather than an achieved end-point. Ongoing program development will require ongoing and incremental funding.**
 - **Develop templates and provide project management support to local palliative care leadership teams for assessing the palliative care needs of a community and preparing proposals for program development. This could also serve to support other provincial health service development initiatives such as mental health and surgery**
- Resource the Community Cancer Programs Network (CCPN) sufficiently to serve as a framework on which to build more robust clinical palliative care services for cancer and non-cancer patients; the provision of services to non-cancer patients is presently outside

of the scope of CCMB's funded mandate; a change in this will require engagement of CCMB and MB Health

- When there is a plan to have someone return to a First Nations community to die at home, if the prognosis is less than one month, funding should flow immediately to support the discharge and the details be sorted out later. Perhaps the federal and provincial governments could each contribute to a pooled funding source from which funds are drawn.
- Develop and implement an educational curriculum and program focused on First Nations, Inuit, and Métis considerations in palliative and end-of-life care
- There may be a role for the Canadian Virtual Hospice in contributing to initiatives in clinical capacity and support; education and knowledge base; administration; advocacy and public awareness, and First Nations specific initiatives
- 2-3 day intensive interprofessional palliative care training course for physicians, nurses, psychosocial specialists, and perhaps pharmacists to attend in Winnipeg

Stepwise Planning

It will not be possible to provide the same breadth of palliative services in every home or remote community the province; the absence of full equity is the reality for all services. That notwithstanding, a vast geography and dispersed population need not be an absolute barrier. Although rapid in-home response may not be uniformly feasible, a nimble and modified version of the service is possible. Even in urban settings, complex interventions may not be possible at one site but can be provided at another.⁴³

The majority of **palliative care does not demand high technical complexity** and can be provided in community care settings as long as the foundation of pre-emptive planning is solid in understanding the challenges and limitations. When a focus on comfort and minimal complexity fails, it can typically be tracked to inadequate communication around goals or expectations.

The **needs of Indigenous communities** cannot simply be grouped within the "rural/remote" descriptor. The jurisdictional complexities involved in providing health care can be very challenging, particularly in the context where, "Palliative care is not an essential element of the First Nations Inuit Home and Community Care National Framework and not specifically funded under FNIHCC nor under the community health programs".⁴⁴ In addition, **each community is socially, culturally, and spiritually unique, and end-of-life issues impact on all of these elements**. Only the community is in a position to define its needs and priorities for palliative and end-of-life care. The development of palliative care programs and services in First Nations communities should be led by each community with support from health care systems, and evolve in a way that reflects its identity and values.

⁴³ For example, spinal analgesia is not supported at Riverview Health Centre but is available at St. Boniface Hospital

⁴⁴ <http://www.hc-sc.gc.ca/fniah-spnia/pubs/services/fnihcc-psdmcpni/index-eng.php>

The **overarching priority** to improve palliative care in Manitoba will be the **focus on rural and remote communities**, ensuring available clinical support is a constant. This could be telephone support but, ideally, would be the capacity for bedside support at critical times. **Nursing and home care aides would be the centre of available resources**, as long as the planning process is comprehensive.

A **provincial palliative care leadership team** could develop a role as facilitating consistent standards and symptom management guidelines. This would be a natural platform to develop and implement palliative services throughout Manitoba to guide regional palliation under its own leadership groups. A **regional leadership team** would be constituted by a full-time physician, nurse, and psychosocial specialist. Cultural diversity would define a spiritual care specialist.

Each region has unique challenges and considerations that will require unique and targeted solutions. One consideration is a shared-care model to aid frail community patients with complex needs, a functional decline, and uncertain prognosis.

In summary, a Manitoba palliative care program can be built around provincial leadership, regional leadership, and community teams. The most obvious gap today is sustained regional leadership (physician, nurse, and psychosocial). As well, to achieve the goals of a provincial program, there must be dedicated rural and indigenous funding. All of the initiatives described above require action - - some are resource-based, some are based on voluntarism, some require additional funding, and some require different resource allocations (availability during unsocial hours, provincial on-call group, shift in FNIHB funding for palliative medications). The backdrop to these deliberate activities will need to be education of providers at the community level.

Likely the key under-used human resource today is a palliative nurse practitioner role. The key under-used technology role in palliative care is telehealth.

4.11 Public and Population Health

Public health and population health are closely aligned; for the purposes of the environmental scan, their reference will be combined as public health. Regardless of semantics, Public health is not well understood beyond public health professionals, and the enormous potential of the impact of a greater relative resource allocation is greatly underestimated, in no small part attributable to the absence of a crisp ROI formula when applied to upfront public health investments. Yet, much could be achieved through a shifting (not addition) of health resources so that 8% of program funding is allocated to prevention and that the articulated “health in all policies” be advanced further across government.⁴⁵

Prevention activities span all disciplines and professionals; this was underlined throughout the interview process in Manitoba. The **real challenge is to translate beliefs and values into action** within a system as complex as healthcare:

- How do you start?
- Who takes the lead?
- What are the priorities?
- How are inputs and outcomes measured as part of continuing evaluations?
- Where will the services be provided and by whom?
- Is a new infrastructure necessary?
- Are all the pieces already available but not yet channeled?
- What is the evolution from communicable to non-communicable diseases?
- Is a provincial prevention strategy substantially different from a provincial chronic health strategy (previously identified as a chronic disease strategy)?

There are several starting points in a vast menu of public health initiatives that hold value to Manitoba and an evolving health care system that is patient-centred and based on evidence:

- Public health initiatives have a greater potential to succeed if incorporated into system-wide organizational change (provincial, regional, and local) and clinical governance
- The starting point for public health and prevention in Manitoba is addressing indigenous issues through the incorporation of the indigenous leadership and training
- Electronic systems for surveillance are a necessity, as is a robust public health interconnectivity across Canadian jurisdictions⁴⁶

⁴⁵ It is acknowledged that taking the agenda beyond MHSAL is difficult; however, recent discussions in Manitoba suggest it is possible to advance inter-departmental recommendations

⁴⁶ Information and Outbreak Management (IOM)

- Annual reporting of the Chief Provincial Public Health Officer has the potential for even greater impact if provided with the optimal public spotlight
- Public health opportunities can best flourish by starting small and building (such as, Healthy Child Manitoba that is included in a provincial strategy focused on Prenatal-Natal-Postnatal-Youth)

Successful and visible public health activity is central to achieving equity in healthcare.

Canadian Experience

In 2011, the College of Family Physicians of Canada (CFPC) issued a preventive care checklist form accompanied by a six-page explanatory description; one checklist is nuanced to women and one to men. There are seven categories on the checklist:

- Lifestyle
- History
- Functional status
- Behavioural subjects, alcohol, oral hygiene, personal safety, weight, smoking
- Items specific to elderly
- Physical examination
- Assessment and Plans

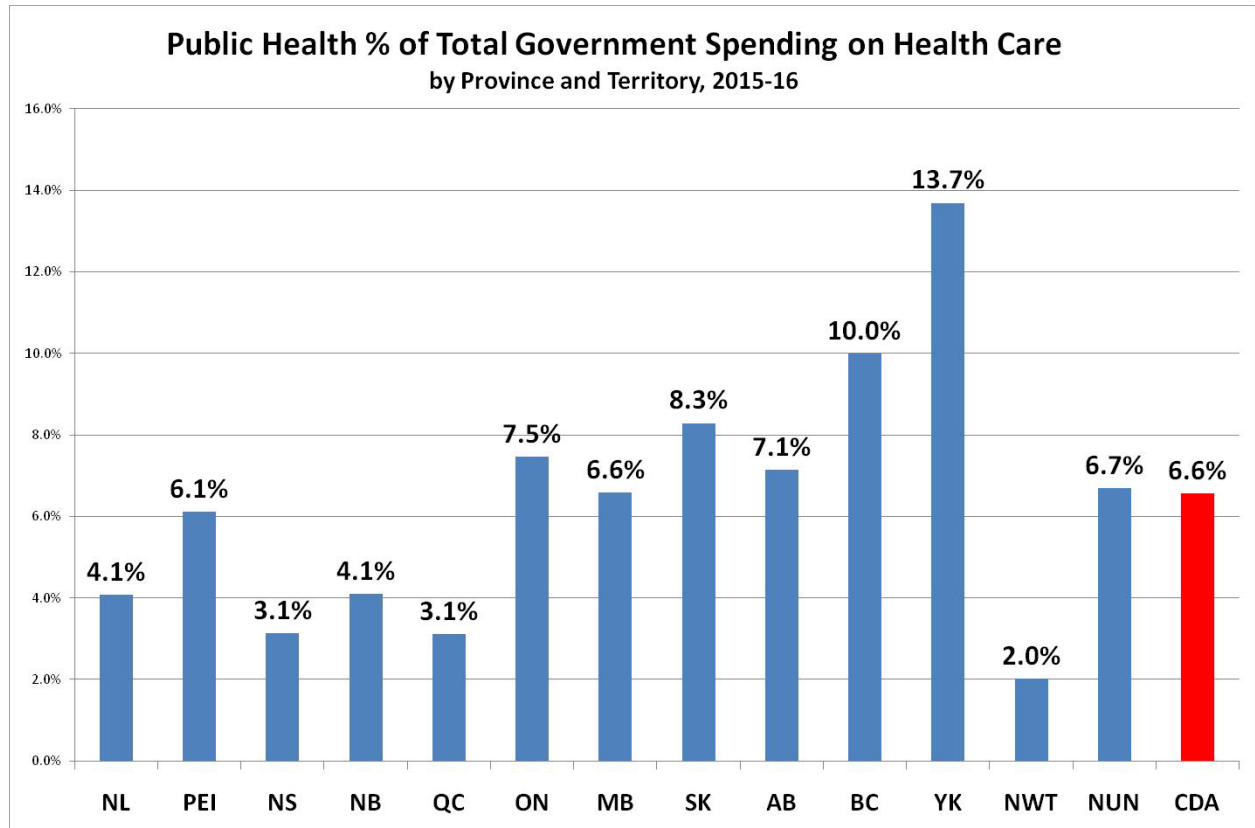
The 2015 CIHI National Health Expenditure Database identified that healthcare spending in Canada was 29.5% hospitals, 15.7% drugs, and 15.5% physicians (with growth per capita outpacing hospitals and drugs since 2007). Re-allocation of healthcare dollars in the short-term carries the potential of system-wide savings in the short-term and long-term and with improved health and quality of life. Ultimately, **this occurs through addressing inequity.**

In 2016, **Health Quality Ontario** reported on poverty and healthcare:

- The poorest one-fifth of people in Ontario are nearly twice as likely as the richest one-fifth of people to have two or more chronic conditions (such as having diabetes and a mental illness).
- About six out of 10 of the poorest people in Ontario have prescription medication insurance, compared with nearly nine out of 10 of the richest people.
- People living in the poorest urban neighbourhoods in Ontario are less likely to receive recommended screening tests that are considered part of high-quality primary care. For example, half of the people living in the poorest urban neighbourhoods in Ontario are overdue for colorectal cancer screening (a customary form of cancer screening for all people in Ontario over 50), compared with just over one-third of the people in the richest urban neighbourhoods.

- Men living in the poorest neighbourhoods in Ontario die, on average, more than four years earlier than the richest men, while women living in the poorest neighbourhoods in the province die an average of two years earlier than women in the richest areas.

**Exhibit 4-08
Public Health Spending in Canada**



Canadian Centre for Policy Alternatives 2016

Manitoba is at the Canadian average but is surpassed on public health percentage of total government spending on health care by six provinces and territories.

Manitoba Experience

Prior to the 2016 provincial election in Manitoba, the Manitoba Public Health Association advocated for improved public health spending and articulated why:

- Some Manitobans have nearly two decades lower life expectancy than others due to social and economic disadvantage.
 - Current public health staffing is insufficient to allow deployment of additional staff to areas of higher need
- Immunization rates in lower income areas lag behind higher income areas by about 20%. The mixed model of immunization service delivery between primary care, pharmacists, and public health in

urban areas of the province results in the lack of capacity within public health to address rate differences in communities, particularly where public health does not deliver the majority of immunizations (infant-preschool vaccines).

- *Manitoba lacks stable core funding for routine public health immunization services which have expanded disproportionate to funding over the past decade, let alone funding for outreach services to areas with lower immunization rates.*
- *The threat of new and re-emerging communicable diseases (Zika Virus, Ebola or pandemic influenza) requires strong surveillance systems to detect cases early and respond quickly.*
 - *Manitoba has no province-wide communicable disease data base.*
- *A robust public health workforce needs to have the capacity to respond to the public health aspects of emergencies and disasters and address emerging threats. This includes leading an effective response to public health emergencies such as communicable diseases (e.g., Ebola, pandemic influenza, SARS) and supporting the public health needs of broader issues (floods, refugee influx).*
 - *Insufficient public health staffing means minimal capacity to deploy public health workers to address a surge event even with a reduction of other public health core services to facilitate staff redirection.*
- *Evidence shows that healthy built environments that support physical activity through transit use and active transportation reduce the rates of obesity and related health risks.*
 - *Public health positions with expertise to work collaboratively in areas of urban planning, healthy built environments and transportation design are lacking.*
- *Harm reduction approaches to reduce the health impacts of substance use have been demonstrated to be effective and cost saving.*
 - *Manitoba has minimal harm reduction services and resources in relation to the population need.*
- *The health status of the Indigenous population of Manitoba lags significantly behind the general population as a result of the impacts of colonization, the legacy of residential schools, and a lack of understanding of Indigenous ways of knowing and being, even though strong communities and culture are protective to health.*
 - *Indigenous health promotion staffing and approaches, working with communities and knowledge keepers, are in early stages of development.*
- *Climate change is one of the leading public health threats across the globe.*
 - *Manitoba's environmental health services, where public health inspectors are employed, underwent considerable attrition while under the Department of Conservation for decades. It was repatriated to Manitoba Health in 2007, and joined by City Environmental Health*

Officers in 2012, but still requires significant rebuilding to have sufficient capacity to address the leading environmental threats of our time.

- *Overwhelming evidence supports the importance of optimum early childhood development in setting the stage for good health throughout the life course.⁶*
 - *The positively evaluated Families First home visiting program has insufficient staffing to engage with all families who qualify for the program, and there are insufficient public health resources to engage with families with pre-school or school aged children, to provide a strong public health presence in schools, or to provide robust support to effective interventions like the Boldness project or Block by Block.*

It is not difficult for public health to become absorbed into other initiatives; this is to the disadvantage of public health and, as such, requires boundaries. The reasoning is pure logic - - service provision other than public health (such as, MyHT) tends to be one at a time, while public health services are generally based on populations. As evidence, there are three public health tools:

- Policy
- Environment
- Resource allocation

These tools enter into the decision-making of an entire healthcare sector, not one problem at a time or one patient at a time. **It is for this reason that planning in public health thrives when using real-time data.** The context of these data in Manitoba are three public health sectors:

- Provincial
- Federal (FNIHB)
- Regional and community-based

Public health functions include:

- Health promotion
- Population health assessment
- Illness and injury prevention
- Health surveillance
- Emergency preparedness and response

It is likely that few outside of the discipline of public health grasp its breadth, depth, and impact. This may be, in part, why public health has remained underfunded, and why it is essential that it become known for what it is and its criticality.

Prevention and Equity

Population Health and the Health of Manitobans

Manitoba has one of the highest provincial per capita health expenditure rates in Canada. Yet, in 2015, the province received a “D” on health outcomes from the Conference Board of Canada’s health report card. As well, Manitoba’s health spending has grown to 46% of the total provincial budget – the highest level in the country (tied with Nova Scotia). Combined, these facts put at risk Manitoba’s ability to meet the two critical health objectives: a healthier population and a sustainable public healthcare system.

The health of a population is an important measure of – and contributor to – the overall wellbeing of society. Health is a state of complete physical, mental, and social wellbeing, and, not merely, the absence of disease or infirmity. Health is determined by many factors, including the environmental, social, economic, and cultural conditions of our society and communities. Manitobans generally enjoy good health. However, that good health is not experienced equally among and between communities and populations. Wide health gaps exist between those most and least advantaged in Manitoba.

The 2009 Senate Subcommittee of Population Health report (*A Healthy Productive Canada: A Determinants of Health Approach*) described the impact of the various factors on health as follows:

- 10% - environment (air, water quality)
- 15% - biology (genetics, heredity factors)
- 25% - health care system
- 50% - social and economic determinants (income, education)

What these estimates demonstrate is that while 15% of health determinants are set at birth, 85% of the underlying causes of poor health are modifiable.

Incorporating Population Health into Clinical Services Planning

The project charter for the Provincial Clinical and Preventive Services Plan describes a population needs-based approach to its work. Population health is an inter-sectoral approach to improving the health and well-being of an entire population and reducing the health inequities among population groups.

Incorporating population health into the planning represents an important shift in focus towards a greater emphasis on health and equity promotion/disease prevention.

The potential to focus on prevention and equity exists both at the population level and throughout the health care delivery system in clinical settings. Population health focuses on interventions at the population level where the “patient” is the public; either the whole population or particular population subgroups. Examples of population level interventions include advocating for healthy built environments (where people are more physically active going about their daily routines) or influencing policies that improve health (like better access to healthy, affordable foods or banning

junk food advertising to children). At the same time, prevention and equity opportunities can be maximized in clinical settings where respectful individual support for healthy behaviours and access to resources needed for health can be addressed.

The opportunity to maximize effective preventative measures and to close health equity gaps comes into play in two different ways within this planning process. First, all clinical working groups were asked to envision and enact effective prevention and equity action within their areas of clinical expertise. Second, the Population and Public Health Clinical Working group has a unique responsibility to envision and enact prevention and equity actions at the population level (in contrast to the individual patient/client level). Turning the tide to narrow health gaps, improve the population's health as well as protect the sustainability of the health care system will take full engagement at both the population and individual clinical care level.

Consultations with Clinical Working Groups

To facilitate consideration of prevention and health equity across all clinical areas, a round of consultations was held with each of eleven provincial clinical working groups in May and June 2016. One of the key objectives of these sessions was to stimulate dialogue on prevention and equity issues. Some of the working groups had already existed and continued meeting on an ongoing basis, while others were formed specifically for the planning process to ensure that the full continuum of care from antenatal to end-of-life specialities were included. A voluntary survey was then sent to each CWG member with seven open-ended questions focusing on both prevention and equity barriers and how they might be addressed within specialties across Manitoba's healthcare system. Out of approximately 150 CWG members, 127 responded to the survey representing a mix of professions in direct service, public health practice and/or administrative roles from urban, rural, northern and remote communities.

The survey responses have been grouped into six themes:

- **Accessing the health care system**
 - Need greater flexibility in physician office, clinic, specialist hours, and evening and weekend options for appointments - - assist in addressing the recurring barriers of taking time off from work, arranging child care, and transportation - - would increase the ability to attend follow-up or referral appointments
 - Develop mechanisms which allow for services closer to home
 - Address literacy, education and language barriers (throughout the province) which impact many people's ability to understand and engage in the system, with available services, as well as advocate for themselves - - assist, where required with navigator roles
- **Reality of geographic distribution of the province's population in northern, rural, and remote communities**
 - Transportation is a major barrier to providing and accessing healthcare - - results in huge costs to patients and their families, as well as to the healthcare system

- Need equitable distribution of funding related to travel
- Reaching Indigenous peoples and being able to provide continuity of care is of particular concern given their disproportionately lower health status
- Cost of EMS can be a deterrent to patients who need medical care
- More use of existing tools and technology to improve services and communication with patient, and between areas of the system
- Better coordination with services already available, including federal funding
- **Improving primary health care follow-up and wait times**
 - Creates an opportunity for enhanced integration and outreach between primary care and public health
 - Greater use of the “Poverty Tool” by primary care practitioners to ensure all patients are screened for the risk conditions of poverty and that suitable follow-up ensues for accessing benefits
 - Look to community health centre models in meeting primary health care needs, in particular for targeted populations, such as older adults, rural and remote. Indigenous and socially disadvantaged communities
 - Need to create a seamless primary health care system
 - Lack of 24/7 mental health services, especially for youth, is a significant gap across the province
 - Public health needs to work in collaboration with primary care and acute care services to build on its existing role in homes and communities
- **Ensure the implications of colonization and other trauma faced is understood for its impacts on the health of Indigenous peoples**
 - Develop better relationships and work with Indigenous organizations and leadership so that healthcare is tailored to specific community needs
 - Development of more cultural proficiency among healthcare providers
 - Ensure training is provided broadly to health care providers to ensure culturally respectful care of Indigenous Manitobans (and others beyond the dominant cultural groups)
 - Outreach within communities including hiring individuals with similar backgrounds as “peers” to bridge relationship building with healthcare practices.

- **Enhance health promotion and disease prevention**
 - Need to deliver and invest in early intervention and education towards creating effective prevention initiatives, as well as engagement by patients - - examples include: preconception and prenatal screening, referral and treatment; primary screening for children in populations with high risk for chronic diseases; early childhood development; immunization; mental health; alcohol and illegal drug misuse; injury prevention
 - Increase resources for prevention education directed at both patients and health providers across the system
 - While there is broad understanding of the common risk factors, changing individual behaviours must go beyond awareness and education to addressing the environments people live in and the services which actually affect peoples' opportunities to be healthy.
- **Creating a provincial system**
 - Regions and communities outside WRHA have the capacity to improve the quality and volume of services closer to home
 - WRHA needs to welcome regional, rural, northern, and remote collaboration
 - "Raising the equity bar" requires regions to develop service delivery in collaboration with existing resources, especially in more remote communities
 - Leadership is essential if there is to be a significant shift in resources targeted to populations with the greatest at risk health needs, regardless of where they live

In summary, the survey responses were consistent with many of the principles set out in the project charter, such as:

- **Organizing healthcare processes, facilities and providers to focus on a "patient-centred" system**
- **Need for multi-disciplinary teams to support the above, including through role optimization**
- **Commitment to provide quality, timely and sustainable healthcare**
- **Equitable geographic distribution**
- **Development of a plan to address the burden of disease**
- **Shifting to a "whole system focus" on better health outcomes, including upstream investments**

Future Directions

A key contribution to controlling health costs is to support a healthier population. Striving for conditions in which all Manitobans can achieve their best possible health, and not be held back by

socially determined conditions such as low income or racism, will be necessary for the health benefits of Manitobans and the sustainability of our health care system.

As the planning moves forward, there is an opportunity for primary care and specialty providers, through provincial clinical governance, to promote effective prevention and health equity strategies within clinical settings through identification of specific priority initiatives. At the same time, the public health can promote effective prevention and health equity strategies at the population level. There is marked room for improvement in promoting health equity and improving the health of all Manitobans, including through prevention measures.



Vision of Evolving Digital Health

At the national level in Canada, the investment in digital health has been substantial, but the return on that investment has been much less significant. At the provincial level, key roles in advancing digital health have been shared from Manitoba eHealth to the provincial government, to the regional health authorities, to Manitobans accessing healthcare services.

The engagement of Manitoba eHealth in this study has resulted in very positive contributions, evidenced throughout different sections of the final report. This section is focused on what a connected healthcare system could look like. There is value in taking this approach but, of at least equal value is surmising the consequences of not advancing digital health in the province. This was the challenge presented to the leadership of Manitoba eHealth in providing context to the benefits of connectivity.

Information and communications technology (ICT) is used to improve healthcare delivery through province-wide solutions to integrate systems, to improve and expand services, and to improve efficiency and effectiveness.

Electronic health systems enhance the quality of care. Interoperability drives the concept of a single system. As innovators in sustainable digital health, Manitoba eHealth is helping Manitobans move through the health system quickly and efficiently.

Yet, much work remains to be done.

The experience of using evolving technology has been generally consistent with the short-term impacts being over-estimated and the long-term impacts being under-estimated.

5.1 The Art of the Possible

As the convergence of administration, resources and technology, digital health represents the future of health-care delivery, enabling seamless crossing of boundaries, borders and technologies, patients, and providers.

As such, the next generation of digital health delivery and technology can be referred to as a “real-time health system” (RTHS). The RTHS represents the transformation of healthcare services by leveraging the digital health enterprise, whose nature and reach will create more and better care options and an improved healthcare experience.

A vision for digital health depicts a multidimensional concept for executing operations digitally and identifying the role of the enterprise, limited only by choosing to do so. The purpose of an industry vision is to stretch thinking about the art of the possible.

Harnessing digital technologies is essential for the provincial health sector to achieve key industry priorities:

- Governance set by evidence-based priorities
- A digital strategy for the RTHS to enable advanced management and operating practices
- Key information, technologies, and vendors, constituting the building blocks of the RTHS
- Impactful technologies that enable key business initiatives, which seek to lower the cost of care and improve quality and access
- Strategic decision-making related to other dependencies in the delivery of digital health

5.2 Digital Health Means Change

The digital vision means fundamental change and affects many dimensions of clinical services and their operations.

Patients now expect to see digital health in all aspects of their care, from scheduling appointments and referrals, to self-care models, to remote monitoring for chronic care. Electronic health records (EHRs), virtual care, and other care delivery technologies are central to the health sector’s ability to deliver its primary value proposition.

A provincial health strategy is required to provide direction and to establish a footprint that enables new capabilities for digital health through partnerships, collaboration, and an improved understanding of the investment.

Digital health will shift the total cost of care and needs to be acknowledged for improving capacity, quality of care, and cost efficiencies. It should also be recognized for the value that will be built over time through data collection, with the potential to improve the system, enabling predictive and operational decisions. The system will continue to extend its reach and influence across the inpatient,

outpatient, long-term, and home care settings. Collaboration goes beyond coordination to enable patients and providers to engage and share in real-time.

With broadband Internet declared as an essential service for Canadians, mobility will be used to engage, inform, and care for the patient. It contributes to better coordinated and optimized workflows and timely access to information. Along with the EHR, mobility is one of the most transformational technologies in health care. Not only does it support new models and efficiencies inside existing service delivery locations, but, it innovates new ways of delivering services remotely or virtually.

5.3 The Next Generation

Alternative ICT service delivery models will play a bigger role in the digital health enterprise. Tools for end-user experience monitoring, configuration, and business continuity management will be necessary to keep the system highly responsive and available.

A modern digital health enterprise includes software systems and technologies from many generations that both impede and paradoxically enable progress. As the demands on health care increase, the role of ICT becomes that of navigators from the traditional, disjointed operation to a more streamlined digital health-care model that possesses sophisticated situational awareness and operational intelligence and the means to make use of it.

5.4 Enabling a Real-Time Digital Health System

The key recommendations to enable a real-time digital health system include:

- Broaden the use of telemedicine, improving access to medical services that often would not be available consistently in distant rural communities – telemedicine can save lives in critical care and emergency situations
- Continue support for virtual health teams and assistants to reduce travel and increase effectiveness of coverage and access
- Establish jurisdictional partnerships as a means to increase efficiencies, investigate new approaches, such as strong authentication for patient identity
- Formulate new business architectures, including the use of best practices to improve outcomes and extract efficiencies, economies of scale
- Define the business scenarios and benefits from consumer engagement, virtual care, integration and advanced analytics, including the necessary infrastructure investments to connect partners, locations, providers, and patients across the province
- Collaborate with executive leadership, health-care providers, and researchers to craft a strategy for a general approach to predictive analytics and precision medicine that includes real-time clinical decision-support for medication ordering

5.5 The Future State

The proliferation of digital touches all industries. Healthcare is no exception, and there is both uncertainty and opportunity for innovation. Clinical and business workflows must be re-engineered to transform care models, realize efficiencies including connecting core systems with other platforms for customer engagement (digital clinical records, patient portals and apps), and broader connectivity. At the centre is the demand for richer real-time data to drive performance on quality, cost, and experience.

The impact of reform, an increasingly sophisticated consumer, disruptive cloud capabilities, EHRs, the role of digital, and other advances has the opportunity to transform care delivery significantly.

Gartner Inc. states that health-care organizations should take the following strategic planning assumptions into account when formulating the impact of digital on their organization plans:

- By 2020, 40 per cent of health delivery organizations will find their EHRs are not capable of meeting their digital business needs
- By 2021, biometrics will account for 40 per cent of all healthcare provider integrated delivery network patient identification and identity proofing activity
- By 2022, 20 per cent of the population with chronic conditions will rely on virtual health assistants for health and wellness management, finding them more responsive and accurate than their human counterparts
- By 2021, 25 per cent of health-care organizations with greater than \$1 billion in operating expenses will be providing real-time, genomics-based, clinical decision support at the time of prescription writing
- By 2022, at least one-third of integrated delivery systems will operate cloud-based solutions.

With this knowledge comes the need for Manitoba health sector agencies to align their investments to a single enterprise architecture with a digital health strategy. The pace of digital transformation is accelerating, presenting an opportunity to increase a positive disruption across the health-care landscape through modernization and innovation. Care systems need to become more adept at:

- Using digital tools to run services
- Engaging with citizens and patients
- Sensing, in real time, what is happening to patients, staffing resources, and assets
- Helping patients and clinicians to make decisions
- Interacting better with other aspects of the digital world

The future digital health system requires new assets to execute the vision, giving rise to a new, more agile ICT ecosystem that will make use of sophisticated real-time, predictive, and retrospective operational intelligence.

5.6 Supporting Transformation

Creating and managing the wide and complex assortment of technologies needed to enable the digital health enterprise is a complex and significant challenge in the current health sector model.

With the development, support, and implementation of a provincial clinical and preventive services plan, eHealth can provide support by activating key technologies integral to enabling the clinical services model, their assembly as building blocks in the architecture, and the anticipated outcomes of innovation. The result will be a reduction in complexity and costs for the current system to help Manitoba eHealth maintain focus on the most impactful technologies and initiatives.

If the health sector focuses on the art of the possible, it will be possible to develop technology-enabled strategies for the next generation of digital health, addressing the challenges that Manitoba faces in the healthcare environment as industry value, economic, and health models continue to shift.



Clinical Governance

Governance and clinical governance were reviewed in the scan **(Provincial and Clinical Preventive Services Planning for Manitoba: Environmental Scan; 631-637; December 1, 2016).**

The concept and applicability were explored further with a wide variety of Manitoba stakeholders; support was expressed consistently and strongly. That section of the scan has been abstracted for inclusion here due to the essential role envisioned for clinical governance.

The absence of strong clinical governance would impede, if not imperil, the successful implementation and maintenance of the clinical and preventive services plan.

Clinical governance is contemplated as the leadership organization in Manitoba for CPSP governance, measurement, and analytics; the responsibilities demand a strong leadership team. It would be expected that a public report would be generated annually.

Governance is about vision, strategy, leadership, probity, and ethics, as well as quality assurance and transparency. Decision-making is a significant element of clinical governance in the context of clinical and preventive services planning. This is a two-way process, with information flowing both to and from the providers of care. Effective management and governance are important at each of the hospital, community, regional, and provincial levels; and involve senior management of the health authorities, representatives of the Ministry of Health, Seniors, and Active Living, and health care providers and their representatives

The early establishment of clinical governance will require detailed functional planning, infrastructure, and strategic plans. If Government moves towards a provincial health entity or authority, then clinical governance and clinical leadership could form a core component of that new entity. Clinical and preventive services are the core business of the health system and provincial clinical leadership to oversee planning and standards is essential. Many other essential support services and functions within the health system would benefit greatly from understanding how clinical and preventive services are likely to evolve over time across the province.

The successful implementation and maintenance of a clinical and preventive services plan is a convergence of system-wide commitment, the use of evidence through analysis of real-time data, and clinical governance.

6.1 Fundamentals and Principles of Governance

Clinical governance is integral to both the mandate and the scope of the study; this is distinguished from corporate governance. The Institute on Governance (IOG) underlines three dimensions of governance, each of which is prominent in the responsibilities of clinical governance:

- Authority
- Decision-making
- Accountability

Governance, therefore, determines the following:

- Who has authority?
- Who makes decisions?
- How are individual voices heard?
- What is the accountability framework?

The dimensions of governance converge in a definition of . . . ***the art of steering societies and organizations.***⁴⁷ Steering is a complicated process where numerous stakeholders are involved or impacted by strategic decisions; however, the decisions are strategic about direction and roles within legislative and constitutional parameters.

Governance is a highly contextual concept; when successful, it enables organizational effectiveness. The authority, decision-making, and accountability can thrive or fail on process and people; this is why governance models must be tailored to identified needs and values. As such, good governance incorporates core characteristics or principles:⁴⁸

1. Participation
2. Rule of law
3. Transparency
4. Responsiveness
5. Consensus orientation
6. Equity
7. Effectiveness and efficiency

⁴⁷ See www.iog.ca where much of the theory and application of governance is founded on the work of this Canadian institute.

⁴⁸ See United Nations Development Program
healthintelligenceinc and associates

8. Accountability
9. Strategic vision

This was also stated clearly in, *Governance in NHS Wales*:

Governance is about vision, strategy, leadership, probity, and ethics, as well as assurance and transparency.

6.2 Clinical Governance

Decision-making is a significant role for clinical governance in the context of clinical and preventive services planning. This is a two-way process, with information flowing both to and from the providers of care. Effective management and governance are important at each of the hospital, community, regional, and provincial levels; and involve senior management of the health authorities, representatives of the Ministry of Health, Seniors, and Active Living, and health care providers and their representatives.

The involvement of any one organization, or level within an organization, will vary by issue. Management or governance, however, is not designed to usurp authority and responsibility; it is a contributory force to the decision-making processes on issues that involve health care providers, directly or indirectly, and enables opinions and contributions to the management of the system overall.

Effective management will provide an opportunity for a single voice to be heard, as well as the collective voice of any profession. Too often, providers feel disenfranchised or, at a minimum, unable to make representation on issues of importance.

Successful governance is driven by a democratic process, an ability to debate openly, uniform applications of decisions and policies, and respect for outcomes.

Clinical governance, a term first employed in the National Health Service (NHS) in the UK, in 1997, is a comprehensive framework through which health care organizations are accountable for continuously improving the quality of their services and safeguarding high standards of care, through creating an environment that allows clinical excellence to flourish. While there has been a proliferation of efforts since then to operationalize this framework, there does not appear to be a single accepted definition or understanding of the term, nor a single prescription for the organizational structures and processes that guarantee its successful implementation—reflecting the complexity of the undertaking and the differing requirements of individual health organizations, more so than a critique of the validity or usefulness of the initiative. Its aim is to improve the health of local populations and reduce inequality of care and access.

In the ideal, it is a total quality assurance system that involves setting minimum standards of clinical practice and promoting continuous improvement and innovation throughout all levels of the organization. The process may begin with the setting of minimum standards, using evidenced-based practice, and, only later, embark on changes to the organizational elements and structure that will support clinical excellence. It requires greater collaboration and sharing of expertise, a willingness

among professionals to be more flexible in the way in which they have operated traditionally, and an improvement in processes. Processes which are relationship-based—i.e., that focus on flexibility, individuality, and spontaneity—are likely to be more effective than those that focus on mechanistic processes—i.e., control, order, and stability. Health system managers, charged with facilitating this change, will need to understand and work within the established value system of the key players. This requires an understanding that physicians place high value on their clinical autonomy and professional self-determination; hence, the importance of building relationships and gaining trust through consultation and dialogue in order to achieve the sense of collective responsibility for quality improvement. Expectations for short-term improvements in measurable performance must be balanced against the much longer-term prospect of creating organizational change.

Those charged with leading change can find themselves in a vulnerable position, straddling, as they must, the boundaries between clinical and managerial and professional and organizational roles, especially with the nature of the position being outcome-oriented. The nature of their authority over their colleagues, who are professionally autonomous, can be unclear; while they must be respected clinically and professionally, they, also, must be well supported in these roles.

6.3 Challenges of Governance

Exhibit 6-01
Challenges of Governance

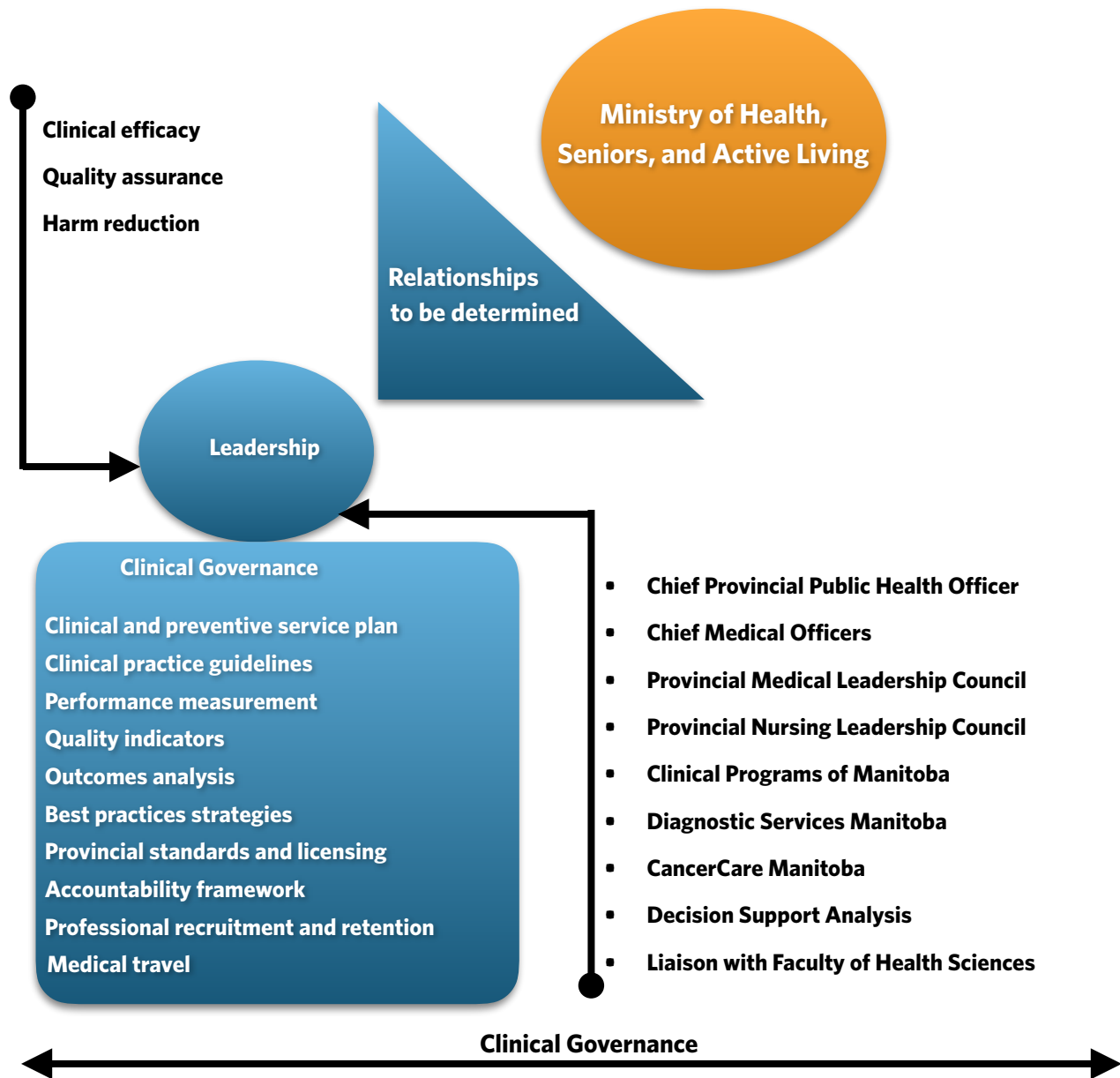
Challenge	Comments
Accountability gaps	Enhancement of accountability is required in two areas: outcomes and effective productivity; and, patient-centred social contract
Clinical practice guidelines	A continuing problem is inconsistency in the processes for developing and approving clinical practice guidelines and in their application, especially as part of coordinated chronic disease management programs
Contract administration, management, and monitoring	There is a need to avoid inconsistencies in the management of contracts
Collaborative care	Collaborative care is an integral part of patient-centred care; it is characterized by nonhierarchical team-based care that reflects top-of-license services and a shared responsibility for quality
Credentialing	Process and scope issues can develop during credentialing, and can be exacerbated in the absence of a clinical and preventive services plan that links to resource allocation
Decision-making	Decision-making must adhere to the principles of being of evidence-based and needs-based
Equity of access	Equity of access to health services across the province is a value that is impacted by both supply and need variables; yet, as a principle, along with that of patient-centred care, it merits review and attention
Geography	Geography and remoteness are limiting variables; however, ideally, equity will not be a victim of geographic challenges in model development and the application of health care as a provincial resource
Information systems	A coherent, provincial health information system will drive and support standardization and the analytics that underpin outcomes-based care
Insular thinking	Providers of care must maintain a provincial focus and patient-centred care
Legislative and constitutional issues	The Ministry of Health, Seniors, and Active living is responsible for the administration of health legislation and for respecting issues of indigenous self-government; this necessitates alignment with the federal programs initiated and administered in Manitoba

Challenge	Comments
Collective agreements	Collective agreements always command respect; however, it is possible that clinical and preventive services planning are not aligned with these agreements; achievement of alignment requires commitment on the part of all parties
Bylaws	Provincial clinical and preventive services planning is facilitated by a common template for local bylaws
Patient-centred care	As in any health care system, there can be dissonance between advocating and practising patient-centred care; where identified, this requires redress
Interprofessional processes and communication	It is imperative to avoid inadequate interprofessional communication and the absence of role optimization
Leadership and senior management	It is timely to examine the benefits and roles of the role of leadership within clinical governance, including required skill sets and responsibilities that align with authority
Public Health	There is an critical need for the consistent application of a clearly identified public health strategy
Recruitment and retention	Recruitment and retention initiatives frequently are handled at the level of health authorities and academe, and can be competitive across the province; it is essential that these initiatives be handled to the benefit of patients and providers alike; generally, this implies a central management process
Standards and policies	The need for consistent standards and policies regarding patient care must be emphasized

6.4 Clinical Governance

Clinical governance is proposed for Manitoba; no other Canadian jurisdiction has developed a comprehensive infrastructure, yet it is fundamental to the most favourable and timely outcome of clinical and preventive services planning. The following schematic suggests a scope for clinical governance, realizing that a series of iterations will occur prior to confirmation of the strategic elements to be included as a critical part of the transition from a plan to a transformative force in Manitoba. Both the leadership for clinical governance and the relationships with the Ministry of Health, Seniors, and Active Living will need to be carefully considered and defined.

Exhibit 6-02
Proposed Clinical Governance for Manitoba





Clinical and Preventive Services Planning

Advancing the clinical and preventive services plan for Manitoba is a transition from theory and underpinning data to a clear process of implementation. This is initiated by an accurate and validated current state assessment (followed by an early refreshing of the data in parallel to the implementation process). The current state incorporates deficits, system issues and challenges, and sector issues and challenges. Likely, the binding force will be the legitimacy of healthcare in the province being accepted as a provincial resource.

Future state variables and drivers of workload can be extended to system redesign that includes an infrastructure for change and supportive modeling to populate that infrastructure. Inherent to its maintenance are three commitments:

- Maintenance of real-time data to refresh the planning database
- Measurement of clinical outcomes
- Advancement of evidence-based decision-making and best practices

These commitments require uniform regard for the provincial plan and its regional operation; planning can no longer be regional.

These are challenging undertakings for government and providers. Change is easy to resist; however, the evidence at hand provides an imperative for change. A very positive indicator for the future is the repeated encouragement for the planning to be bold and to resist “nibbling at the margins.” As well, there is consonance between the underpinning principles supported by the Project Advisory Committee and the conclusions and recommendations of this final report. To maintain the status quo would only extend a cycle of provider-centric care and dismiss the opportunity for evidence-based patient-centred care that is collaborative.

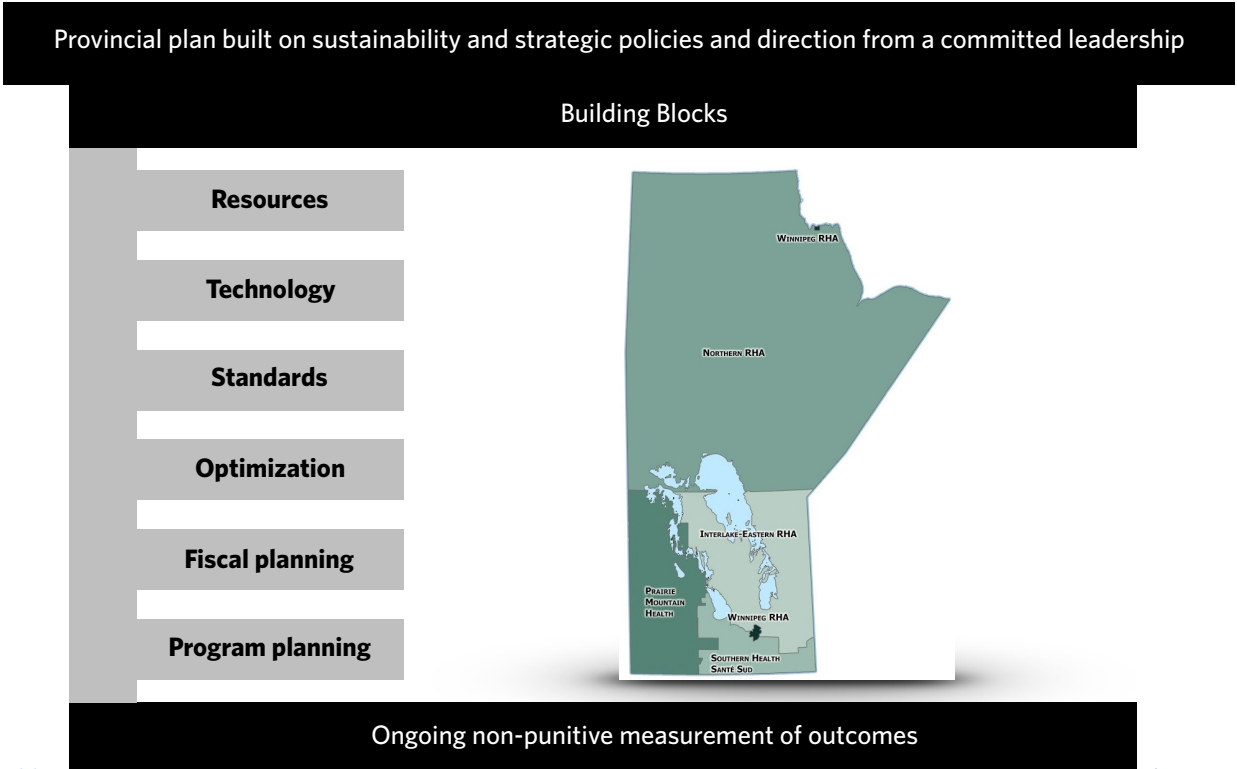
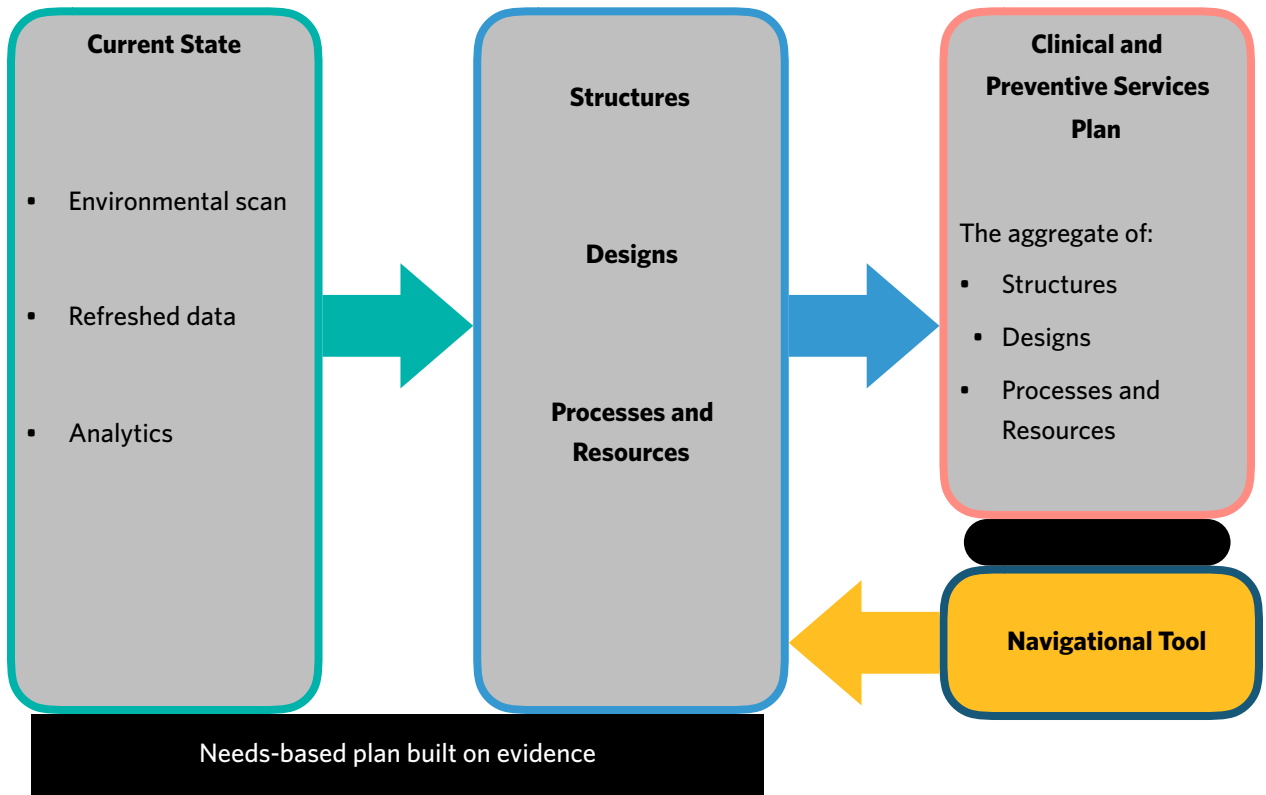
Experience has demonstrated that models of care can shift due to structure, design, and process, all modified by resources and organizational culture. All are achievable. Resources are a fiscal reality and require alignment of priorities and, especially with this type of planning, a reallocation. All the pieces are in place in Manitoba - - their repositioning and the positive system impact should not require additional funding; in fact, savings are anticipated, particularly with the parallel process of a value audit being undertaken in Manitoba. **Organizational culture is not a plan - - it is a consequence of leadership, commitment, and education.**

Change brings surprises, many of them predictable and some, not. Government will need to prioritize its spending on health and social services against other pressing demands, but always with a focus on needs. Equally, all provider groups will need to come to terms with shifts in the care model:

- Government is being asked to redefine its spending priorities, over time, and to contemplate revised a structure and governance for clinical and preventive services
- Clinical governance needs to be developed provincially and to be centralized in support of regional delivery of care, often using targeted core services in a hub-and-spoke model
- Hospitals are being asked to determine the most appropriate services to be provided and to support consolidation that provides a seamless interface with collaborative care models and non-acute care; some hospitals are being asked to leave the acute care sector and become strong pillars of non-acute care
- The medical profession is being asked to transition to provincial collaborative care and to leave the traditional medical model behind
- All other providers of care are being asked to adjust delivery models so that collaborative and integrated care is central and top-of-license is the norm

Exhibit 7-01 is a schematic that demonstrates the interdependencies of a refreshed and analyzed environmental scan, strategic shifts in the models of care, and the rolling ten-year clinical and preventive services plan.

Exhibit 7-01
Schematic of Progressing to Services Planning





Forecast Methodology

8.1 Forecast Period

The report provides a ten-year workforce forecast for the period 2015-2016 to 2024-2025, with 2015-2016 being forecast year one (F1) and 2024/25 being forecast year ten (F10). FY 2014-2015 (April 1, 2014 to March 31, 2015) is the base year, or year zero (F0) of the forecast period.

The emphasis is largely on physicians, which is appropriate given that there is growing interest in using all health care providers to their full scope of practice, and for expanding collaborative care models. This will reduce the number of physicians in the future that would otherwise have been needed. Once there is agreement on the physician forecasts, then planning can be completed for the other essential health care professions, with the assumption that they will be supported in utilizing their full scopes of practice.

8.2 Current Physician Roster

8.2.1 Baseline

The CPSM registry file of 3,425 active, licensed physicians was narrowed by 722 to 2,703 by filtering out those earning less than \$25,000 per annum, on the assumption of being low volume locum tenens physicians, casual workers, or transitioning into or out of the Manitoba healthcare system.

8.2.2 Revised Baseline

The shortened list of 2,703 physicians underwent further reconciliation to RHA and the WRHA Physician Appointment Information System (PAIS) databases. Supplementary information was acquired regarding various specialties, particularly those paid through block payments. As a result, some physicians were reassigned and others were added to a primary functional specialty determined by the PAIS database.

8.2.3 Full-Time Equivalency and Specialty

Full-time equivalency (FTE) was calculated for each of the 2,703 physicians using a modified version of the CIHI FTE methodology, as described below. The result was a head count of 2,594 physicians and an FTE count of 2,408 for FY 2014-2015 (April 1, 2014 to March 31, 2015). The total population mean FTE was 0.89 with a median value of 1.0 FTE. There were 649 physicians in the fourth quartile of 1.09 to 2.08 FTE, 421 in the third quartile of 1.0 to 1.09, 875 in the second quartile of 0.78 to 1.0, and 649 in the first quartile of 0.06 to 0.78 FTE.

The forecasting model will generate a count greater than 1.0 to replace a doctor with an FTE higher than 1.0, and a count of 1.0 for those with less than 1.0 FTE. An FTE and count of 1.0 is achieved between the 40th and 60th percentiles of clinical earnings in the specialty.

The Health Canada/Canadian institute for Health Information definition of an FTE (modified to Manitoba) is the national standard in the public health sector for converting physician earnings to FTE.

The Health Canada/Canadian Institute for Health Information FTE definition and methodology (modified to Manitoba) was applied, as follows:

- a. All payments (fee-for-service, block-funded, salary, third party, on-call, sessional) paid out in FY 2014-2015 to each uniquely (anonymously) identified physician within each discipline were rank ordered from least to greatest. Physicians were sorted into percentiles, with the 40th and 60th percentiles are computed as follows:**

of physicians within the group) x (0.4) = 40th percentile physician

of physicians within the group) x (0.6) = 60th percentile physician

- b. FTE assignment was made using the following approach:**

- Any ranked physician > 40th percentile, and < 60th percentile is assigned an FTE value of 1.0
- Any ranked physician (physician X) < 40th percentile was assigned an FTE equal to:
(\$ value of payment to physician X) divided by (\$ value of payment to 40th percentile physician)
- Any ranked physician (physician Y) > 60th percentile was assigned an FTE equal to:
 $1 + (\log \text{ of } \$ \text{ value of payment to physician Y}) / (\$ \text{ value of 60th percentile})$

- c. The methodology creates some compression in the range above the 60th percentile, but avoids assignment of extreme values (such as, 4.0 FTE) to very high earning physicians**

Modification to CIHI Methodology

- d. FTE calculations need to include non-fee-for-service payments, (contract payments, paid by the MOH to RHAs to physicians) with the modification, as follows:**

Gross non-fee-for-service payments by individual or specialty group, were collected from all regional health authorities and reconciled to block payments reported by the MHSAL; these non-FFS payments were added to the preceding FTE formula to derive a more accurate estimate of FTE

- e. Individuals seventy-four years of age or greater in 2015 were effectively removed from the FTE calculations based on statistical analysis of diminishing FTE values beyond age 74**

- f. Individuals earning less than \$25,000 in total income in 2014-2015 were removed from the FTE calculations on the assumption they were casual, semi-retired, or locum tenens physicians.**

8.3 Roster of Physicians by RHA FY 2014-2015

Exhibit 8-01 lists physician FTE values by RHA by specialty for FO (April 1, 2014 to March 31, 2015), using the modified methodology applied to Manitoba data:

**Exhibit 8-01
Physician FTE by RHA by Specialty for FO (April 1, 2014 to March 31, 2015)
One of Two**

PROVINCE WIDE SUMMARY - PHYSICIAN FTE BY RHA for the period APRIL 1, 2014 TO MARCH 31, 2015 (Base Year)							
Specialty	Specialty	1-WRHA	2-PMH	3-IERHA	4-NRHA	5-SH-SS	TOTAL
Diagnostic/Therapeutic Total		137.0	12.6	2.1	1.1	4.4	157.2
Emergency Medicine	EP	4.6	-	-	-	-	4.6
Family Medicine (EM)	EP	89.9	-	3.3	-	4.8	98.0
General Practice (EM)	EP	-	-	-	-	-	-
Emergency Medicine Total		94.5	-	3.3	-	4.8	102.6
Family Medicine	FP	70.3	-	1.6	-	1.0	73.0
General Practice	FP	485.4	147.7	53.8	45.4	116.1	848.4
Family Medicine (SI)-Addiction Medicine	FP	1.7	-	-	-	-	1.7
Family Medicine (SI)-Child and Adolescent I	FP	-	-	-	-	-	-
Family Medicine (SI)-Chronic Pain	FP	-	-	-	-	-	-
Family Medicine (SI)-Developmental Disabi	FP	-	-	-	-	-	-
Family Medicine (SI)-Emergency Medicine	FP	-	-	-	-	-	-
Family Medicine (SI)-Enhanced Skills Surger	FP	31.8	1.3	2.2	-	4.4	39.6
Family Medicine (SI)-Family Practice Anesth	FP	-	10.5	-	-	-	10.5
Family Medicine (SI)-Family Practice Cance	FP	3.0	-	-	-	-	3.0
Family Medicine (SI)-Global Health	FP	-	-	-	-	-	-
Family Medicine (SI)-Health Care of the Eld	FP	6.0	-	-	-	-	6.0
Family Medicine (SI)-Hospital Medicine	FP	0.8	4.7	1.1	-	-	6.6
Family Medicine (SI)-Maternity and Newbo	FP	35.7	7.9	-	-	-	43.6
Family Medicine (SI)-Mental Health	FP	-	-	-	-	-	-
Family Medicine (SI)-Occupational Medicin	FP	-	-	-	-	-	-
Family Medicine (SI)-Palliative Care	FP	12.5	-	-	-	-	12.5
Family Medicine (SI)-Prison Health	FP	-	-	-	-	-	-
Family Medicine (SI)-Respiratory Medicine	FP	-	-	-	-	-	-
Family Medicine (SI)-Sport and Exercise Me	FP	-	-	-	-	-	-
Family Practice Total		647.2	172.0	58.7	45.4	121.5	1,044.8

Exhibit 8-01
Physician FTE by RHA by Specialty for FO (April 1, 2014 to March 31, 2015)
Two of Two

PROVINCE WIDE SUMMARY - PHYSICIAN FTE BY RHA for the period APRIL 1, 2014 TO MARCH 31, 2015 (Base Year)							
Specialty	Specialty	1-WRHA	2-PMH	3-IERHA	4-NRHA	5-SH-SS	TOTAL
Gynecologic Oncology	O&G	4.5	-	-	-	-	4.5
Gynecologic Reproductive Endocrinology &	O&G	4.0	-	-	-	-	4.0
Maternal-Fetal Medicine	O&G	3.1	-	-	-	0.2	3.3
Neonatal-Perinatal Medicine	O&G	14.8	-	-	-	-	14.8
Obstetrics and Gynecology	O&G	56.9	3.5	-	3.6	0.8	64.8
Obstetrics and Gynecology Total		83.3	3.5	-	3.6	1.0	91.4
Adolescent Medicine	PED	-	-	-	-	-	-
Developmental Pediatrics	PED	4.7	-	-	1.0	-	5.7
Medical Genetics	PED	6.3	-	-	-	-	6.3
Pediatric Anesthesiology	PED	8.8	-	-	-	-	8.8
Pediatric Cardiac Surgery	PED	-	-	-	-	-	-
Pediatric Cardiology	PED	4.0	-	-	-	-	4.0
Pediatric Clinical Immunology and Allergy	PED	7.3	-	-	-	-	7.3
Pediatric Critical Care Medicine	PED	4.0	-	-	-	-	4.0
Pediatric Emergency Medicine	PED	14.1	-	-	-	-	14.1
Pediatric Endocrinology and Metabolism	PED	4.5	-	-	-	-	4.5
Pediatric Gastroenterology	PED	1.4	-	-	-	-	1.4
Pediatric Hematology/Oncology	PED	16.6	-	-	-	-	16.6
Pediatric Infectious Diseases	PED	3.9	-	-	-	-	3.9
Pediatric Nephrology	PED	5.1	-	-	-	-	5.1
Pediatric Neurology	PED	4.0	-	-	-	-	4.0
Pediatric Orthopedic Surgery	PED	3.9	-	-	-	-	3.9
Pediatric Radiology	PED	6.0	-	-	-	-	6.0
Pediatric Respiriology	PED	2.2	-	-	-	-	2.2
Pediatric Rheumatology	PED	1.6	-	-	-	-	1.6
Pediatric Surgery	PED	5.1	-	-	-	-	5.1
Pediatrics	PED	76.0	2.7	1.0	1.9	1.2	82.9
Pediatric Total		179.6	2.7	1.0	2.9	1.2	187.4
Child and Adolescent Psychiatry	PSYCH	26.6	-	0.6	-	-	27.2
Forensic Psychiatry	PSYCH	-	-	-	-	-	-
Geriatric Psychiatry	PSYCH	7.1	-	-	-	-	7.1
Psychiatry	PSYCH	100.7	12.4	2.4	2.7	1.2	119.4
Psychiatry Total		134.4	12.4	3.0	2.7	1.2	153.7
Anesthesiology	SUR	117.4	6.5	2.1	2.3	2.5	130.8
Cardiac Surgery	SUR	11.1	-	-	-	-	11.1
Colorectal Surgery	SUR	-	-	-	-	-	-
General Surgery	SUR	51.0	5.6	2.0	2.4	6.5	67.5
General Surgical Oncology	SUR	1.0	-	-	-	-	1.0
Neurosurgery	SUR	10.9	-	-	-	-	10.9
Ophthalmology	SUR	28.3	1.3	-	-	-	29.6
Orthopedic Surgery	SUR	42.5	3.0	-	-	3.6	49.0
Otolaryngology - Head and Neck Surgery	SUR	17.6	-	-	-	1.1	18.7
Plastic Surgery	SUR	15.3	-	-	-	-	15.3
Thoracic Surgery	SUR	3.0	1.2	-	-	-	4.2
Urology	SUR	17.0	1.6	-	-	-	18.6
Vascular Surgery	SUR	3.8	-	-	-	-	3.8
Surgical Total		318.7	19.2	4.1	4.6	13.7	360.4
TOTAL		1,887.7	235.1	72.2	62.7	148.6	2,406.3

8.4 Future Supply

The supply, mix, and distribution of physicians by discipline are a function of several variables; the dominant factors are the number of graduates (Canadian citizens) of residency programs administered by Canadian faculties and colleges of medicine, policies of recruitment of international graduates, and gender of physicians entering the workforce.

8.4.1 Canadian Medical Schools

Forecasting future supply from residency programs administered by Canadian faculties and colleges of medicine is based upon past and current program size, mix, and duration by medical school. Data from 2015 project future entry to practice by specialty for the ensuing six years, with most postgraduate training being either two or five years in length.

Current data from the Association of Faculties of Medicine of Canada (AFMC) and the Canadian Post-M.D. Education Registry (CAPER) generate future supply forecasts to year six with a high degree of confidence. Years seven to ten extrapolate data from the previous six years in order to complete a ten-year forecast.

Recruitment of international medical graduates is a function of provincial policy and regional recruitment strategies and cannot be based on a statistical model.

In Manitoba, 78% of practising physicians who hold a Canadian medical school MD, graduated from the University of Manitoba College of Medicine (COM).

The COM has increased first year enrolment from 75 in 2000 to 136 in 2016. Based on past experience, the expansion should translate to increased numbers of COM graduates practising in Manitoba. This may also provide for greater recruitment to rural Manitoba.⁴⁹

It is difficult to compare CaRMS matching results across provinces due to different entry criteria and IMG stream allocations. In 2016, 19.3% of COM residency positions were unmatched after the first round. This is the highest ranking in unfilled first round positions of fourteen medical schools (excludes the three Francophone medical schools).

⁴⁹ See Environmental Scan Section 5.1

Exhibit 8-02
First Iteration of CaRMS Match by Positions by School 2003, 2008, 2016

R-1 Match, 1st Iteration, Summary of Positions by School of Residency											
School of Residency	2016				2008			2003			
	Positions Available	Positions Filled	Positions Unfilled	% Unfilled	Positions Available	Positions Unfilled	% Unfilled	Positions Available	Positions Unfilled	% Unfilled	
Memorial University of Newfoundland	80	65	15	18.8%	64	7	10.9%	60	21	10.9%	
Dalhousie University	133	130	3	2.3%	110	9	8.2%	96	13	8.2%	
Université Laval	238	201	38	16.0%	193	41	21.2%	-	-	21.2%	
Université de Sherbrooke	199	184	15	7.5%	163	13	8.0%	-	-	8.0%	
Université de Montréal	293	271	22	7.5%	260	25	9.6%	-	-	9.6%	
McGill University	192	188	3	1.6%	167	23	13.8%	105	15	13.8%	
University of Ottawa	197	184	13	6.6%	171	14	8.2%	101	13	8.2%	
Queen's University	129	125	4	3.1%	103	8	7.8%	69	1	7.8%	
Northern Ontario School of Medicine	62	52	10	16.1%	333	1	0.3%	-	-	0.3%	
University of Toronto	407	407	0	0.0%	167	6	3.6%	218	1	3.6%	
McMaster University	216	208	8	3.7%	34	10	29.4%	105	23	29.4%	
Western University	183	169	14	7.7%	145	22	15.2%	97	10	15.2%	
University of Manitoba	140	113	27	19.3%	94	3	3.2%	77	25	3.2%	
University of Saskatchewan	111	91	20	18.0%	79	26	32.9%	57	18	32.9%	
University of Alberta	189	178	11	5.8%	134	24	17.9%	115	39	17.9%	
University of Calgary	196	191	5	2.6%	108	4	3.7%	93	3	3.7%	
University of British Columbia	345	340	5	1.4%	246	14	5.7%	124	7	5.7%	
TOTAL	3310	3097	213	6.4%	2,570	250	9.7%	1,317	189	14.4%	

Source: Canadian Resident Matching Service

The **size of residency programs** administered by Canadian faculties and colleges of medicine has increased substantially since 2003. The first choice CaRMS match has increased 217% from 2003 (1,118 positions) to 2016 (2,428 positions). The greatest increases in residency programs, relative to the overall increase of 217%, are in:

- a. Larger programs (>40 first year residency positions):
 - Emergency Medicine
 - Family Medicine
 - Internal Medicine
- b. Programs (>19 and <40 first year residency positions)
 - Anatomic Pathology
 - Dermatology
 - Physical Medicine and Rehabilitation

Notably, the larger programs with the greatest increase are generalist disciplines. Within internal medicine, and 80% increase in general internal medicine was observed.

Exhibit 8-03
Changes in CaRMS Matched Disciplines 2003 - 2014 and Generalism

Discipline	2003 Matched Discipline (#)	2008 Matched Discipline (#)	2016 Matched Discipline (#)	% Change 2003 to 2016	Generalist?
Anatomical Pathology	7	15	19	171.4%	
Anesthesiology	62	106	102	64.5%	YES
Cardiac Surgery	7	8	9	28.6%	
Dermatology	5	19	28	460.0%	
Diagnostic Radiology	43	80	67	55.8%	YES
Emergency Medicine	20	46	65	225.0%	YES
Family Medicine	370	947	1013	173.8%	YES
General Pathology	1	1	3	200.0%	YES
General Surgery	55	101	77	40.0%	YES
Hematological Pathology	0	0	1	N/A	
Internal Medicine	159	350	388	144.0%	YES-19%
Laboratory Medicine	16	23	4	(75.0%)	
Medical Genetics	3	8	3	0.0%	
Medical Microbiology	0	8	7	N/A	
Neurology	19	36	38	100.0%	
Neurology - Pediatric	0	9	6	N/A	
Neurosurgery	17	19	16	(5.9%)	
Nuclear Medicine	3	6	4	33.3%	
Obstetrics & Gynecology	46	84	76	65.2%	YES
Ophthalmology	17	35	38	123.5%	
Orthopedic Surgery	42	73	48	14.3%	
Otolaryngology - Head & Neck	12	30	29	141.7%	
Pediatrics	87	113	125	43.7%	YES-35%
Physical Medicine & Rehabilitation	8	22	24	200.0%	
Plastic Surgery	12	23	23	91.7%	
Psychiatry	68	137	153	125.0%	YES
Public Health & Preventive Services	4	21	14	250.0%	
Radiation Oncology	20	24	15	(25.0%)	
Urology	15	31	27	80.0%	
Vascular Surgery	0	0	6	N/A	
TOTAL	1118	2375	2428	2428	
CHANGE		212%	217%	2428	
% Generalist	64.9%	67.7%	68.9%		

8.4.2 Gender Adjustment

Gender adjustment is the relative difference between males and females in absolute FTE value between the ages of 25 years and 74 years.

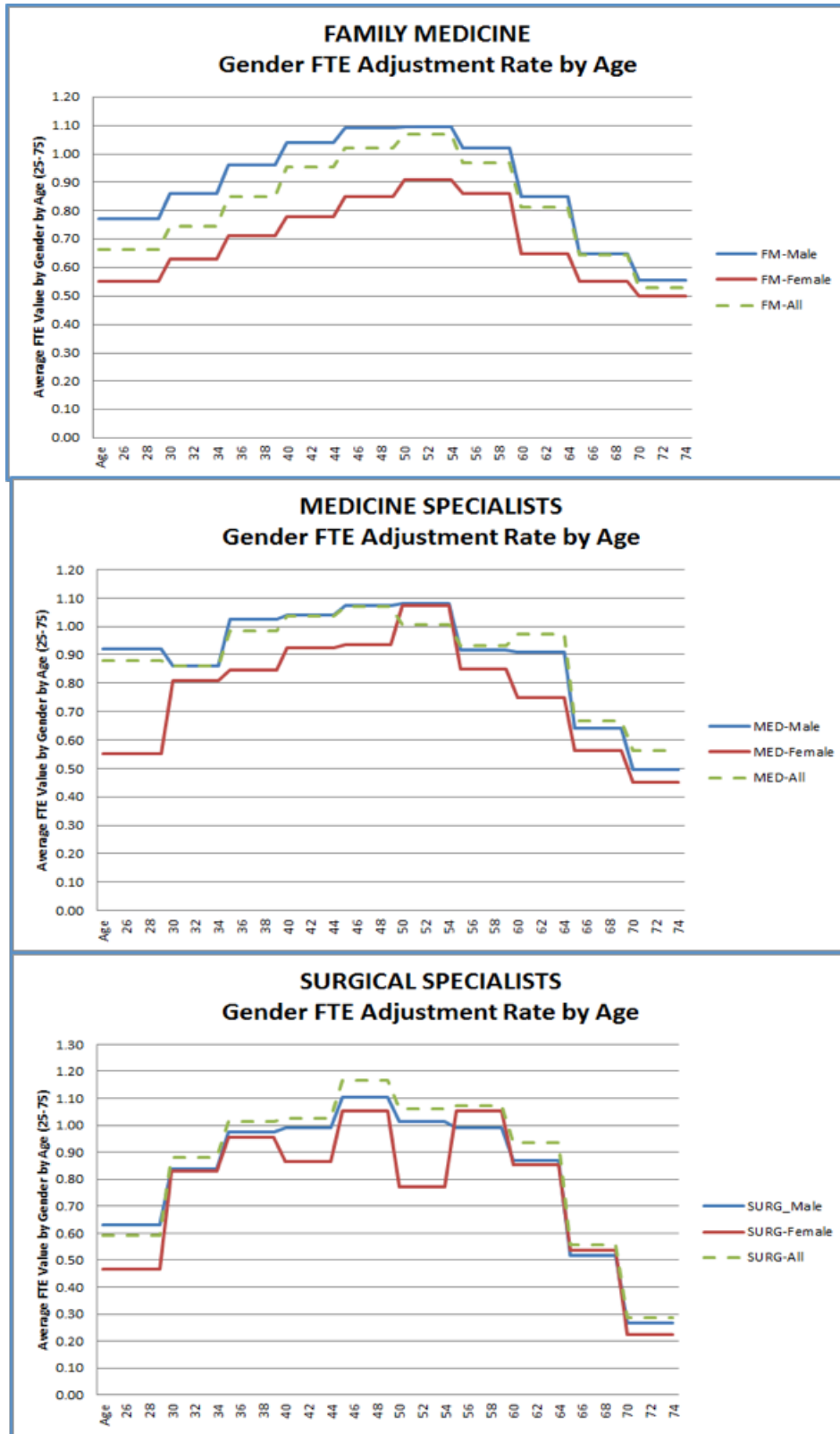
In general, a female physician, over the course of her career, will work less than a male physician. As the proportion of female physicians entering the workforce increases, the number of physicians required to replace each retiring male physician increases. In 2014-2015 the ratio of female-to-male FTE in family practice was 0.81. A ratio of 0.81 to 1.00 suggests recruiting 1.2 females to equal 1.0 FTE and that, over her career, a female family physician will work 0.19 FTE less than a male family physician. Before and after family raising years, females will work similarly or equivalent to males. The Manitoba physician workforce is 34% female, which is the second lowest nationally. Manitoba can expect the percentage to increase to the national average in the coming years, meaning a higher annual rate of increase than other provinces. This will impact future FTE supply at a female-to-male FTE ratio of 0.81 in Family Medicine, 0.92 in RCPSC specialties, and 0.85 overall.

Exhibit 8-04
Forecast Model Gender Adjustment
Ratio Female-to-Male FTE

	Manitoba 2012-2013	Nova Scotia 2009-2010	Canada 2012-2013
Family Medicine	0.81 (0.75 - 0.91)	0.84	0.74
Specialists (RCPSC)	0.92 (0.84 - 0.92)	0.94	0.77
All Physicians	0.85 (0.79 - 0.93)	0.90	0.74

Exhibit 8-05 illustrates the FTE adjustment incorporated to the forecast model at an individual physician level by gender and age. Age is adjusted each year over the ten-year forecast.

Exhibit 8-05
FTE Adjustment for Age and Gender
Family Medicine, Medical Specialists, and Surgical Specialists



8.4.3 Separation Adjustment

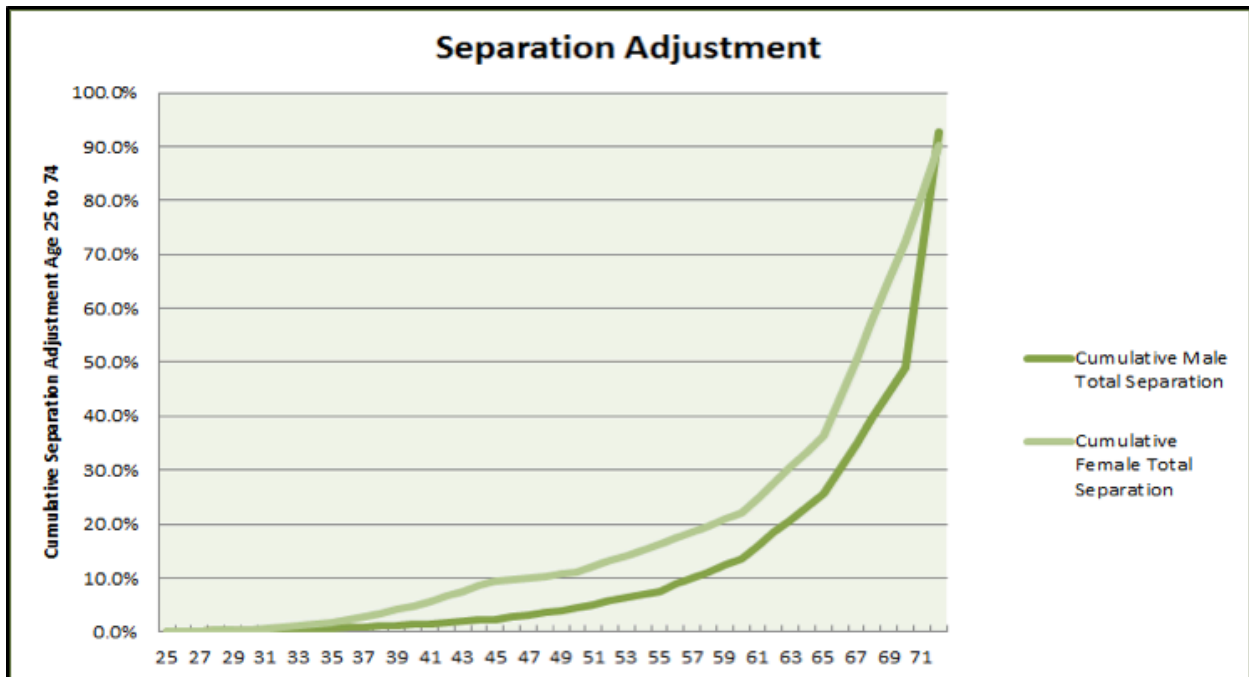
Separation adjustment is defined as a departure from the active physician roster due to retirement, reduced productivity, or other attrition (death, shift from active-clinical to active-non-clinical). The proxy for decreased productivity is the change in predicted FTE value by physicians, moving from 25 years of age to 74 years.

Separation adjustment is gender-specific and age-specific from 25 years of age to 74 years, and is applied by gender at the same age rates across all specialties.

The **average physician age in Manitoba has been constant**, in the 49 years to 50 years range, over the five-year period ending 2016; this pattern is similar to the national averages.

The ratio of FTE-to-count, by age cohort, follows an upward progression from less than 30 years of age to the age cohort of 55 to 59 years, before tapering off to eventual retirement from practice. This progression is consistent with other studies on workload as a physician moves through each age cohort. The ratios in the age cohort progression are modeled into future supply at an individual physician level, rather than as a cohort.

Exhibit 8-06
Progression to Full Retirement by Male and Female Physicians by Age



The separation rate variable captures the changes in service provision that accompany changes in age. The provincial data in [Exhibit 8-05](#) are reasonably robust and demonstrate a familiar pattern for both genders moving through the early-to-middle-to-late career stages.

The forecast model assumes a default full retirement at 74 years of age in all the Manitoba specific physician FTE data analyses in this report. Individuals aged 75 years or older in 2015

have been removed from the FTE calculations on the assumption they will not be practising actively beyond the first year of the ten-year forecast (2016). Despite exceptions that will occur, this rule has been applied uniformly to maintain methodological integrity.

8.4.4 Geography and Mobility

Net Inter-Provincial Migration (NIPM) is the net number of physicians leaving and returning to the province, annually. Annual inter-provincial net migration in 2013 for Manitoba was negative (**2.72%**). By comparison, the 2007 NIPM for Manitoba was negative (**1.69%**).

Base Case Scenario is negative (**2.04%**)⁵⁰

Low Case Scenario is negative (**1.84%**)

High Case Scenario is negative (**2.24%**)

Return from Abroad (RFA) is the metric for physicians returning from abroad to practice in Manitoba.

The annual number of physicians returning to practice in Manitoba, net of those leaving Manitoba to practice abroad, is negligible (less than 5 per annum – Source: CIHI).

The combined effect of NIPM and RFA is in the range of (**1.84%**) low case to (**2.24%**) high case decrease per annum, with the base case remaining at (**2.04%**).

8.4.5 Practice Profiles of Family Physicians

The forecast model incorporates disaggregation of family physician full-time equivalency based upon “area of special interest.” An area of special interest is a subset of the general categorization of “family physician.” A detailed analysis of payments from all RHAs to all family physicians was conducted in order to distinguish different areas of special interest.

An “area of special interest” prefaced by “SI” (special interest) denotes a physician who receives more than 50% of total income from the area of special interest (such as, 10.53 FTE GPs have an “SI” in “anaesthesia” where more than 50% of total income is for SI services).

The following exhibit classifies SI family physicians using the categories of the CFPV.

⁵⁰ 75% of the 2013 value of **2.72%** - the 75% discount is applied due to the increase in physician supply from faculties and colleges of medicine over the previous five years with an anticipated constraint on mobility

Exhibit 8-07
Family Medicine FTE for Manitoba by Special Interest 2014 - 2015

Field of Practice	Family Physicians	Family Physicians (EM)	Total	% Total
SI addiction medicine	1.66	---	1.66	0.14%
SI child and adolescent	0.00	---	0.00	0.00%
SI chronic pain	0.00	---	0.00	0.00%
SI developmental disabilities	0.00	---	0.00	0.00%
SI emergency medicine	0.00	102.59	102.59	8.92%
SI enhanced skills surgery	39.63	---	39.63	3.45%
SI anaesthesiology	10.53	---	10.53	0.92%
SI oncology	3.04	---	3.04	0.26%
SI global health	0.00	---	0.00	0.00%
SI care of the elderly	5.98	---	5.98	0.52%
SI hospital medicine	6.58	---	6.58	0.57%
SI maternal and newborn care	43.58	---	43.58	3.79%
SI mental health	0.00	---	0.00	0.00%
SI occupational health	0.00	---	0.00	0.00%
SI palliative care	12.45	---	12.45	1.08%
SI prison health	0.00	1	0.00	0.00%
SI respiratory medicine	0.00	---	0.00	0.00%
SI sport and exercise medicine	0.00	---	0.00	0.00%
SUBTOTAL (>50% income from SI)	123.46	102.6	226.06	19.70%
FAMILY MEDICINE	921.36	---	921.36	80.3%
TOTAL	1,044.82	102.59	1,147.41	100.00%

The forecast model for future FTE requirements for comprehensive family medicine uses a current roster of 921.36 FTE as the starting point, rather than 1,147.41 FTE.

Exhibit 8-07 tabulates family medicine special interest FTE by RHA (total 123.46 FTE) which, when combined with the 102.6 emergency medicine family physicians, is 226.05 FTE (the difference between 917 family physicians and the total family physician FTE of 1,147.41).

Exhibit 8-08
Family Physician FTE for Manitoba by RHA by Special Interest March 31, 2015

PROVINCE WIDE SUMMARY - PHYSICIAN FTE BY RHA for the period APRIL 1, 2014 TO MARCH 31, 2015 (Base Year)							
Specialty	Specialty	1-WRHA	2-PMH	3-IERHA	4-NRHA	5-SH-SS	TOTAL
Diagnostic/Therapeutic Total		137.0	12.6	2.1	1.1	4.4	157.2
Emergency Medicine	EP	4.6	-	-	-	-	4.6
Family Medicine (EM)	EP	89.9	-	3.3	-	4.8	98.0
General Practice (EM)	EP	-	-	-	-	-	-
Emergency Medicine Total		94.5	-	3.3	-	4.8	102.6
Family Medicine	FP	70.3	-	1.6	-	1.0	73.0
General Practice	FP	485.4	147.7	53.8	45.4	116.1	848.4
Family Medicine (SI)-Addiction Medicine	FP	1.7	-	-	-	-	1.7
Family Medicine (SI)-Child and Adolescent	FP	-	-	-	-	-	-
Family Medicine (SI)-Chronic Pain	FP	-	-	-	-	-	-
Family Medicine (SI)-Developmental Disabi	FP	-	-	-	-	-	-
Family Medicine (SI)-Emergency Medicine	FP	-	-	-	-	-	-
Family Medicine (SI)-Enhanced Skills Surger	FP	31.8	1.3	2.2	-	4.4	39.6
Family Medicine (SI)-Family Practice Anesth	FP	-	10.5	-	-	-	10.5
Family Medicine (SI)-Family Practice Cance	FP	3.0	-	-	-	-	3.0
Family Medicine (SI)-Global Health	FP	-	-	-	-	-	-
Family Medicine (SI)-Health Care of the Eld	FP	6.0	-	-	-	-	6.0
Family Medicine (SI)-Hospital Medicine	FP	0.8	4.7	1.1	-	-	6.6
Family Medicine (SI)-Maternity and Newbo	FP	35.7	7.9	-	-	-	43.6
Family Medicine (SI)-Mental Health	FP	-	-	-	-	-	-
Family Medicine (SI)-Occupational Medicin	FP	-	-	-	-	-	-
Family Medicine (SI)-Palliative Care	FP	12.5	-	-	-	-	12.5
Family Medicine (SI)-Prison Health	FP	-	-	-	-	-	-
Family Medicine (SI)-Respiratory Medicine	FP	-	-	-	-	-	-
Family Medicine (SI)-Sport and Exercise Me	FP	-	-	-	-	-	-
Family Practice Total		647.2	172.0	58.7	45.4	121.5	1,044.8

8.4.6 Practice Profiles of RCPSC Specialists

The forecast model uses the CPSM licensed specialty as the starting point for specialty assignment by physician. Review and analysis using the WRHA Physician Appointment Information System (PAIS) database (based upon functional specialty) led to reassignment of a number of physicians from a listed license specialty to their practising licensed specialty.

The forecast model uses the net reassigned counts and FTEs by licensed practising specialty to forecast future requirements.

8.4.7 Benchmarking

External benchmarks for each specialty were identified and compared to current practice in Manitoba. Benchmarks fell into two categories:

- Ratio of population per 1.0 FTE
- Service volume per FTE (sum of major plus minor surgical cases per 1.0 FTE)

In order to be considered a valid benchmark, the source was required to originate in one of a peer-reviewed specialty-specific journal article, a publication from an authoritative body (such as, Canadian Medical Association registry of physicians master file), a national workforce planning authority (such as, U.K. National Health Service, Australia Department of Health), and be published after 1999. If a comparable benchmark could not be identified from one of these sources, no benchmark was cited for that specialty.

Benchmarks must be used with caution. These require careful analysis and evaluation prior to application within a model. Achievement of service volume improvements cannot be allowed at the expense of quality; however, in some cases, greater volume may equate to improved outcomes. Lean process and agencies such as Leapfrog USA, along with peer-reviewed literature, provide insight to this process.

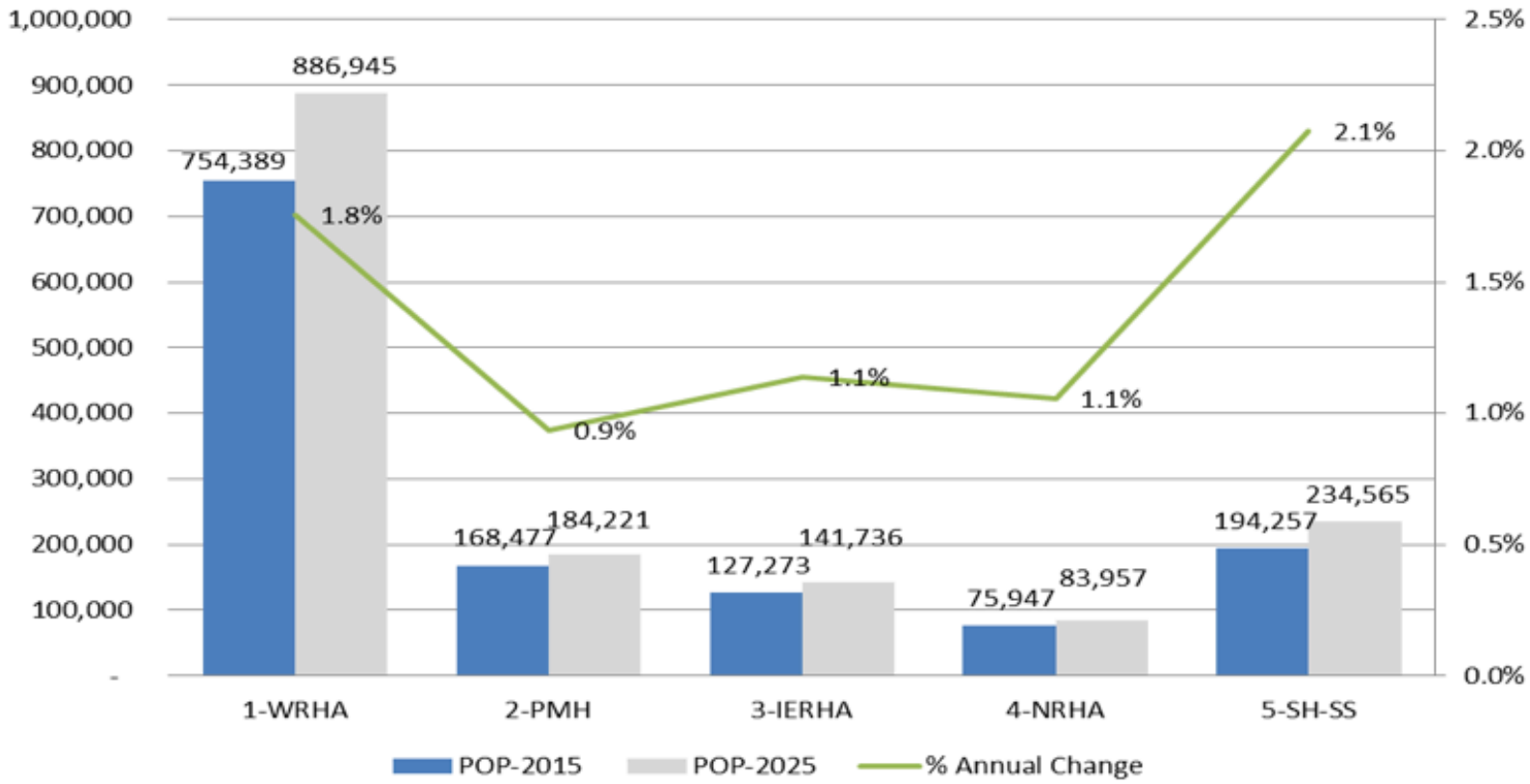
It is important and necessary to update annually both numerator and denominator for Manitoba values in comparison to applied benchmarks in order to ensure continuing relevance, (dynamic benchmarking will incorporate workload changes as they occur).

8.5 Population

The forecast change in population is used in the 10-year forecast of workforce FTE requirements to adjust for change in population need, in combination with relative burden of illness factor. The highest forecast population change by RHA is SH-SS at 2.1% per annum between 2015 (base year of forecast - - - FO) and 2025 (forecast year ten - - F10). The other RHAs forecast population change, in order of highest to lowest, are WRHA at 1.8%, NRHA 1.1%, IERHA 1.1%, and PMH 0.9%.

Exhibit 8-09
Population and % Forecast Change 2015 (base year) to 2025 (F10)

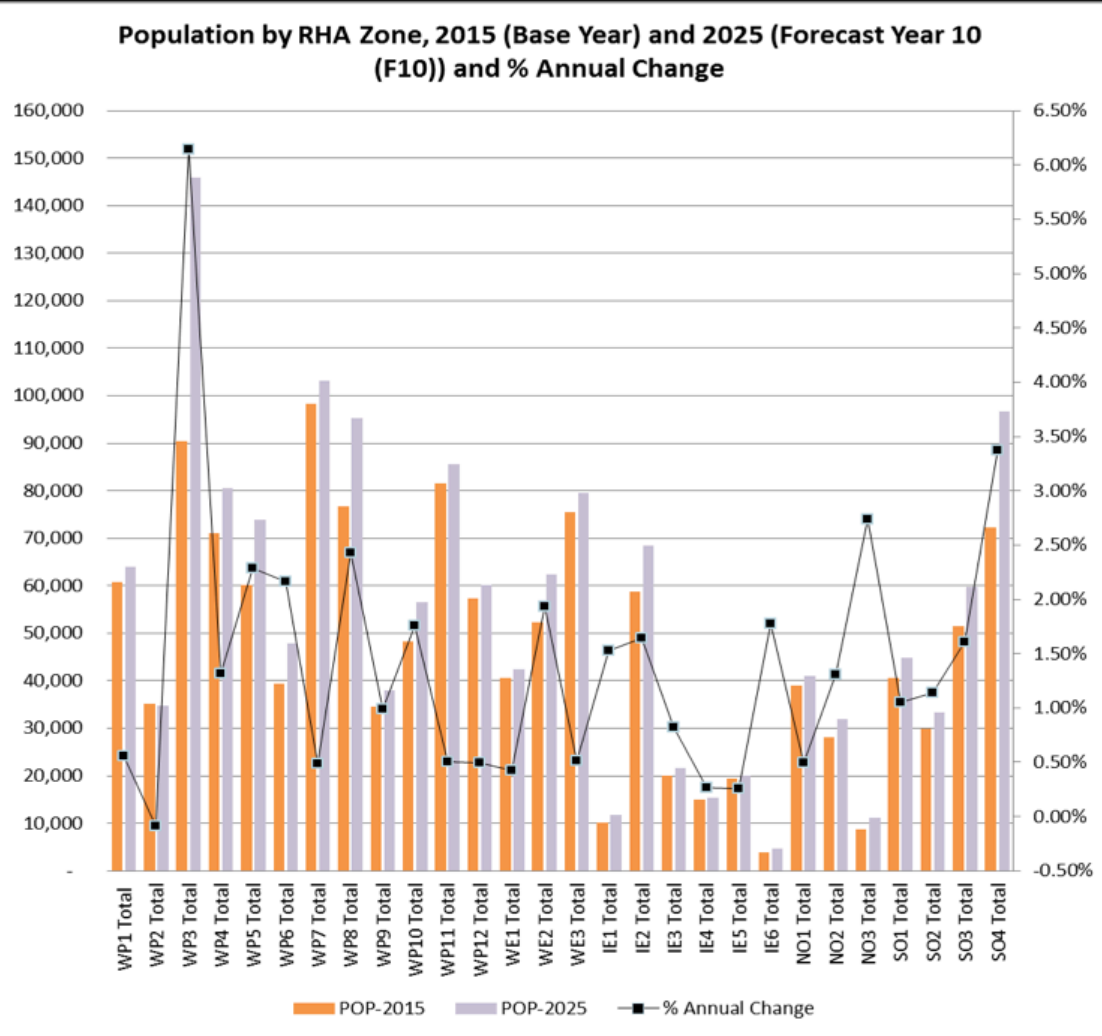
Population and % Forecast Change 2015 (Base Year) to 2025 (Forecast Year Ten (F10))



The forecast change in population between 2015 and 2025 at the RHA zone level varies widely from WRHA WP3 at **6.14%** increase per annum to a **0.9%** decline in WRHA WP2 (**Exhibit 8-09**).

By including both absolute changes in population growth and the relative burden of illness, the forecast model ensures forecasts recognize and embed the differences in population need between RHAs and, also, population segments such as Indigenous, income strata, education strata, and geographic variation.

Exhibit 8-10
Population Forecast by RHA Zone 2015 (base year) and 2025 (F10) with % Annual Change



RHA ZONE	POP-2015	POP-2025	% Annual Change
WP1 Total	60,697	64,087	0.56%
WP2 Total	35,127	34,824	-0.09%
WP3 Total	90,341	145,846	6.14%
WP4 Total	71,152	80,500	1.31%
WP5 Total	60,153	73,905	2.29%
WP6 Total	39,320	47,833	2.17%
WP7 Total	98,392	103,195	0.49%
WP8 Total	76,656	95,255	2.43%
WP9 Total	34,618	38,052	0.99%
WP10 Total	48,170	56,627	1.76%
WP11 Total	81,492	85,599	0.50%
WP12 Total	57,267	60,115	0.50%
WE1 Total	40,682	42,416	0.43%
WE2 Total	52,236	62,346	1.94%
WE3 Total	75,559	79,459	0.52%
IE1 Total	10,132	11,682	1.53%
IE2 Total	58,714	68,380	1.65%
IE3 Total	19,970	21,614	0.82%
IE4 Total	15,020	15,414	0.26%
IE5 Total	19,465	19,968	0.26%
IE6 Total	3,972	4,678	1.78%
NO1 Total	39,022	40,960	0.50%
NO2 Total	28,163	31,835	1.30%
NO3 Total	8,762	11,162	2.74%
SO1 Total	40,639	44,927	1.06%
SO2 Total	29,872	33,276	1.14%
SO3 Total	51,433	59,680	1.60%
SO4 Total	72,313	96,681	3.37%
Grand Total	1,320,343	1,531,423	1.60%

The forecast model also maps communities to the catchment level of detail. Catchment levels map communities into natural commuter catchment levels, which is refined to one level below the RHA district level. An example using the NRHA at catchment levels is provided in [Exhibit 8-09](#).

Exhibit 8-11
Population Forecast by NRHA Catchment Level 2015 (base year) and 2025 (F10) with % Annual Change

RHA (L2)	ZONE	DISTRICT (L4)	CATCHMENT (L5)	LOCAL AREA (L7)	POP-2015	POP-2025
4	NO1 Northern Direct Service Zone	NO11 Z1 Flin, Snow, Cran, Sher	FLIN FLON	FLIN FLON	5,885	5,740
4	NO1 Northern Direct Service Zone	NO11 Z1 Flin, Snow, Cran, Sher	FLIN FLON	CREIGHTON	-	-
4	NO1 Northern Direct Service Zone	NO11 Z1 Flin, Snow, Cran, Sher	FLIN FLON	CRANBERRY PORTAGE	-	-
4	NO1 Northern Direct Service Zone	NO11 Z1 Flin, Snow, Cran, Sher	SNOW LAKE	SNOW LAKE	963	939
4	NO1 Northern Direct Service Zone	NO11 Z1 Flin, Snow, Cran, Sher	MATHIAS COLOMB	SHERRIDON	927	904
4	NO1 Northern Direct Service Zone	NO11 Z1 Flin, Snow, Cran, Sher	FLIN FLON	CHANNING	-	-
4	NO1 Northern Direct Service Zone	NO12 Z1 The Pas/OCN, Kels	CITY OF THE PAS	THE PAS	7,507	7,813
4	NO1 Northern Direct Service Zone	NO12 Z1 The Pas/OCN, Kels	CITY OF THE PAS	OPASKWAYAK	1,845	1,920
4	NO1 Northern Direct Service Zone	NO12 Z1 The Pas/OCN, Kels	CITY OF THE PAS	WANLESS	-	-
4	NO1 Northern Direct Service Zone	NO12 Z1 The Pas/OCN, Kels	CITY OF THE PAS	Opaskwayak Cree Natio	1,938	2,017
4	NO1 Northern Direct Service Zone	NO13 Z1 LL/MC, LR, O-P(SIL),PN(GVL)	LYNN LAKE	Marcel Colomb First Nat	407	472
4	NO1 Northern Direct Service Zone	NO13 Z1 LL/MC, LR, O-P(SIL),PN(GVL)	MATHIAS COLOMB FN	Mathias Colomb Cree N	-	-
4	NO1 Northern Direct Service Zone	NO13 Z1 LL/MC, LR, O-P(SIL),PN(GVL)	O-PIPON-NA-PIWIN FN	O-Pipon-Na-Piwin Cree	470	545
4	NO1 Northern Direct Service Zone	NO13 Z1 LL/MC, LR, O-P(SIL),PN(GVL)	LEAF RAPIDS	LEAF RAPIDS	453	526
4	NO1 Northern Direct Service Zone	NO13 Z1 LL/MC, LR, O-P(SIL),PN(GVL)	LYNN LAKE	LYNN LAKE	262	304
4	NO1 Northern Direct Service Zone	NO13 Z1 LL/MC, LR, O-P(SIL),PN(GVL)	O-PIPON-NA-PIWIN FN	SOUTH INDIAN LAKE	752	873
4	NO1 Northern Direct Service Zone	NO13 Z1 LL/MC, LR, O-P(SIL),PN(GVL)	LEAF RAPIDS	GRANVILLE LAKE	98	114
4	NO1 Northern Direct Service Zone	NO14 Z1 Thomp, Myst Lake	THOMPSON	THOMPSON	14,668	15,821
4	NO1 Northern Direct Service Zone	NO14 Z1 Thomp, Myst Lake	THOMPSON	LGD of Mystery Lake	2	2
4	NO1 Northern Direct Service Zone	NO15 Z1 Bay Line	Tataskweyak Cree Nation (Sp	Tataskweyak Cree Natio	-	-
4	NO1 Northern Direct Service Zone	NO15 Z1 Bay Line	THOMPSON	MANIBRIDGE	214	261
4	NO1 Northern Direct Service Zone	NO15 Z1 Bay Line	SPLIT LAKE	ILFORD	43	52
4	NO1 Northern Direct Service Zone	NO15 Z1 Bay Line	THOMPSON	THICKET PORTAGE	-	-
4	NO1 Northern Direct Service Zone	NO15 Z1 Bay Line	THOMPSON	WABOWDEN	498	607

8.6 Relative Burden of Illness

Disease burden is the impact of a health problem on an area, measured by financial cost, mortality, morbidity, or other indicators; it is often quantified in terms of a statistical measure indicating loss of years of healthy life through disabling disease in a specified population, as measured in DALYs (disability-adjusted life years) or premature mortality rates (PMRs).

Although one group of indicators measures vital statistics related to health (deaths/PMR; PYLL, Life Expectancy (LE)) and another group measures economic and social characteristics (SEFI-2, Material Deprivation (MD)), both generate the same results on the relative regional health status and with **high correlation to health status**. Measures such as self-reported health status, PMR, and SEFI are all gathered from different data sources for different purposes, yet are all quite consistent in how Manitoba areas are ranked. The results consistently show a marked difference between health status in the NRHA compared to other RHAs.

Exhibit 8-12
Burden of Illness Indicators

Indicators of Relative Health Status	Provincial Average 2007	Provincial Average 2011
Premature Mortality Rate (PMR)	3.38/1,000 < age 75 y	3.12/1,000 < age 75 y
Potential Years of Life Lost (PYLL)	55.0 years/1,000 age 1-74 y	51.5 years/1,000 age 1-74 y
Life Expectancy (LE) Female	81.5 years	82.2 years
Life Expectancy (LE) Male	76.5 years	77.5 years
Socio-Economic Factor Index V.2 (SEFI-2)	---	0.00 (range -5 to +5)
Maternal Deprivation (MD)	---	-0.005 (range -0.4 to 1.45)
Self-rated Health (excellent or very good)	---	60% (range 47% to 63%)
Source - MCHP		

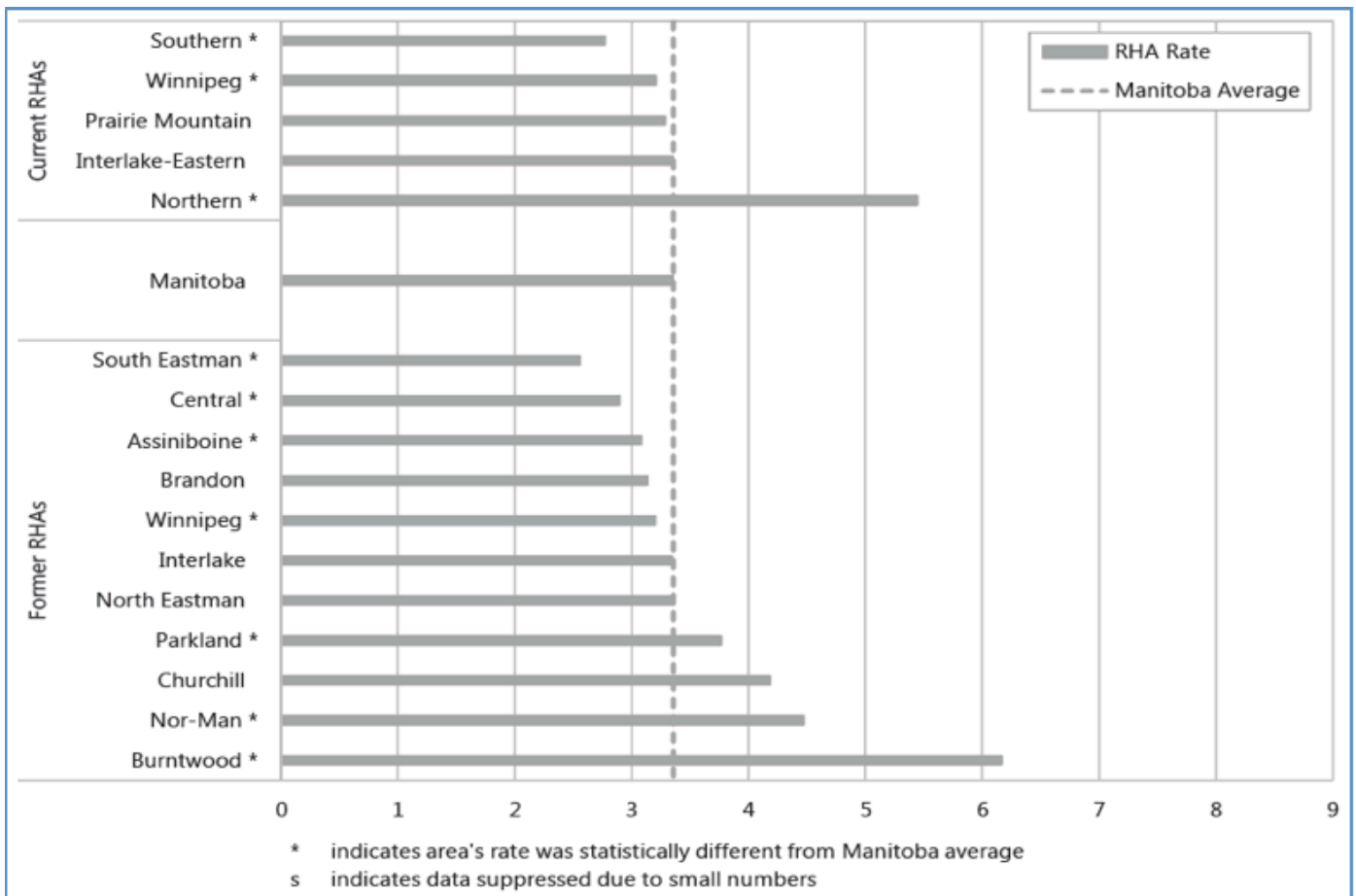
The pattern for the Health Status Index scores is indistinguishable from that for PMR or the other indicators with high contributions, such as SEFI-2. In fact, measures such as PMR and SEFI-2 are so similar in their assessment of RHAs and CAs that they could be considered interchangeable. In addition, together, they form a very strong composite measure. Given the strong correlation between the index and its constituent indicators, it would be much more direct to simply use one of the indicators (PMR or SEFI-2) when referencing overall health status.⁵¹

⁵¹ Manitoba Centre for Health Policy
healthintelligenceinc and associates

The **PMR is considered the best single indicator of the overall health status** of a region’s population and need for healthcare.^{52,53,54} PMR is correlated with morbidity and with self-rated health, as well as with socioeconomic indicators.⁵⁵ Populations having a high PMR are presumed to need more healthcare services than healthier populations.

PMR is calculated as the number of deaths among residents under 75 years old per 1,000 residents under 75 years old, per year. Average annual rates were calculated for 2002-2006 and 2007-2011 and were age and sex-adjusted to the Manitoba population under 75 years old in the first time period.

Exhibit 8-13
Premature Mortality Rates by RHA 2001-2010
 (age and gender adjusted average annual rate of death <75 years of age per 1,000 residents <75 years of age)



⁵² Carstairs & Morris, 1991

⁵³ Eyles, Birch, Chambers, Hurley, & Hutchison, 1991

⁵⁴ Eyles & Birch, 1993

⁵⁵ Martens, Frohlich, Carriere, Derksen, & Brownell, 2002a

PMR has declined over time, suggesting an overall improvement in the health status of Manitobans, with the exception of NRHA where the PMR has increased.

Exhibit 8-14
Premature Mortality Rates by RHA 2002-2006 to 2007-2011 with Inter-RHA Relativity

RHA	2002-2006	2007-2011	% Change	2007-2011 RHA : MB	Relative Value
WRHA	3.27	2.94	(10.0%)	0.943	(5.7%)
PMH	3.25	3.07	(5.5%)	0.984	(1.6%)
IERHA	3.27	3.21	(1.9%)	1.029	2.94%
NRHA	5.31	5.38	1.4%	1.727	72.72%
SH-SS	2.84	2.53	(10.9%)	0.812	(18.8%)
Province	3.38	3.12	(7.7%)	1.000	0.00%

Among the larger geographical aggregations, there have been small improvements, over time, in PMR in both the Rural South and Winnipeg, but there was no change in the north. In Winnipeg, the core areas of Downtown and Point Douglas were the exceptions to a generally low PMR. The same general improvement in PMR, over time, was found in nearly all Winnipeg CAs. However, Point Douglas, which has the highest PMR in Winnipeg, showed no improvement. Aggregating Winnipeg CAs into Most Healthy, Average Healthy, and Least Healthy was based on PMR, and therefore showed the expected trend of increasing PMR for areas deemed to be less healthy. Looking at the change over time, the most improvement was seen in the areas that already had the lowest PMRs.

These results also reveal that the health gap in Manitoba continues to widen over time: most of the improvements in health status were not reflected in the lowest income areas or in the NRHA.

The ten-year forecast model applies the inter-RHA PMR relative value (last column in preceding figure) to adjust workforce FTEs for the relative health status gap between RHAs. This adjustment is materially significant to SH-SS and NRHA.



Models of Care

9.1 Overview

A **program logic model (PLM)** is a widely used planning framework in health and many other sectors of the economy.

- A PLM ensures bidirectional linkage from goals (top) to measurable outputs and outcomes (bottom)
- A PLM ensures continuity of actions from long-term (goals) to medium term (objectives) to short term (actions and activities)
- A PLM requires vision (goals, long-term), to objectives (strategies, medium-term), and to activities (actions, short-term) to be linked as a logical enabling cascade from one to the next
- A PLM requires defined, measurable indicators of inputs (resources invested) to outputs (the short- to medium-term products of the inputs and activities), to outcomes (the long-term products of the inputs and activities)

Models of care use a PLM approach or methodology for the majority of service lines when addressing major service streams.

**Exhibit 9-01
Program Logic Model Framework**



There are common elements to all models and disciplines:

**Exhibit 9-02
Common Elements to Program Logic Model Framework**

Performance Indicators	Outputs	Outcomes
	<ol style="list-style-type: none"> 1. Each discipline requires an accountability framework with defined metrics 2. Accountability metrics are to be defined by the discipline 3. Measurement and reporting requirements necessitate a customized information system 	<ol style="list-style-type: none"> 1. Linkage to targeted cohorts 2. Linkages to other models of care 3. Participate in integrated care models with public health indicators being measured in parallel
Risks and Mitigating Strategies		
	<ol style="list-style-type: none"> 1. Risk is inability to reallocate resources consistent with the forecast base case scenario - -mitigation is instituting a provincial planning process and accountability framework 2. Manage FTEs consistent with the forecast base case scenario 3. Risk is inability to recruit adequate professional resources - -mitigation is linkage to education programs 4. Risk is inability to achieve the optimal use of technology - -mitigation is linking requirements to broader system investments in technology, including EMR and telehealth 	

Goals, objectives, and inputs to outcomes are discipline-specific and are identified, as such.

9.2 Core Physician Services

The Council on Graduate Medical Education (COGME) in the United States has noted the decline in interest in most of the generalist specialties, especially in the context of declining postgraduate matching in family medicine, general internal medicine, and general paediatrics. The shortage of generalists in Canada is no less acute and, regardless of evidence of advancing corrective measures by Deans and Deputy Ministers, a system impact of change in educational policy will take several years to be evident. Generalism is seen as a central piece of improved access, core services, and patient-centred care.

Access to certain core physician services is defined from the city level down to, and including, rural and remote levels and related catchment areas. The consensus in Canada is to include the following as core physician services: comprehensive family practice, emergency medicine, general internal medicine, general surgery (and corresponding anaesthesia services), and general psychiatry, general paediatrics, and obstetrics and gynecology, supported by general laboratory (specimen collection and transport, ECG) and diagnostic imaging (screening, routine diagnostic and imaging, x-ray) services.

Core services are population health service needs that carry expectations of timely and efficient access. At a level of detail, the application of core services is a complex challenge. The concept of “core services” has been implemented in different ways in a number of provinces. A key objective is to enable timely access for all residents to a defined range of primary and secondary care services, and to refer patients for tertiary and quaternary services. Canadian experience with defining and implementing core services has been best demonstrated in British Columbia, Ontario, and Nova Scotia.

There are many aspects to consider in designing and implementing a core services model as an integral part of clinical and preventive services planning. Some of the key determinants include:

- Definition of reasonable access time (“x” minutes driving time to a hospital staffed with secondary care specialists)
- Definition of community categories (rural/remote, rural, hamlet, village, town, city)
- Criteria for rurality and remoteness and determinants of a service delivery model that is unique to remote communities (air ambulance, fly-in primary health care (PHC))
- Balancing need for appropriate access with factors such as maintenance of competency and affordability in low volume situations, recruitment realities in rural and remote areas
- Critical mass of a given specialty to function in a sustainable manner - - can a single specialist function reasonably in a sustainable manner or is there a minimum number of specialists required in a given catchment area?

Exhibit 9-02 illustrates how core services are distributed in the forecast model. A check mark indicates the physical presence of the service within a given community category (such as, Town-Med 2000-2999 population) with PHC in the community. Commute times to the community from

surrounding rural areas are plotted using geographic, population, and travel route data. Concentric circles of increasing distance and time to access are drawn outward from a given community to establish catchment, service population, and, ultimately, the number and type of physician disciplines required.

Exhibit 9-03
Core Services Distribution in the Forecast Model

Community	PHC	EM	GIM	GS (AN)	PS	PA	OB	LM DI
Remote								
Rural								
Hamlet < 250								
Village 250 - 999								
Small Town 1,000 - 1,999	✓ ¹	2						3
Medium Town 2,000 - 2,999	✓	✓						3
Large Town 3,000 - 4,999	✓	✓						3
Small Urban 5,000 - 9,999	✓	✓						3
Large Urban 10,000 +	✓	✓	✓	✓	✓	✓	✓	✓
1	Based on identified needs, communities in the small town category receive primary care from either visiting or resident PHC providers.							
2	In addition to access to ground and air EMS, some, but not all, communities in the small town category maintain facility-based EMS and basic diagnostic services. Stability and access will improve further through the uptake of MyHT.							
3	Includes laboratory technologists collecting specimens with transportation and reporting services. Imaging technologists perform basic radiology examinations.							

The configuration of core services has a direct material impact on workforce planning and forecasting. A core services model is not a requirement or prerequisite of workforce planning in any way. In the absence of a core service model, the workforce plan is merely required to make assumptions, make them clear and transparent, prior to generating a workforce planning model and forecast. **Exhibit 9-03** identifies the key assumptions driving the number of core service specialists required under the low, base, and high case scenarios.

Exhibit 9-04
Assumptions Driving Number of Core Service Specialists

Specialty	Notes	Low Case	Base Case	High Case
Comprehensive and collaborative primary care (MyHT)	Assumptions based on UK Primary Care Trust, US VA health network, CFPC guidelines on panel size, and MyHT		2,100 to 2,300 per FTE	
General Internal Medicine	1.0 FTE is 16 weeks inpatient attending physician, 14 weeks hospital consultations and ambulatory care, and 14 weeks office	16,870 per FTE	14,058 per FTE	12,652 per FTE
General Paediatrics	1.0 FTE averages 1 service per year per resident < 18 years of age (5,100 total service per year)	5,200 (<18 years) per FTE	4,700 (<18 years) per FTE	4,100 (<18 years) per FTE
Psychiatry	1.0 FTE averages 2,178 consultations	11,249 per FTE	9,406 per FTE	8,929 per FTE
Obstetrics and Gynecology	In 2014-2015, 75% of MB deliveries by obstetricians, 20% by family physicians, 3% by midwives (cf. 8% US and 5% UK -- NHS, 2011) 11-13% newborns require NICU (level 2 or 3) 1.0 FTE averages 270 deliveries annually	37,200 per FTE or 7,000 females 15-44 years 50% deliveries by OB, 45% by FP, 5% by midwives	22,000 per FTE or 4,100 females 15-44 years 60% deliveries by OB, 35% by FP, 5% by midwives	18,200 per FTE or 3,400 females 15-44 years 70% deliveries by OB (40% SNVD, 24% CS, 36% complex
General Surgery	1.0 FTE averages 120 inpatient and 540 outpatient procedures annually (benchmark 640 operating hours per year or 14 hours per week for 46 weeks)	30,100 per FTE	16,900 per FTE	14,500 per FTE
Diagnostic Imaging	13,500 to 14,500 examinations and interpretations annually per 1.0FTE	21,200 per FTE	16,900 per FTE	14,500 per FTE
General Pathology	Maintain hub and spoke collection, transport, reporting			

The forecast model is predicated on implementation of a core services model of care in the low, base, and high case scenarios. The impact of this model of care can be lessened in the actual forecast model, since the forecast is navigational and not prescriptive.

Core services are integral to a specialist model of care. The following exhibits identify the FTE specialist impact of applying a core specialist service model to the communities across the province. The locations outside WRHA are limited to eleven sites characterized by sufficient population and reasonable regional access.

9.2.1 Base Case Scenario

Exhibit 9-05
Base Case Scenario - Core Specialist Model

BASE		CASE - FORECAST - MODEL OF CARE - CORE SERVICES				2025/26							
RHA	RHA	Core Service Community	Population 2015/16	Population 2025/26	Population 2025/26 - <18	GIM	Paediatrics	Psychiatry	O&G	Anaesthesia	General Surgery	Diagnostic Imaging	Total
2	PMH	BRANDON	127,795	141,805	30,893	10.1	6.6	15.1	6.4	6.6	8.7	8.4	61.8
2	PMH	DAUPHIN	40,682	42,416	9,241	3.0	2.0	4.5	1.9	2.0	2.6	2.5	18.5
3	IERHA	SELKIRK	41,574	46,507	8,890	3.3	1.9	4.9	2.1	2.2	2.8	2.8	20.0
3	IERHA	STONEWALL	85,699	95,228	18,203	6.8	3.9	10.1	4.3	4.4	5.8	5.6	41.0
4	NRHA	FLIN FLON	13,624	14,223	4,775	1.0	1.0	1.5	0.6	0.7	0.9	0.8	6.6
4	NRHA	THE PAS	15,350	16,415	5,511	1.2	1.2	1.7	0.7	0.8	1.0	1.0	7.6
4	NRHA	THOMPSON	46,973	53,318	16,807	3.8	3.6	5.7	2.4	2.5	3.3	3.2	24.4
5	SH-SS	PORTAGE LA PRAIRIE	43,429	47,728	13,124	3.4	2.8	5.1	2.2	2.2	2.9	2.8	21.4
5	SH-SS	MORDEN	25,492	28,473	7,829	2.0	1.7	3.0	1.3	1.3	1.7	1.7	12.8
5	SH-SS	WINKLER	36,753	42,740	11,752	3.0	2.5	4.5	1.9	2.0	2.6	2.5	19.2
5	SH-SS	STEINBACH	88,583	115,624	31,793	8.2	6.8	12.3	5.3	5.4	7.1	6.8	51.8
CORE SERVICE FORECAST		TOTAL	565,954	644,478	158,818	45.8	33.8	68.5	29.3	30.1	39.3	38.1	285.0
ACTUAL SPECIALIST FTE		TOTAL	754,389	886,945		45.9	38.3	68.8	23.2	-	-	37.0	213.2
VARIANCE - FORECAST TO ACTUAL			1,320,343	1,531,423	158,818	0.1	4.5	0.3	(6.1)	(30.1)	(39.3)	(1.1)	(71.8)

The base case scenario requires an **additional 71.8 FTE** for specialist core services (forecast of 285.0 versus actual of 213.2 FTE) to achieve the desired population per FTE ratio by geographic region and RHA.

9.2.2 Low Case Scenario

Exhibit 9-06
Low Case Scenario - Core Specialist Model

CASE -FORECAST - MODEL OF CARE - CORE SERVICES						2025/26						
RHA	RHA	Core Service Community	Population 2015/16	Population 2025/26	Population 2025/26 - <18	GIM	Paediatrics	Psychiatry	O&G	Anaesthesia	General Surgery	Diagnostic Imaging
2	PMH	BRANDON	127,795	141,805	30,893	8.4	5.9	12.6	3.8	7.1	4.7	6.7
2	PMH	DAUPHIN	40,682	42,416	9,241	2.5	1.8	3.8	1.1	2.1	1.4	2.0
3	IERHA	SELKIRK	41,574	46,507	8,890	2.8	1.7	4.1	1.3	2.3	1.5	2.2
3	IERHA	STONEWALL	85,699	95,228	18,203	5.6	3.5	8.5	2.6	4.8	3.2	4.5
4	NRHA	FLIN FLON	13,624	14,223	4,775	0.8	0.9	1.3	0.4	0.7	0.5	0.7
4	NRHA	THE PAS	15,350	16,415	5,511	1.0	1.1	1.5	0.4	0.8	0.5	0.8
4	NRHA	THOMPSON	46,973	53,318	16,807	3.2	3.2	4.7	1.4	2.7	1.8	2.5
5	SH-SS	PORTAGE LA PRAIRIE	43,429	47,728	13,124	2.8	2.5	4.2	1.3	2.4	1.6	2.3
5	SH-SS	MORDEN	25,492	28,473	7,829	1.7	1.5	2.5	0.8	1.4	0.9	1.3
5	SH-SS	WINKLER	36,753	42,740	11,752	2.5	2.3	3.8	1.1	2.1	1.4	2.0
5	SH-SS	STEINBACH	88,583	115,624	31,793	6.9	6.1	10.3	3.1	5.8	3.8	5.5
CORE SERVICE FORECAST		TOTAL	565,954	644,478	158,818	38.2	30.5	57.3	17.3	32.2	21.4	30.4
ACTUAL SPECIALIST FTE		TOTAL	754,389	886,945		43.8	38.3	65.6	19.8	-	-	34.8
VARIANCE - FORECAST TO ACTUAL			1,320,343	1,531,423	158,818	5.6	7.7	8.3	2.5	(32.2)	(21.4)	4.4

The low case scenario requires an **additional 25.1 FTE** for specialist core services to achieve the desired population per FTE ratio by geographic region and RHA.

9.2.3 High Case Scenario

Exhibit 9-07 High Case Scenario - Core Specialist Model

HIGH CASE - FORECAST - MODEL OF CARE - CORE SERVICES						2025/26							
RHA	RHA	Core Service Community	Population 2015/16	Population 2025/26	Population 2025/26 - <18	GIM	Paediatrics	Psychiatry	O&G	Anaesthesia	General Surgery	Diagnostic Imaging	Total
2	PMH	BRANDON	127,795	141,805	30,893	11.2	7.5	15.9	7.8	7.6	9.1	9.8	68.9
2	PMH	DAUPHIN	40,682	42,416	9,241	3.4	2.3	4.8	2.3	2.3	2.7	2.9	20.6
3	IERHA	SELKIRK	41,574	46,507	8,890	3.7	2.2	5.2	2.6	2.5	3.0	3.2	22.3
3	IERHA	STONEWALL	85,699	95,228	18,203	7.5	4.4	10.7	5.2	5.1	6.1	6.6	45.7
4	NRHA	FLIN FLON	13,624	14,223	4,775	1.1	1.2	1.6	0.8	0.8	0.9	1.0	7.3
4	NRHA	THE PAS	15,350	16,415	5,511	1.3	1.3	1.8	0.9	0.9	1.1	1.1	8.4
4	NRHA	THOMPSON	46,973	53,318	16,807	4.2	4.1	6.0	2.9	2.9	3.4	3.7	27.2
5	SH-SS	PORTAGE LA PRAIRIE	43,429	47,728	13,124	3.8	3.2	5.3	2.6	2.6	3.1	3.3	23.9
5	SH-SS	MORDEN	25,492	28,473	7,829	2.3	1.9	3.2	1.6	1.5	1.8	2.0	14.2
5	SH-SS	WINKLER	36,753	42,740	11,752	3.4	2.9	4.8	2.3	2.3	2.7	2.9	21.4
5	SH-SS	STEINBACH	88,583	115,624	31,793	9.1	7.8	12.9	6.4	6.2	7.4	8.0	57.8
CORE SERVICE FORECAST		TOTAL	565,954	644,478	158,818	50.9	38.7	72.2	35.4	34.6	41.3	44.4	317.7
ACTUAL SPECIALIST FTE		TOTAL	754,389	886,945		47.4	38.3	69.8	24.9	-	-	38.8	219.2
VARIANCE - FORECAST TO ACTUAL			1,320,343	1,531,423	158,818	(3.6)	(0.5)	(2.4)	(10.5)	(34.6)	(41.3)	(5.7)	(98.5)

The high case scenario requires an **additional 98.5 FTE** for specialist core services to achieve the desired population per FTE ratio by geographic region and RHA.

9.2.4 Notes on Scenarios

The base, low, and High case scenarios for core services exclude subspecialties in psychiatry and obstetrics and gynecology. These subspecialties are included separately under the column entitled "MOC- Provincial Programs".

9.2.5 On-Call Services

The forecast model adjusts the number of physicians by specialty to ensure a sustainable on-call rotation. The adjustment is sensitized to the "service" more so than the specialty (such as, tertiary intensive care first call is generally not sustainable at a frequency of less than one week in five, whereas rheumatology on-call service is sustainable at one week in two given the low frequency and urgency of calls). The net on-call ratio should not exceed one-in-three where possible.

9.3 Interpretation Key

The following interpretation key assists the interpretation of the forecast tables throughout the balance of this report.

1. **Column 1 Base Year FTE - 2014/15** is the number of full-time equivalents measured in FY April 1, 2014 to March 31, 2015, using the CIHI income percentile methodology; these FTE values have been validated through College of Physicians and Surgeons Manitoba, Manitoba fee-for-service and alternative pay systems, and the WRHA Physician Appointment Information System (PAIS) database
2. **Column 2- +/(-) NIPM & RFA** is the forecast change, over the ten-year forecast period ending March 31, 2025, in the number of FTEs due to net interprovincial migration (NIPM) and return from abroad (RFA); the rates of NIPM and RFA are obtained from the CIHI Scott's Medical Database which tracks doctor movement by province each year
 - **NIPM** (Net Inter-Provincial Migration) is the net number of physicians leaving and returning to the province annually. Annual inter-provincial net migration in 2013 for Manitoba was a negative (2,29%). In 2007 inter-provincial net migration was a negative (1.69%)
 - **RFA** (Return from Abroad) counts the number of physicians returning from abroad to practice in Manitoba net of those having left to move abroad outside Canada; the annual number of physicians returning to practice in Manitoba, net of those leaving Manitoba to practice abroad, is negligible (less than 5 per annum – Source: CIHI)
3. **Column 3 - +/(-) Aging Adjustment** is the forecast change, over the ten-year forecast period ending March 31, 2025, in number of FTE due to aging of the workforce; this takes into consideration the gradual tapering of FTE per doctor as they age leading up to a zero FTE value at full retirement; the model assumes full retirement at age 74 years
4. **Column 4 - +/(-) Death Rate Adjustment** is the forecast change, over the ten-year forecast period ending March 31, 2025, in number of FTE due to forecast deaths in the workforce; death rates are drawn from vital statistics adjusted for the income quintile of health professionals
5. **Column 5 - +/(-) Gender Adjustment** is the forecast change, over the ten-year forecast period ending March 31, 2025, in number of FTE due to forecast change in the absolute male/female gender mix of the workforce; the rate of shift from male-to-female or female to male is calculated by RCPSC specialty and dependent on the current and forecast gender mix in the medical education system (undergraduate MD education programs (clerkship year) and postgraduate residency programs by province, by medical school, by program)
6. **Column 6 - Subtotal Replacement Needs** is the sum of columns two through five and represents the forecast for the ten-year forecast period beginning 2015/16 (F1) and ending 2024/25 (F10), replacement FTE needs in the workforce

7. **Column 7 - +/(-) Benchmark** is a measure of external benchmarks for each specialty and compared to current practice in Manitoba
 - See Appendix 1 for Benchmarking by Specialty with comparison to Manitoba actual FTE values March 31, 2015
8. **Column 8 - ADJUSTED FTE April 1, 2015 (Col 1+Col 7)** is the sum of column's 1 and 7
9. **Column 9 - +/(-) Change in Population** is the percentage change in population over the ten-year forecast period
10. **Column 10 - +/(-) Relative Burden of Illness** is the relative percentage difference in burden of illness between the five RHA's as indicated by the proxy measure, premature mortality rate (PMR)
11. **Column 11 PRE-MOC FTE (Col's 8+9+10)** is the sum of columns' 8, 9, and 10. Is the cumulative forecast total by specialty prior to the application of assumptions regarding models of care (MOC)
12. **Column 12 MOC - Primary Health Care** is the adjustment to family practice FTEs based on the assumptions regarding the MOC for primary health care
13. **Column 13 MOC - Emergency Physician Services** is the adjustment to family practice FTEs for the number of FTE based on the assumptions regarding the MOC for emergency physicians in hospital emergency departments
14. **Column 14 MOC - Specialty Core Services** is the FTE adjustment to specialties based on the assumptions regarding the MOC defined as "core services"
15. **Column 15 MOC - Physician Extenders** is the FTE adjustment to specialties based on the assumptions regarding the MOC for physician extenders
16. **Column 16 MOC - Provincial Programs** is the FTE adjustment to specialties based on the assumptions regarding the MOC for provincial programs
17. **Column 17 SUBTOTAL: MOC's** is the FTE subtotal of columns 12 through 16 for MOCs
18. **Column 18 TOTAL FTE - 2024/25 (Col 11+17)** is the total forecast FTE by specialty as at March 31, 2025. Is the sum of columns 11 (Subtotal Pre-MOC FTE) and 17 (Subtotal MOC's)
19. **Column 19 CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)** is the difference in FTE's between Column 1 (Base Year 2014/15 (FO)) and forecast year 10 (2024/25 (F10))

9.4 Diagnostic Services

Diagnostic Services Manitoba (DSM) was created in 2002 to meet the challenges that the industry was facing at that time. Over the past several years, DSM has made strides in the areas of standardization, technology, innovation, and quality as well as in the areas of education, training and recruitment, maintaining a skilled workforce of technical, medical and scientific staff.

DSM's vision is to create a patient-first environment that provides quality laboratory and diagnostic imaging services supporting the health care needs of all Manitobans. DSM's mission is to provide a provincial leadership role in Medical Laboratory and Imaging Services for the province of Manitoba.

The scope of diagnostic services covered by for DSM is dissonant for a provincial resource:

- Diagnostic imaging in Winnipeg and Brandon is not part of DSM; as such, only imaging in smaller and rural centres is included (approximately 10% of imaging services in the province, but a vast geography)⁵⁶
- The private laboratory sector (Gamma-Dynacare) is not part of DSM; as such, only public sector laboratory services are included

There is a lengthy history that has led to the current scope for DSM; **it is difficult to contemplate a provincial diagnostic resource with limited diagnostic services.** Logically, although not easily, the full spectrum of diagnostic services should be within the mandate of DSM (standardization, technology, innovation, quality, education, training, recruitment) or its continuing role is questionable.

Fragmentation of diagnostic services for a relatively small provincial population is illogical, considering the legitimate mandate of DSM. Resolving the conundrum is not within scope for his study; however, stressing the need for its resolution is fundamental in clinical and preventive services planning at the provincial level; this is most obvious in reviewing the goals, objectives, and required resources.

⁵⁶ **The vast geography for these services necessitates further attention to distribution and efficiency, including cross-trained staff**

Exhibit 9-08
Program Logic Model Diagnostic Services

Goals	Objectives	Resources
<p>1. To develop and implement a plan for diagnostic system process improvements for breast cancer, colorectal cancer, lung cancer, prostate cancer, and lymphoma; as well as other cancers and disease types</p>	<p>Objectives</p> <ol style="list-style-type: none"> 1. Cancer patient journey 2. Continuing care 3. Wait times/access strategy 	<p>Laboratory Medicine and Pathology</p> <ol style="list-style-type: none"> 1. Anatomic pathology 16.1 FTE 2. Forensic pathology 6.0 FTE 3. General pathology 25.5 FTE (includes 3.0 FTE in Brandon) 4. Haematologic pathology 6.7 FTE 5. Medical microbiology 3.8 FTE 6. Neuropathology 3.0 FTE 7. Chemistry 2.0 FTE 8. Transfusion medicine 2.6 FTE 9. Senior scholars 4.0 FTE 10. Doctoral scientists 2.0 FTE
<p>2. To understand the role of diagnostics amongst its partners in order for DSM to play a collaborative and supportive role in the planning and implementation of the Advanced Continuing Care blueprint in Manitoba</p>	<p>Provincial Strategies</p> <ol style="list-style-type: none"> 1. Transfusion medicine 2. Pathology services 3. Microbiology services 4. Integrated laboratory services (chemistry, haematology, immunology) 5. Radiology and diagnostic imaging services 6. Appropriate and effective use of diagnostic services 7. Genomics strategy 8. Diagnostic services for Indigenous peoples 9. Point-of-care testing 	<p>Diagnostic Imaging</p> <ol style="list-style-type: none"> 1. Radiologists 69.0 FTE 2. Nuclear Medicine 9.0 FTE

<p>3. To develop and implement plans for decreasing barriers to receiving expedited radiology, pathology, and genomics services</p>	<p>Organizational Strategies</p> <ol style="list-style-type: none"> 1. Enterprise risk management 2. Funding model and service level agreement 3. Information systems and information management (including rural connectivity) 4. Academic, education, and training 5. Research strategy 6. Strategic workforce plan 7. Procurement, contracting, and materials management and transportation 	<p>Radiation Oncology</p> <ol style="list-style-type: none"> 1. Radiation oncologists 16.7 FTE
<p>4. To ensure diagnostic access and resulting information are taken into consideration when expanding the number of health providers</p>		
<p>5. To develop and implement a plan for the integration of pathology services in Manitoba</p>		

9.4.1 Laboratory Medicine

**Exhibit 9-09
Laboratory Medicine Scenarios**

Laboratory Medicine	Current State March 31, 2015	Benchmark	Low Case Scenario	Base Case Scenario	High Case Scenario
FTE (WRHA)	58.9 (15.1 Anatomic; 25.5 General; 6.66 Haematologic;; 6.0 Forensic; 3.0 Neuropathology; 2.6 Transfusion Medicine) - - excludes PhD scientists and Medical Microbiology				
On-Call	1-in-4 (3 rotations)				
Benchmark 1	2,850 surgical cases per clinical FTE (excluding 15% academic and administration time for all FTEs, Forensic, and age 70 years and greater)	3,285 surgical cases per clinical FTE (AB, CLS)	3,285	2,975	2,975
Benchmark 2	Per Benchmark 1	2,975 surgical cases per clinical FTE (UK)	2,975	2,975	2,975
FTE Scenarios	Currently workload is lower than benchmarks; two of five RHAs have resident pathologists	Low and base case scenarios foresee a decreased FTE due to lower than benchmarks	Decrease current FTE 4.8 to align with benchmark; downsize to two central sites	Decrease current FTE 4.8 to align with benchmark; downsize to two central sites	Status quo with 2,610 cases per 1.0 FTE (excluding Forensic, academic and administration time, age >70 years)

Laboratory Medicine	Current State March 31, 2015	Benchmark	Low Case Scenario	Base Case Scenario	High Case Scenario
Description	Pathology services are already somewhat centralized with only two RHAs having resident pathologists. The low and base case scenarios are based on two central sites (in Winnipeg) rather than three (two in Winnipeg and one in Brandon) and the high case scenario is the status quo (Winnipeg and Brandon and 2,610 surgical cases per 1.0 clinical FTE pathologist (excluding Forensic and 15% academic/administration for each FTE)				
Key Criteria	Centralized service (two sites) with provincial oversight for resource management, quality assurance, and collection monitoring				
Benchmark 1	Surgical cases per 1.0 FTE Pathology				
Benchmark 2	Specimens per 1.0 FTE Pathology				

Exhibit 9-10
Diagnostics Base Case Scenario for Manitoba Across Ten Forecast Years (See 9.3 for Interpretation Key)

PROVINCE WIDE SUMMARY - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)

BASE CASE SCENARIO

	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	HEALTH SYSTEM PLANNING RELATED VARIABLES														
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)
Anatomical Pathology	23.70	15.50	0.00	23.70	3.94	(0.9)	26.71	0.00	0.00	0.00	0.00	(8.6)	(8.6)	18.11	(5.6)
Diagnostic Radiology	68.87	47.10	4.48	73.36	11.70	2.53	87.58	0.00	0.00	1.13	0.00	0.00	1.13	88.72	19.84
Forensic Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	6.00	6.00	6.00
General Pathology	25.48	10.70	(4.8)	20.67	3.63	(0.9)	23.42	0.00	0.00	0.00	0.00	0.00	0.00	23.42	(2.1)
Hematological Pathology	6.66	3.63	0.00	6.66	1.17	(0.3)	7.55	0.00	0.00	0.00	0.00	0.00	0.00	7.55	0.89
Interventional Radiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Biochemistry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Microbiology	3.78	2.41	0.00	3.78	0.66	(0.2)	4.28	0.00	0.00	0.00	0.00	0.00	0.00	4.28	0.50
Neuropathology	3.00	1.59	0.00	3.00	0.53	(0.1)	3.40	0.00	0.00	0.00	0.00	0.00	0.00	3.40	0.40
Neuroradiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear Medicine	8.96	7.55	0.00	8.96	1.46	(0.3)	10.08	0.00	0.00	0.00	0.00	0.00	0.00	10.08	1.12
Radiation Oncology	16.72	10.97	(1.6)	15.07	2.65	(0.6)	17.08	0.00	0.00	0.00	0.00	0.00	0.00	17.08	0.36
Transfusion Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.60	2.60	2.60	2.60
Diagnostic/Therapeutic Total	157.17	99.44	(2.0)	155.20	25.75	(0.8)	180.09	0.00	0.00	1.13	0.00	0.00	1.13	181.23	24.06

9.5 Emergency Medicine Services

Please cross-reference to the following sections in *Cross-Links and Ten Priorities*:

4.5 Emergency Medicine and Health Services

The model of care for emergency department [emergency physician (EP)] services, excluding other health professions (nurse practitioners) was calculated using two methods. The first was based on the current roster of physicians as sourced from the CPSM, WRHA Physician Appointment Information System (PAIS) database, and the all-sources payment file (fee-for-service plus alternative payments) from which the FTE calculation was performed as described in the “Future Supply” section. This method provided the “actual FTE” values to which method two results were compared. Method two used comprehensive benchmarks from a detailed study of ED EP workload in British Columbia, Alberta, and Saskatchewan for EDs with greater than 13,400 visits per annum (greater than 1.5 ED visits per hour). This benchmark study yielded two key values, the number of ED visits per hour and the number of EP hours per 1.0 FTE. The benchmark number of emergency department visits per EP paid hour of service in the low case scenario was 2.3 visits per EP hour, base case scenario 2.1 visits per EP hour, and high case scenario 2.0 visits per EP hour. The number of EP hours per 1.0 FTE was 1,440 in the low case scenario, 1,340 in the base case scenario, and 1,296 in the high case scenario. The number of hours per 1.0 EP FTE was only critical if EP was paid on a contracted hours per FTE basis; otherwise, actual hours worked per EP physician varied widely in the fee-for-service payment model.

Exhibit 9-11
Benchmarking for Emergency Physicians

n	Criteria	Low Case	Base Case	High Case
A	Fewer than 1.0 ED visits per hour	1.00	1.00	1.00
B	Greater than A	1.00	1.00	1.00
C	Greater than B	2.00	1.75	1.75
D	Patients per EP per hour	2.30	2.10	2.00
E	Average annual hours EP FTE	1,440	1,340	1,296

The results of the calculations are illustrated in [Exhibit 9-09](#) for each RHA for sites where ED visits per hour exceeded 1.0. For example, in the base case scenario (columns 5, 6, and 7), the WRHA ED sites had actual FTEs (as reported by CPSM, WRHA PAIS database, payment files) of 94.45 and a calculated FTE of 112.96, for a variance of 18.51 FTE. The model therefore forecasts the additional need of 18.51 FTE across the WRHA EDs using the benchmark data.

Exhibit 9-12
Emergency Physician Scenarios by RHA

RHA	Low Case Scenario			Base Case Scenario			High Case Scenario		
	Actual	Forecast	Variance	Actual	Forecast	Variance	Actual	Forecast	Variance
WRHA	94.45	95.98	1.52	94.45	112.96	18.51	94.45	122.64	28.18
PMH	0.00	26.40	26.40	0.00	27.48	27.48	0.00	29.50	29.50
IERHA	3.29	7.62	4.33	3.29	8.97	5.68	3.29	9.74	6.45
NRHA	0.00	19.74	19.74	0.00	22.61	22.61	0.00	24.21	24.21
SH-SS	4.84	29.22	24.39	4.84	33.77	28.94	4.84	36.33	31.49
Total	102.58	178.96	76.38	102.58	205.80	103.22	102.58	222.42	119.83

These results were compared to the findings from the WRHA Emergency Department presentation of 2015. For Health Sciences Centre, the benchmark study calculated 72.4 hours compared to 73.0 in [Exhibit 9-10](#). For St. Boniface General Hospital, the benchmark study calculated 51.0 compared to 59.0; Seven Oaks General Hospital, 53.7 compared to 54.2; Victoria General Hospital, 42.1 compared to 42.9; Grace General Hospital, 33.1 compared to 42.9; and Concordia General Hospital, 41.5 compared to 42.9. These results approximated the analytic values in the exhibit.

Exhibit 9-13
Comparison of Physician Coverage Across WRHA EDs
(using ED Volumes January 12, 2014 to January 11, 2015)

WRHA	Sample Calculation Based on Mean Data FY 2013-2014					
Data Sets	CGH	GGH	SOGH	VGH	StB	HSC
2013-2014 Mean Total Patient Hours/Day	668.0	854.6	791.3	821.6	1,089.7	1,230.2
Total proposed ERP equivalent hours/day coverage	42.9	42.9	54.2	42.9	59.0	73.0
Patient hours per ERP equivalent hour	15.6	19.9	14.6	19.2	18.5	16.9
Less normal patient hours per ERP-equivalent hour (= SOGH 2010-2011 value when median LOS was 2.6 hours)	-9.2	-9.2	-9.2	-9.2	-9.2	-9.2
Excess number of patient hours per ERP-equivalent hour above normal	6.4	10.7	5.4	10.0	9.3	7.7
Divided by POWER's standard number of CTAS 3 patients/hour/ERP	2.28	2.28	2.28	2.28	2.28	2.28
Adjustment to ERP hours of coverage re excess patient hours	2.8	4.7	2.4	4.4	4.1	3.4
Source of service volumes	WRHA Department Head Emergency Medicine					

The difficulty in the preceding analyses is that the roster of physicians, as determined by using the anonymized CPSM registry combined with the anonymized WRHA PAIS, and MOH payment files, may be overstated or understated when compared to the actual number of EP FTE paid to work in the EDs.⁵⁷ This is particularly true in the four RHAs other than WRHA where the benefit of a detailed PAIS database is not available.

Consequently, the shortfall (actual FTE's being less than forecast required FTE) in the forecasting model for base, low, and high case scenarios may understate or overstate the "actual" FTEs and, therefore understate or overstate the pool of family physicians available for community family practice (since this is the source of any FTE variance to actual).

The net result when pooling family practice and ED EP family practice is the same, but attempts to split the two services, as done in the forecast model, must be interpreted with caution.

⁵⁷ Per the detailed schedule used by each ED

9.6 Medical Services

Please cross-reference to the following sections in *Cross-Links and Ten Priorities*:

- 4.2 Care of Older Adults**
- 4.4 Consolidated Services**
- 4.11 Public and Population Health**

Also, please cross-reference to the CCMB section of the *Environmental Scan* as a statement of strong support for the model and resources for oncology services

The ten-year province-wide medical specialty FTE forecast to March 31, 2025 projects an overall annual increase of 3.16% and increases for most specialties with the exception of nephrology with a decrease of (1.7) FTE over the forecast period. The most significant increases are in Cardiology (12.7 FTE), Dermatology (10.36 FTE), General Internal Medicine (29.28 FTE), and Respiriology (13.76 FTE). The model of care for subspecialty medicine requires a minimum of 4.0 FTE to support a sustainable program of service including call rota, itinerant travel, academic teaching and research requirements, and program leadership to strategic initiatives of the RHAs and MHSAL.

Effective planning initiatives for medical specialties have been occurring outside of WRHA, especially in Prairie Mountain Health.⁵⁸ Complementary to these undertakings is support for community expansion of related services, such as cardiology in PMH and, from these types of services, expanded provincial programs for improved quality of care, such as the ST Elevation Myocardial Infarction (STEMI) protocols and interventions, already underway in Manitoba.

⁵⁸ It has also been noted, with concern expressed by many, that the internal medicine specialties in PMH do not provide on-call services

Exhibit 9-14
Medical Specialties Base Case Scenario for Manitoba Across Ten Forecast Years
 (See 9.3 for Interpretation Key) Exhibit 9-15

PROVINCE WIDE SUMMARY - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)																
BASE CASE SCENARIO																
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
	HEALTH SYSTEM PLANNING RELATED VARIABLES															
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)	
Cardiology	32.79	19.55	17.39	50.17	8.82	(2.1)	56.85	0.00	0.00	0.00	(11.4)	0.00	(11.4)	45.48	12.70	
Clinical Immunology and Allergy	6.71	6.01	0.00	6.71	1.18	(0.3)	7.61	0.00	0.00	0.00	0.00	0.00	0.00	7.61	0.89	
Clinical Pharmacology and Toxicology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Critical Care Medicine	9.46	4.50	0.00	9.46	1.66	(0.4)	10.72	0.00	0.00	0.00	0.00	0.00	0.00	10.72	1.26	
Dermatology	13.58	11.27	7.55	21.13	3.71	(0.9)	23.94	0.00	0.00	0.00	0.00	0.00	0.00	23.94	10.36	
Endocrinology and Metabolism	11.46	11.10	8.34	19.81	3.48	(0.8)	22.44	0.00	0.00	0.00	(4.5)	0.00	(4.5)	17.95	6.49	
Gastroenterology	23.72	15.76	4.13	27.86	4.89	(1.2)	31.56	0.00	0.00	0.00	(6.3)	0.00	(6.3)	25.25	1.53	
General Internal Medicine (GIM)	77.37	53.54	11.84	89.21	14.22	3.29	106.72	0.00	0.00	(0.1)	0.00	0.00	(0.1)	106.65	29.28	
Geriatric Medicine	10.91	10.19	(1.7)	9.24	1.62	(0.4)	10.47	0.00	0.00	0.00	0.00	0.00	0.00	10.47	(0.4)	
Hematology	5.22	2.18	0.00	5.22	0.92	(0.2)	5.91	0.00	0.00	0.00	0.00	0.00	0.00	5.91	0.69	
Infectious Diseases	9.43	5.65	0.94	10.37	1.82	(0.4)	11.75	0.00	0.00	0.00	0.00	0.00	0.00	11.75	2.32	
Internal Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Medical Oncology	13.22	9.05	3.43	16.65	2.93	(0.7)	18.87	0.00	0.00	0.00	0.00	0.00	0.00	18.87	5.65	
Nephrology	26.13	11.87	(4.5)	21.58	3.79	(0.9)	24.45	0.00	0.00	0.00	0.00	0.00	0.00	24.45	(1.7)	
Neurology	27.64	19.90	8.01	35.65	6.26	(1.5)	40.40	0.00	0.00	0.00	(8.1)	0.00	(8.1)	32.32	4.68	
Occupational Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Pain Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Physical Medicine and Rehabilitation	16.13	9.46	1.03	17.16	3.02	(0.7)	19.45	0.00	0.00	0.00	0.00	0.00	0.00	19.45	3.32	
Public Health & Preventative Medicine	1.58	0.87	0.00	1.58	0.28	(0.1)	1.80	0.00	0.00	0.00	0.00	2.20	2.20	4.00	2.42	
Respirology	10.18	8.14	16.23	26.41	4.64	(1.1)	29.92	0.00	0.00	0.00	(6.0)	0.00	(6.0)	23.94	13.76	
Rheumatology	13.21	6.43	2.14	15.35	2.70	(0.7)	17.40	0.00	0.00	0.00	0.00	0.00	0.00	17.40	4.18	
Medical Total	308.74	205.47	74.82	383.56	65.95	(9.2)	440.26	0.00	0.00	(0.1)	(36.2)	2.20	(34.1)	406.15	97.42	

Exhibit 9-15
Program Logic Model for Medical Services

Goals	Objectives	Resources
1. To achieve the best possible outcomes for Manitoba's adult population	1. Improve access to appropriate levels of care	1. Telehealth technology and connectivity to remote communities
2. To improve the health status of Manitoba's adult population on a sustained basis	2. Continue to reduce premature mortality rates in Manitoba (3.38/1,000 in 2002-2006 and 3.12/1,000 in 2007-2011)	2. Maintain a minimum 4.0 FTE per subspecialty to ensure sustainability
3. To become a learning health care system for adult population health services	3. Reduce premature mortality rates in NRHA from 5.38/1,000 in 2007-2011 to less than 150% of the provincial average (therefore, to 4.68/1,000) prior to the end of the first ten-year forecast period	3. Implement recruitment and retention strategies for general internal medicine and required subspecialty medicine to align with the rolling ten-year forecast

<p>4. To work increasingly in inter-professional teams, with improved knowledge of effectiveness strategies</p>	<p>4. Integrate subspecialty medical services with MyHT through technology-enabled consultations</p>	<p>4. Allocate resources to strengthen policies and the continuum of prevention and promotion, selective interventions, services, and supports that improve chronic health management</p>
<p>5. To manage resources proactively with optimal effectiveness</p>	<p>5. Research, develop, fund, and evaluate innovative initiatives and long-term strategies to improve outcomes</p>	<p>5. Allocate resources to support the core services initiative for general internal medicine (additional 33.61 FTE over the ten-year forecast period)</p>
<p>6. To create an innovative, collaborative plan for adult medical services, to target major gaps in health status, and to improve population health indices</p>	<p>6. Coordinate and integrate policy, programs, and services, using early intervention and population health models</p>	<p>6. Allocate resources to specialties currently in a deficit when compared to benchmarks, especially cardiology (12.70 FTE), dermatology (10.36 FTE), and respirology (13.76 FTE)</p>
<p>7. To achieve a sustainable and integrated model of care</p>	<p>7. Increase the involvement of families, neighbourhoods, and communities in prevention strategies and the promotion of healthy living</p>	<p>7. Support and enhance activity-based benchmarking across all specialties (such as, FTE nephrologists per number of patients on renal replacement therapy (low-base-high)</p>
	<p>8. Facilitate patient-centred public policy development, knowledge exchange, and investment across departments and sectors through evaluation and research on key determinants and outcomes</p>	<p>8. Expand physician extenders in defined specialties as delineated in the corresponding section of this report</p>

9.7 Mental Health and Addiction Services

Please cross-reference to the following sections in *Cross-Links and Ten Priorities*:

4.03 Collaborative Care

4.09 Mental Health and Addictions

Section 4.09 Mental Health and Addictions includes the elements of substantial change in the model of care for MHA services in Manitoba; it is a fundamental shift in access to these services across Manitoba.

As outlined in that section, the MHA would be a provincial program and strategy with a strong lead role and alignment with the overall clinical governance. The identified providers are psychiatrists (and related teams and services), expanded clinical psychologists, mental health counselors and social workers, registered psychiatric nurses, and locally trained resources. These services will be both freestanding and linked to MyHT and remote communities, with new roles, especially for clinical psychologists.

The forecasting is premised on a number of psychiatrists that approximate the current resources, with roles to be further defined. As well, regional hubs will be stabilized, and the Selkirk Mental Health Centre realigned with restructured capacity and function. The expansion of doctoral psychologists will occur over time to approximate the national ratio of 49 per 100,000 population - the role optimization would include tertiary care similar to the current state, community services linked to MyHT and remote communities, leadership with cognitive behavioural therapy (CBT) and dialectical behavioural therapy (DBT), and a prioritizing screen for psychiatric consultations.

As well, programs such as RACE, PACT, EPPIS, shared care, and crisis response are anticipated to continue the extant growth.

Exhibit 9-16 is the base case scenario projecting the psychiatrist workforce over the ten-year forecasting period. The parallel workforce and service planning would be to move from 19 clinical psychologists/100,000 population to the national average of 49/100,000 - - this would require a graduated process that includes education and recruitment and the gradual assumption of the new roles to match the resources. Other providers, such as mental health counselors, registered psychiatric nurses, and social workers would expand in keeping with the local and remote team-based care.

Also noted is the repositioning of addiction services with mental health services and the expansion of hub and spoke models in a provincial framework.

Exhibit 9-16
Psychiatric Specialties Base Case Scenario for Manitoba Across Ten Forecast Years
(See 9.3 for Interpretation Key)

PROVINCE WIDE SUMMARY - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)															
BASE CASE SCENARIO															
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	HEALTH SYSTEM PLANNING RELATED VARIABLES														
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)
Child and Adolescent Psychiatry	27.22	19.17	(2.2)	25.03	4.02	1.76	30.81	0.00	0.00	0.00	9.39	0.00	9.39	40.20	12.97
Forensic Psychiatry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	4.00	4.00	4.00
Geriatric Psychiatry	7.08	3.86	0.00	7.08	1.24	(0.3)	8.02	0.00	0.00	0.00	(0.6)	0.00	(0.6)	7.40	0.32
Psychiatry	119.42	99.02	6.96	126.37	20.04	5.25	151.66	0.00	0.00	(0.3)	(46.6)	0.00	(46.9)	104.75	(14.7)
Psychiatry Total	153.72	122.05	4.76	158.48	25.30	6.70	190.48	0.00	0.00	(0.3)	(37.9)	4.00	(34.1)	156.34	2.62

9.8 Paediatric Services

Please cross-reference to the following sections in *Cross-Links and Ten Priorities*:

4.8 Maternal Health

A Provincial Program Network (PPN) is a subspecialty service that is site-based with provincial oversight. This maintains critical mass, quality, team-based support with role optimization, and on-call. The PPN strengths are:

- Coordinated continuum of care
- Provincial standards
- Best practice guidelines
- Specialized team-based skill sets and interdisciplinary support
- Preventive and health promotion activities

Planning for paediatric services in Manitoba cannot ignore, and is made more complicated by a disproportionate population ratio; it is surmised that the pattern of primary care paediatrics in Manitoba will account for this. While a longstanding tradition in the province, this focus on primary care services by fellowship paediatricians is contrary to the pattern in the rest of the country. This is an expensive model and does not align with role optimization.

A cluster diagram from the *Environmental Scan* demonstrates substantial progress in this direction already.

Targeted objectives and indicators for the provincial program are identified, as follows:

- Reduce child mortality rates in northern Manitoba from 85.5/100,000 (2005-2009) to less than twice the provincial average of 33.3/100,000 (2005-2009)
- Implementation strategy for provincial child and adolescent suicide prevention

The ten-year provincial paediatric FTE forecast to March 31, 2025 projects increases for most disciplines with the exception of general paediatrics, with a decrease of 7.2 FTE, and paediatric haematology/oncology with a decrease of 10.6 FTE from 16.56 to 6.00 FTE over the forecast period. An increase of 11.11 FTE is forecast for child and adolescent psychiatry, consistent with established benchmarks.

The model of care for subspecialty paediatrics requires a minimum of 4.0 FTE to support a sustainable program of service including one-in-three call rota, itinerant travel, academic teaching and research requirements, and program leadership to strategic child and youth initiatives.

Exhibit 9-17
Paediatric Specialties Base Case Scenario for Manitoba Across Ten Forecast Years
(See 9.3 for Interpretation Key)

PROVINCE WIDE SUMMARY - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)																			
BASE CASE SCENARIO																			
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19				
	HEALTH SYSTEM PLANNING RELATED VARIABLES																		
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)				
Adolescent Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Developmental Pediatrics	5.66	4.62	(3.8)	1.85	0.32	(0.1)	2.09	0.00	0.00	0.00	0.00	0.00	3.91	3.91	6.00	0.34			
Medical Genetics	6.31	4.87	0.00	6.31	1.11	(0.3)	7.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.14	0.84			
Pediatric Anesthesiology	8.85	7.80	0.00	8.85	1.55	(0.4)	10.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.02	1.18			
Pediatric Cardiac Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pediatric Cardiology	3.98	1.79	0.12	4.10	0.72	(0.2)	4.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.65	0.67			
Pediatric Clinical Immunology and Allergy	7.29	5.15	0.00	7.29	1.28	(0.3)	8.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.26	0.97			
Pediatric Critical Care Medicine	3.99	1.67	0.00	3.99	0.70	(0.2)	4.53	0.00	0.00	0.00	0.00	0.00	2.47	2.47	7.00	3.01			
Pediatric Emergency Medicine	14.06	6.78	0.00	14.06	2.47	(0.6)	15.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.94	1.87			
Pediatric Endocrinology and Metabolism	4.51	2.78	(2.5)	2.04	0.36	(0.1)	2.31	0.00	0.00	0.00	0.00	0.00	2.69	2.69	5.00	0.49			
Pediatric Gastroenterology	1.39	0.74	(0.0)	1.36	0.24	(0.1)	1.54	0.00	0.00	0.00	0.00	0.00	3.46	3.46	5.00	3.61			
Pediatric Hematology/Oncology	16.56	13.22	(15.1)	1.45	0.25	(0.1)	1.64	0.00	0.00	0.00	0.00	0.00	4.36	4.36	6.00	(10.6)			
Pediatric Infectious Diseases	3.94	2.92	(2.3)	1.61	0.28	(0.1)	1.82	0.00	0.00	0.00	0.00	0.00	2.18	2.18	4.00	0.06			
Pediatric Nephrology	5.15	2.45	(3.5)	1.61	0.28	(0.1)	1.82	0.00	0.00	0.00	0.00	0.00	3.18	3.18	5.00	(0.1)			
Pediatric Neurology	3.97	2.71	(0.3)	3.65	0.64	(0.2)	4.14	0.00	0.00	0.00	0.00	0.00	0.86	0.86	5.00	1.03			
Pediatric Orthopedic Surgery	3.93	2.50	0.00	3.93	0.69	(0.2)	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.45	0.52			
Pediatric Radiology	6.04	3.79	0.00	6.04	1.06	(0.3)	6.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.84	0.80			
Pediatric Respiriology	2.21	1.27	0.28	2.49	0.44	(0.1)	2.82	0.00	0.00	0.00	0.00	0.00	2.18	2.18	5.00	2.79			
Pediatric Rheumatology	1.62	0.83	(0.6)	1.07	0.19	(0.0)	1.21	0.00	0.00	0.00	0.00	0.00	2.79	2.79	4.00	2.38			
Pediatric Surgery	5.14	3.42	0.51	5.65	0.99	(0.2)	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.40	1.26			
Pediatrics	82.86	62.02	(21.7)	61.17	9.77	4.68	75.61	0.00	0.00	(4.5)	0.00	0.00	(4.5)	71.14	(11.7)				
Pediatric Total	187.45	131.32	(48.9)	138.50	23.36	1.38	163.24	0.00	0.00	(4.5)	0.00	28.08	23.60	186.85	(0.6)				

9.9 Primary Health Care

Please cross-reference to the following sections in *Cross-Links and Ten Priorities*:

- 4.2 Care of Older Adults**
- 4.3 Collaborative Care**
- 4.7 Indigenous Peoples**
- 4.10 Palliative Care**
- 4.11 Public and Population Health**

The primary health care system of planning and service delivery, built around MyHT and other existing models of primary care, is the foundation for clinical and preventive services planning and forecasting primary care professionals. The CPSP and forecasting scope includes general practitioners, occupational therapists, physiotherapists, nurse practitioners, physician assistants, psychologists and mental health counselors, pharmacists, clinical nurse specialists (chronic health), and midwives.

Much has been written about MyHT and has been incorporated in the relevant section of the *Environmental Scan* in addition to the priority section of this final report.

Support is strong (although not uniform); the conclusion of this study is that MyHT warrant full implementation with a full scope of providers and provincial standards. As well, MyHT are central to providing care to remote communities through alignment with a specific community where the MyHT provides daily required contact (based on a model of NPs, PAs, and ACPs, in addition to rotations of the disciplines through the community on a regular scheduled basis.

An ambitious targeted uptake is supported in this report; the first issue to resolve is the final funding model. A reasonable target is that, by 2020, communities with absent or unstable primary care will no longer exist due to the new local model supported by a MyHT.

The following exhibits provide details of low, base, and high case scenarios for the primary care disciplines, using benchmarking ratios per FTE, estimated FTEs per 10,000 population and possible costing to serve as points of discussion and modeling.

Exhibit 9-18
MyHT Base Case Scenario for Manitoba Across Catchment Populations

SCENARIO =		BASE				CATCHMENT POPULATION										
						249	749	999	1499	1999	2999	3999	4999	7499	9999	10000
PROFESSION	INITIAL	BM	FTE/10,000	Fixed FTE	Rate	100-249	250-749	750-999	1000-1499	1500-1999	2000-2999	3000-3999	4000-4999	5000-7499	7500-9999	per 10,000
General Practitioner	GP	1,988	5.03	0.50	250,000	0.59	0.75	0.94	1.13	0.88	1.26	1.76	2.26	3.14	4.40	5.03
Clinical Nurse Specialist (PC)	RN	10,000	1.00	-	87,264	0.02	0.05	0.09	0.12	0.17	0.25	0.35	0.45	0.62	0.87	1.00
Licensed Practice Nurse	LPN	10,000	1.00	-	60,000	0.02	0.05	0.09	0.12	0.17	0.25	0.35	0.45	0.62	0.87	1.00
Public Health Nurse	PHN	2,244	4.46	0.20	87,264	0.28	0.42	0.59	0.76	0.78	1.11	1.56	2.01	2.79	3.90	4.46
Nurse Practitioner	NP	10,000	1.00	0.20	120,000	0.22	0.25	0.29	0.32	0.17	0.25	0.35	0.45	0.62	0.87	1.00
Clinical Nurse Specialist (CDM)	NS	10,000	1.00	0.20	87,264	0.22	0.25	0.29	0.32	0.17	0.25	0.35	0.45	0.62	0.87	1.00
Midwife	MW	30,000	0.33	0.20	87,264	0.21	0.22	0.23	0.24	0.06	0.08	0.12	0.15	0.21	0.29	0.33
Mental Health (counselling)	MH-C	10,000	1.00	0.20	75,000	0.22	0.25	0.29	0.32	0.17	0.25	0.35	0.45	0.62	0.87	1.00
Occupational Therapy	OT	10,000	1.00	0.20	92,249	0.22	0.25	0.29	0.32	0.17	0.25	0.35	0.45	0.62	0.87	1.00
Physiotherapy	PT	10,000	1.00	0.20	92,249	0.22	0.25	0.29	0.32	0.17	0.25	0.35	0.45	0.62	0.87	1.00
Physician Assistant	PA	7,500	1.33	0.20	120,000	0.22	0.27	0.32	0.37	0.23	0.33	0.47	0.60	0.83	1.17	1.33
Psychologist	PSYCH	3,571	2.80	0.20	92,249	0.25	0.34	0.44	0.55	0.49	0.70	0.98	1.26	1.75	2.45	2.80
Pharmacist (Community)	PHARMA	7,500	1.33	0.20	92,249	0.22	0.27	0.32	0.37	0.23	0.33	0.47	0.60	0.83	1.17	1.33
Emergency Medical Services	EMT/EMS	10,000	1.00	0.20	75,000	0.22	0.25	0.29	0.32	0.17	0.25	0.35	0.45	0.62	0.87	1.00
TOTAL	FTE	429	23.29			3.11	3.86	4.74	5.61	4.07	5.82	8.15	10.48	14.55	20.37	23.29
COST PER CAPITA						\$ 2,177	\$ 950	\$ 667	\$ 554	\$ 291	\$ 291	\$ 291	\$ 291	\$ 291	\$ 291	\$ 291

Exhibit 9-19
MyHT Low Case Scenario for Manitoba Across Catchment Populations

SCENARIO =		LOW				CATCHMENT POPULATION										
						249	749	999	1499	1999	2999	3999	4999	7499	9999	10000
PROFESSION	INITIAL	BM	FTE/10,000	Fixed FTE	Rate	100-249	250-749	750-999	1000-1499	1500-1999	2000-2999	3000-3999	4000-4999	5000-7499	7500-9999	per 10,000
General Practitioner	GP	2,585	3.87	1.00	250,000	1.07	1.19	1.34	1.48	0.68	0.97	1.35	1.74	2.42	3.38	3.87
Clinical Nurse Specialist (PC)	RN	13,000	0.77	-	87,264	0.01	0.04	0.07	0.10	0.13	0.19	0.27	0.35	0.48	0.67	0.77
Licensed Practice Nurse	LPN	13,000	0.77	-	60,000	0.01	0.04	0.07	0.10	0.13	0.19	0.27	0.35	0.48	0.67	0.77
Public Health Nurse	PHN	2,917	3.43	0.20	87,264	0.26	0.37	0.50	0.63	0.60	0.86	1.20	1.54	2.14	3.00	3.43
Nurse Practitioner	NP	13,000	0.77	0.20	120,000	0.21	0.24	0.27	0.30	0.13	0.19	0.27	0.35	0.48	0.67	0.77
Clinical Nurse Specialist (CDM)	NS	13,000	0.77	0.20	87,264	0.21	0.24	0.27	0.30	0.13	0.19	0.27	0.35	0.48	0.67	0.77
Midwife	MW	39,000	0.26	0.20	87,264	0.20	0.21	0.22	0.23	0.04	0.06	0.09	0.12	0.16	0.22	0.26
Mental Health (counselling)	MH-C	13,000	0.77	0.20	75,000	0.21	0.24	0.27	0.30	0.13	0.19	0.27	0.35	0.48	0.67	0.77
Occupational Therapy	OT	13,000	0.77	0.20	92,249	0.21	0.24	0.27	0.30	0.13	0.19	0.27	0.35	0.48	0.67	0.77
Physiotherapy	PT	13,000	0.77	0.20	92,249	0.21	0.24	0.27	0.30	0.13	0.19	0.27	0.35	0.48	0.67	0.77
Physician Assistant	PA	9,750	1.03	0.20	120,000	0.22	0.25	0.29	0.33	0.18	0.26	0.36	0.46	0.64	0.90	1.03
Psychologist	PSYCH	4,643	2.15	0.20	92,249	0.24	0.31	0.39	0.47	0.38	0.54	0.75	0.97	1.35	1.88	2.15
Pharmacist (Community)	PHARMA	9,750	1.03	0.20	92,249	0.22	0.25	0.29	0.33	0.18	0.26	0.36	0.46	0.64	0.90	1.03
Emergency Medical Services	EMT/EMS	13,000	0.77	-	75,000	0.01	0.04	0.07	0.10	0.13	0.19	0.27	0.35	0.48	0.67	0.77
TOTAL	FTE	558	17.91			3.31	3.89	4.57	5.24	3.13	4.48	6.27	8.06	11.19	15.67	17.91
COST PER CAPITA						\$ 2,740	\$ 1,103	\$ 726	\$ 575	\$ 224	\$ 224	\$ 224	\$ 224	\$ 224	\$ 224	\$ 224

**Exhibit 9-20
MyHT High Case Scenario for Manitoba Across Catchment Populations**

SCENARIO =		HIGH				CATCHMENT POPULATION										
PROFESSION	INITIAL	BM	FTE/ 10,000	Fixed FTE	Rate	249	749	999	1499	1999	2999	3999	4999	7499	9999	10000
						100- 249	250- 749	750- 999	1000- 1499	1500- 1999	2000- 2999	3000- 3999	4000- 4999	5000- 7499	7500- 9999	per 10,000
General Practitioner	GP	1,790	5.59	1.00	250,000	1.10	1.28	1.49	1.70	0.98	1.40	1.96	2.51	3.49	4.89	5.59
Clinical Nurse Specialist (PC)	RN	9,000	1.11	-	87,264	0.02	0.06	0.10	0.14	0.19	0.28	0.39	0.50	0.69	0.97	1.11
Licensed Practice Nurse	LPN	9,000	1.11	-	60,000	0.02	0.06	0.10	0.14	0.19	0.28	0.39	0.50	0.69	0.97	1.11
Public Health Nurse	PHN	2,019	4.95	0.20	87,264	0.29	0.45	0.63	0.82	0.87	1.24	1.73	2.23	3.09	4.33	4.95
Nurse Practitioner	NP	9,000	1.11	0.20	120,000	0.22	0.26	0.30	0.34	0.19	0.28	0.39	0.50	0.69	0.97	1.11
Clinical Nurse Specialist (CDM)	NS	9,000	1.11	0.20	87,264	0.22	0.26	0.30	0.34	0.19	0.28	0.39	0.50	0.69	0.97	1.11
Midwife	MW	27,000	0.37	0.20	87,264	0.21	0.22	0.23	0.25	0.06	0.09	0.13	0.17	0.23	0.32	0.37
Mental Health (counselling)	MH-C	9,000	1.11	0.20	75,000	0.22	0.26	0.30	0.34	0.19	0.28	0.39	0.50	0.69	0.97	1.11
Occupational Therapy	OT	9,000	1.11	0.20	92,249	0.22	0.26	0.30	0.34	0.19	0.28	0.39	0.50	0.69	0.97	1.11
Physiotherapy	PT	9,000	1.11	0.20	92,249	0.22	0.26	0.30	0.34	0.19	0.28	0.39	0.50	0.69	0.97	1.11
Physician Assistant	PA	6,750	1.48	0.20	120,000	0.23	0.27	0.33	0.39	0.26	0.37	0.52	0.67	0.93	1.30	1.48
Psychologist	PSYCH	3,214	3.11	0.20	92,249	0.25	0.36	0.47	0.59	0.54	0.78	1.09	1.40	1.94	2.72	3.11
Pharmacist (Community)	PHARMA	6,750	1.48	0.20	92,249	0.23	0.27	0.33	0.39	0.26	0.37	0.52	0.67	0.93	1.30	1.48
Emergency Medical Services	EMT/EMS	9,000	1.11	-	75,000	0.02	0.06	0.10	0.14	0.19	0.28	0.39	0.50	0.69	0.97	1.11
TOTAL	FTE	386	25.87			3.45	4.29	5.26	6.23	4.53	6.47	9.05	11.64	16.17	22.64	25.87
COST PER CAPITA						\$ 2,840	\$ 1,202	\$ 825	\$ 674	\$ 323	\$ 323	\$ 323	\$ 323	\$ 323	\$ 323	\$ 323

The following figures refine PHC planning and forecasting to the catchment level of detail for all in-scope health professions. Catchment areas roll up to districts and community areas and down to the individual community level.

Exhibit 9-21
MyHT Base Case Scenario by WRHA Catchment Area

Exhibit 9-22
MyHT Base Case Scenario by PMH Catchment Area

Exhibit 9-23
MyHT Base Case Scenario by IERHA Catchment Area

Exhibit 9-24
MyHT Base Case Scenario by NRHA Catchment Area

Exhibit 9-25
MyHT Base Case Scenario by SH-SS Catchment Area

Exhibit 9-21
MyHT Base Case Scenario by WRHA Catchment Area

RHA	CATCHMENT AREAS	Pop. 2015 -	Pop. 2016 -	POP. CLASSIFICATION	General Practitioner	Clinical Nurse Specialist (PC)	Licensed Practice Nurse	Public Health Nurse	Nurse Practitioner	Clinical Nurse Specialist (CDM)	Midwife	Mental Health (counseling)	Occupational Therapy	Physiotherapy	Physician Assistant	Psychologist	Pharmacist (Community)	EMT/EMS	TOTAL	% Pop Change (2017-2025)	+ / (-) Relative Burden of Illness	TOTAL FTE @ (F10)
		FO	F1																			
WINNIPEG	1	754,389	776,821		390	78	78	346	78	78	26	78	78	78	104	217	104	78	1,808	14.2%	(4.3%)	1,987.6
	ASSINIBOINE SOUTH	35,127	35,066	10,000	17.6	3.5	3.5	15.6	3.5	3.5	1.2	3.5	3.5	3.5	4.7	9.8	4.7	3.5	81.7	(0.7%)	(4.3%)	77.6
	DOWNTOWN EAST	40,763	41,627	10,000	20.9	4.2	4.2	18.6	4.2	4.2	1.4	4.2	4.2	4.2	5.6	11.7	5.6	4.2	96.9	8.8%	(4.3%)	101.3
	DOWNTOWN WEST	40,729	40,646	10,000	20.4	4.1	4.1	18.1	4.1	4.1	1.4	4.1	4.1	4.1	5.4	11.4	5.4	4.1	94.6	(0.8%)	(4.3%)	89.9
	FORT GARRY NORTH	36,690	37,458	10,000	18.8	3.7	3.7	16.7	3.7	3.7	1.2	3.7	3.7	3.7	5.0	10.5	5.0	3.7	87.2	8.7%	(4.3%)	91.1
	FORT GARRY SOUTH	53,651	61,164	10,000	30.8	6.1	6.1	27.3	6.1	6.1	2.0	6.1	6.1	6.1	8.2	17.1	8.2	6.1	142.4	71.9%	(4.3%)	238.8
	INKSTER EAST	16,429	16,985	10,000	8.5	1.7	1.7	7.6	1.7	1.7	0.6	1.7	1.7	1.7	2.3	4.8	2.3	1.7	39.6	14.3%	(4.3%)	43.5
	INKSTER WEST	18,189	18,277	10,000	9.2	1.8	1.8	8.1	1.8	1.8	0.6	1.8	1.8	1.8	2.4	5.1	2.4	1.8	42.6	1.9%	(4.3%)	41.6
	POINT DOUGLAS NORTH	30,972	32,065	10,000	16.1	3.2	3.2	14.3	3.2	3.2	1.1	3.2	3.2	3.2	4.3	9.0	4.3	3.2	74.7	15.0%	(4.3%)	82.7
	POINT DOUGLAS SOUTH	17,198	17,680	10,000	8.9	1.8	1.8	7.9	1.8	1.8	0.6	1.8	1.8	1.8	2.4	5.0	2.4	1.8	41.2	11.8%	(4.3%)	44.3
	RIVER EAST EAST	31,602	32,030	10,000	16.1	3.2	3.2	14.3	3.2	3.2	1.1	3.2	3.2	3.2	4.3	9.0	4.3	3.2	74.6	5.5%	(4.3%)	75.5
	RIVER EAST NORTH	9,736	9,245	10,000	4.6	0.9	0.9	4.1	0.9	0.9	0.3	0.9	0.9	0.9	1.2	2.6	1.2	0.9	21.5	(18.4%)	(4.3%)	16.6
	RIVER EAST SOUTH	18,552	18,779	10,000	9.4	1.9	1.9	8.4	1.9	1.9	0.6	1.9	1.9	1.9	2.5	5.3	2.5	1.9	43.7	5.0%	(4.3%)	44.0
	RIVER EAST WEST	38,502	39,202	10,000	19.7	3.9	3.9	17.5	3.9	3.9	1.3	3.9	3.9	3.9	5.2	11.0	5.2	3.9	91.3	7.5%	(4.3%)	94.2
	RIVER HEIGHTS EAST	21,070	21,173	10,000	10.6	2.1	2.1	9.4	2.1	2.1	0.7	2.1	2.1	2.1	2.8	5.9	2.8	2.1	49.3	2.0%	(4.3%)	48.2
	RIVER HEIGHTS WEST	36,197	36,651	10,000	18.4	3.7	3.7	16.3	3.7	3.7	1.2	3.7	3.7	3.7	4.9	10.3	4.9	3.7	85.3	5.1%	(4.3%)	86.1
	SEVEN OAKS EAST	40,748	41,710	10,000	21.0	4.2	4.2	18.6	4.2	4.2	1.4	4.2	4.2	4.2	5.6	11.7	5.6	4.2	97.1	9.8%	(4.3%)	102.5
	SEVEN OAKS NORTH	5,270	5,399	7,499	2.3	0.4	0.4	2.0	0.4	0.4	0.1	0.4	0.4	0.4	0.6	1.3	0.6	0.4	10.5	10.2%	(4.3%)	11.1
	SEVEN OAKS WEST	30,638	32,833	10,000	16.5	3.3	3.3	14.6	3.3	3.3	1.1	3.3	3.3	3.3	4.4	9.2	4.4	3.3	76.5	32.5%	(4.3%)	98.0
	ST. BONIFACE EAST	43,937	46,088	10,000	23.2	4.6	4.6	20.5	4.6	4.6	1.5	4.6	4.6	4.6	6.1	12.9	6.1	4.6	107.3	21.3%	(4.3%)	125.6
	ST. BONIFACE WEST	16,216	16,557	10,000	8.3	1.7	1.7	7.4	1.7	1.7	0.6	1.7	1.7	1.7	2.2	4.6	2.2	1.7	38.6	8.7%	(4.3%)	40.3
	ST. JAMES - ASSINIBOIA E/	27,366	27,676	10,000	13.9	2.8	2.8	12.3	2.8	2.8	0.9	2.8	2.8	2.8	3.7	7.7	3.7	2.8	64.4	4.6%	(4.3%)	64.7
	ST. JAMES - ASSINIBOIA W	33,331	33,684	10,000	16.9	3.4	3.4	15.0	3.4	3.4	1.1	3.4	3.4	3.4	4.5	9.4	4.5	3.4	78.4	4.3%	(4.3%)	78.5
	ST. VITAL NORTH	28,069	28,631	10,000	14.4	2.9	2.9	12.8	2.9	2.9	1.0	2.9	2.9	2.9	3.8	8.0	3.8	2.9	66.7	8.3%	(4.3%)	69.3
	ST. VITAL SOUTH	43,083	44,292	10,000	22.3	4.4	4.4	19.7	4.4	4.4	1.5	4.4	4.4	4.4	5.9	12.4	5.9	4.4	103.1	11.8%	(4.3%)	110.9
	TRANSCONA	39,320	40,882	10,000	20.6	4.1	4.1	18.2	4.1	4.1	1.4	4.1	4.1	4.1	5.5	11.4	5.5	4.1	95.2	17.0%	(4.3%)	107.3
	WP21 Winnipeg Churchill	1,004	1,024	1,499	0.8	0.1	0.1	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.2	3.8	8.0%	(4.3%)	4.0

Exhibit 9-22
MyHT Base Case Scenario by PMH Catchment Area

RHA	CATCHMENT AREAS	Pop. 2015 - F0	Pop. 2016 - F1	POP. CLASSIFICATION	General Practitioner	Clinical Nurse Specialist (PC)	Licensed Practice Nurse	Public Health Nurse	Nurse Practitioner	Clinical Nurse Specialist (CDM)	Midwife	Mental Health (counseling)	Occupational Therapy	Physiotherapy	Physician Assistant	Psychologist	Pharmacist (Community)	EMT/EMS	TOTAL	% Pop Change (2017-2025)	+ / (-) Relative Burden of Illness	TOTAL FTE 2025 @ (F10)
PMH	2	168,477	172,254	-	81.1	16.0	16.0	71.7	16.2	16.2	5.5	16.2	16.2	16.2	21.6	45.1	21.6	16.2	376.1	6.9%	(1.6%)	396.6
	BOISSEVAIN	4,818	4,831	4,999	2.2	0.4	0.4	1.9	0.4	0.4	0.1	0.4	0.4	0.4	0.6	1.2	0.6	0.4	10.1	2.5%	(1.6%)	10.2
	CARBERRY	3,565	3,638	3,999	1.6	0.3	0.3	1.4	0.3	0.3	0.1	0.3	0.3	0.3	0.4	0.9	0.4	0.3	7.4	20.0%	(1.6%)	8.8
	DAUPHIN	12,665	12,687	10,000	6.4	1.3	1.3	5.7	1.3	1.3	0.4	1.3	1.3	1.3	1.7	3.6	1.7	1.3	29.5	1.6%	(1.6%)	29.5
	KILLARNEY	5,766	5,766	7,499	2.4	0.5	0.5	2.1	0.5	0.5	0.2	0.5	0.5	0.5	0.6	1.3	0.6	0.5	11.2	0.0%	(1.6%)	11.0
	MELITA	2,771	2,776	2,999	1.2	0.2	0.2	1.0	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.6	0.3	0.2	5.4	1.5%	(1.6%)	5.4
	MINNEDOSA	12,810	12,877	10,000	6.5	1.3	1.3	5.7	1.3	1.3	0.4	1.3	1.3	1.3	1.7	3.6	1.7	1.3	30.0	4.8%	(1.6%)	30.9
	NEEPAWA	8,280	8,450	9,999	3.7	0.7	0.7	3.3	0.7	0.7	0.2	0.7	0.7	0.7	1.0	2.1	1.0	0.7	17.2	20.0%	(1.6%)	20.4
	RESTON	1,862	1,865	1,999	0.8	0.2	0.2	0.7	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.5	0.2	0.2	3.8	1.5%	(1.6%)	3.8
	RIVERS	1,989	1,992	1,999	0.9	0.2	0.2	0.8	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.5	0.2	0.2	4.1	1.5%	(1.6%)	4.1
	ROBLIN	5,444	5,390	7,499	2.3	0.4	0.4	2.0	0.4	0.4	0.1	0.4	0.4	0.4	0.6	1.3	0.6	0.4	10.5	(8.6%)	(1.6%)	9.4
	RUSSELL	11,353	11,356	10,000	5.7	1.1	1.1	5.1	1.1	1.1	0.4	1.1	1.1	1.1	1.5	3.2	1.5	1.1	26.4	0.3%	(1.6%)	26.1
	SOURIS	5,303	5,317	7,499	2.2	0.4	0.4	2.0	0.4	0.4	0.1	0.4	0.4	0.4	0.6	1.2	0.6	0.4	10.3	2.5%	(1.6%)	10.4
	STE ROSE DU LAC	7,109	7,145	7,499	3.0	0.6	0.6	2.7	0.6	0.6	0.2	0.6	0.6	0.6	0.8	1.7	0.8	0.6	13.9	4.6%	(1.6%)	14.3
	SWAN RIVER	14,074	14,223	10,000	7.2	1.4	1.4	6.3	1.4	1.4	0.5	1.4	1.4	1.4	1.9	4.0	1.9	1.4	33.1	10.1%	(1.6%)	35.9
	TREHERNE	2,802	2,802	2,999	1.2	0.2	0.2	1.0	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.7	0.3	0.2	5.4	0.0%	(1.6%)	5.4
	VIRDEN	7,501	7,514	9,999	3.3	0.7	0.7	2.9	0.7	0.7	0.2	0.7	0.7	0.7	0.9	1.8	0.9	0.7	15.3	1.5%	(1.6%)	15.3
	WAWANESA	6,739	6,739	7,499	2.8	0.6	0.6	2.5	0.6	0.6	0.2	0.6	0.6	0.6	0.7	1.6	0.7	0.6	13.1	0.0%	(1.6%)	12.9
	WE21 Bdn West End	15,484	17,187	10,000	8.6	1.7	1.7	7.7	1.7	1.7	0.6	1.7	1.7	1.7	2.3	4.8	2.3	1.7	40.0	4.1%	(1.6%)	41.0
	WE22 Bdn North Hill	7,564	7,791	9,999	3.4	0.7	0.7	3.0	0.7	0.7	0.2	0.7	0.7	0.7	0.9	1.9	0.9	0.7	15.9	4.1%	(1.6%)	16.3
	WE23 Bdn Downtown	12,014	12,615	10,000	6.3	1.3	1.3	5.6	1.3	1.3	0.4	1.3	1.3	1.3	1.7	3.5	1.7	1.3	29.4	17.1%	(1.6%)	33.9
	WE24 Bdn South End	10,282	10,590	10,000	5.3	1.1	1.1	4.7	1.1	1.1	0.4	1.1	1.1	1.1	1.4	3.0	1.4	1.1	24.7	20.6%	(1.6%)	29.4
	WE25 Bdn East End	6,892	7,306	7,499	3.1	0.6	0.6	2.7	0.6	0.6	0.2	0.6	0.6	0.6	0.8	1.7	0.8	0.6	14.2	20.5%	(1.6%)	16.9
	WINNIPEGOSIS	1,390	1,398	1,499	1.1	0.1	0.1	0.7	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.5	0.3	0.3	5.2	5.3%	(1.6%)	5.4

Exhibit 9-23
MyHT Base Case Scenario by IERHA Catchment Area

RHA	CATCHMENT AREAS	Pop. 2015 - F0	Pop. 2016 - F1	POP. CLASSIFICATION	General Practitioner	Clinical Nurse Specialist (PC)	Licensed Practice Nurse	Public Health Nurse	Nurse Practitioner	Clinical Nurse Specialist (CDM)	Midwife	Mental Health (counselling)	Occupational Therapy	Physiotherapy	Physician Assistant	Psychologist	Pharmacist (Community)	EMT/EMS	TOTAL	% Pop Change (2017-2025)	+ / (-) Relative Burden of Illness	TOTAL FTE 2025 @ (F10)
INTERLAKE																						
RHA	3	127,273	130,873	-	63.9	12.2	12.2	55.3	13.2	13.2	5.1	13.2	13.2	13.2	17.3	35.1	17.3	13.2	297.8	8.3%	23.5%	393.8
	ARBORG	4,949	4,979	4,999	2.3	0.4	0.4	2.0	0.4	0.4	0.1	0.4	0.4	0.4	0.6	1.3	0.6	0.4	10.4	5.5%	23.5%	13.5
	ASHERN	2,527	2,516	2,999	1.1	0.2	0.2	0.9	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.6	0.3	0.2	4.9	(3.4%)	23.5%	5.9
	BEAUSEJOUR	9,148	9,651	9,999	4.2	0.8	0.8	3.8	0.8	0.8	0.3	0.8	0.8	0.8	1.1	2.4	1.1	0.8	19.7	14.2%	23.5%	27.1
	BERENS RIVER	767	780	999	0.7	0.1	0.1	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	3.7	15.9%	23.5%	5.2
	BLOODVEIN	620	630	749	0.6	0.0	0.0	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	3.3	15.9%	23.5%	4.5
	ERIKSDALE	1,568	1,552	1,999	0.7	0.1	0.1	0.6	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.4	0.2	0.1	3.2	(8.6%)	23.5%	3.6
	Fisher Branch	1,062	1,073	1,499	0.8	0.1	0.1	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.2	4.0	9.4%	23.5%	5.3
	GIMLI	5,961	5,997	7,499	2.5	0.5	0.5	2.2	0.5	0.5	0.2	0.5	0.5	0.5	0.7	1.4	0.7	0.5	11.6	5.5%	23.5%	15.0
	GYPSUMVILLE	3,167	3,140	3,999	1.4	0.3	0.3	1.2	0.3	0.3	0.1	0.3	0.3	0.3	0.4	0.8	0.4	0.3	6.4	(7.2%)	23.5%	7.4
	Hodgson	4,734	4,781	4,999	2.2	0.4	0.4	1.9	0.4	0.4	0.1	0.4	0.4	0.4	0.6	1.2	0.6	0.4	10.0	9.4%	23.5%	13.3
	Hollow Water First Nation	1,005	1,011	1,499	0.8	0.1	0.1	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	3.8	5.5%	23.5%	4.9
	LAC DU BONNET	4,261	4,249	4,999	1.9	0.4	0.4	1.7	0.4	0.4	0.1	0.4	0.4	0.4	0.5	1.1	0.5	0.4	8.9	(2.6%)	23.5%	10.8
	LITTLE GRAND RAPIDS	763	776	999	0.7	0.1	0.1	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	3.7	15.9%	23.5%	5.1
	PAUINGASSI	565	574	749	0.6	0.0	0.0	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	3.0	15.9%	23.5%	4.1
	PINAWA	3,583	3,573	3,999	1.6	0.3	0.3	1.4	0.3	0.3	0.1	0.3	0.3	0.3	0.4	0.9	0.4	0.3	7.3	(2.6%)	23.5%	8.8
	POPLAR RIVER	1,257	1,278	1,499	1.0	0.1	0.1	0.6	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.5	0.3	0.3	4.8	15.9%	23.5%	6.7
	SELKIRK	26,171	27,120	10,000	13.6	2.7	2.7	12.1	2.7	2.7	0.9	2.7	2.7	2.7	3.6	7.6	3.6	2.7	63.2	14.8%	23.5%	87.3
	ST. BONIFACE EAST	14,364	14,867	10,000	7.5	1.5	1.5	6.6	1.5	1.5	0.5	1.5	1.5	1.5	2.0	4.2	2.0	1.5	34.6	20.1%	23.5%	49.7
	STONEWALL	18,686	19,887	10,000	10.0	2.0	2.0	8.9	2.0	2.0	0.7	2.0	2.0	2.0	2.7	5.6	2.7	2.0	46.3	0.3%	23.5%	57.3
	TEULON	4,563	4,673	4,999	2.1	0.4	0.4	1.9	0.4	0.4	0.1	0.4	0.4	0.4	0.6	1.2	0.6	0.4	9.8	(3.2%)	23.5%	11.8
	Town of Powerview-Pine I	5,402	5,434	7,499	2.3	0.5	0.5	2.0	0.5	0.5	0.2	0.5	0.5	0.5	0.6	1.3	0.6	0.5	10.5	5.5%	23.5%	13.6
	WHITEMOUTH	2,978	2,977	2,999	1.2	0.2	0.2	1.1	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.7	0.3	0.2	5.8	(0.3%)	23.5%	7.1
	WINNIPEG BEACH	9,172	9,355	9,999	4.1	0.8	0.8	3.6	0.8	0.8	0.3	0.8	0.8	0.8	1.1	2.3	1.1	0.8	19.1	11.5%	23.5%	25.7

Exhibit 9-24
MyHT Base Case Scenario by NRHA Catchment Area

RHA	CATCHMENT AREAS	Pop. 2015 - F0	Pop. 2016 - F1	POP. CLASSIFICATION	General Practitioner	Clinical Nurse Specialist (PC)	Licensed Practice Nurse	Public Health Nurse	Nurse Practitioner	Clinical Nurse Specialist (CDM)	Midwife	Mental Health (counseling)	Occupational Therapy	Physiotherapy	Physician Assistant	Psychologist	Pharmacist (Community)	EMT/EMS	TOTAL	% Pop Change (2017-2025)	+ / (-) Relative Burden of Illness	TOTAL FTE @ (F10)
NORTHERN																						
RHA	4	75,947	76,724	-	40.7	6.9	6.9	33.2	9.3	9.3	4.7	9.3	9.3	9.3	11.6	21.7	11.6	9.3	192.8	9.4%	129.9%	461.3
	BROCHET	293	293	749	0.3	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.5	(0.2%)	129.9%	3.5
	Chemawawin Cree Nation	1,736	1,760	1,999	0.8	0.2	0.2	0.7	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.4	0.2	0.2	3.6	13.3%	129.9%	8.7
	CITY OF THE PAS	11,290	11,335	10,000	5.7	1.1	1.1	5.1	1.1	1.1	0.4	1.1	1.1	1.1	1.5	3.2	1.5	1.1	26.4	3.7%	129.9%	61.6
	CORMORANT	346	353	749	0.4	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	1.8	19.5%	129.9%	4.5
	CROSS LAKE	4,901	4,991	4,999	2.3	0.4	0.4	2.0	0.4	0.4	0.1	0.4	0.4	0.4	0.6	1.3	0.6	0.4	10.5	17.8%	129.9%	25.9
	EASTERVILLE	80	81	99	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-	13.3%	129.9%	-
	FLIN FLON	5,885	5,870	7,499	2.5	0.5	0.5	2.2	0.5	0.5	0.2	0.5	0.5	0.5	0.7	1.4	0.7	0.5	11.4	(2.2%)	129.9%	25.9
	GARDNER HILL	4,153	4,255	4,999	1.9	0.4	0.4	1.7	0.4	0.4	0.1	0.4	0.4	0.4	0.5	1.1	0.5	0.4	8.9	24.3%	129.9%	22.7
	GILLAM	1,582	1,566	1,999	0.7	0.1	0.1	0.6	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.4	0.2	0.1	3.2	(8.6%)	129.9%	7.1
	GOD'S LAKE	1,429	1,448	1,499	1.1	0.1	0.1	0.7	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.5	0.4	0.3	5.4	12.3%	129.9%	13.1
	GODS RIVER	852	863	999	0.8	0.1	0.1	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.2	4.1	12.3%	129.9%	9.9
	GRAND RAPIDS	995	1,009	999	0.9	0.1	0.1	0.6	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3	4.8	13.3%	129.9%	11.6
	LAC BROCHET	1,007	1,007	1,499	0.8	0.1	0.1	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	3.8	(0.2%)	129.9%	8.7
	LEAF RAPIDS	551	559	749	0.6	0.0	0.0	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	2.9	14.3%	129.9%	7.0
	LYNN LAKE	669	679	749	0.7	0.0	0.0	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	3.5	14.3%	129.9%	8.6
	MATHIAS COLOMB	927	925	999	0.9	0.1	0.1	0.5	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3	4.4	(2.2%)	129.9%	10.0
	MATHIAS COLOMB FN	1,838	1,875	1,999	0.8	0.2	0.2	0.7	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.5	0.2	0.2	3.8	19.5%	129.9%	9.5
	Mosakahiken Cree Nation	1,249	1,266	1,499	1.0	0.1	0.1	0.6	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.5	0.3	0.3	4.7	13.3%	129.9%	11.5
	NELSON HOUSE	2,649	2,665	2,999	1.1	0.2	0.2	1.0	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.6	0.3	0.2	5.2	5.5%	129.9%	12.2
	NORWAY HOUSE	5,549	5,616	7,499	2.4	0.5	0.5	2.1	0.5	0.5	0.2	0.5	0.5	0.5	0.6	1.3	0.6	0.5	10.9	11.3%	129.9%	26.3
	O-PIPON-NA-PIWIN FN	1,222	1,240	1,499	0.9	0.1	0.1	0.6	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.5	0.3	0.3	4.6	14.3%	129.9%	11.3
	OXFORD HOUSE	1,917	1,942	1,999	0.9	0.2	0.2	0.8	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.5	0.2	0.2	4.0	12.3%	129.9%	9.6
	RED SUCKER LAKE	663	679	749	0.7	0.0	0.0	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	3.5	24.3%	129.9%	8.9
	SHAMATTAWA	896	902	999	0.8	0.1	0.1	0.5	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3	4.3	6.4%	129.9%	10.1
	SNOW LAKE	963	961	999	0.9	0.1	0.1	0.6	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3	4.6	(2.2%)	129.9%	10.4
	SPLIT LAKE	2,610	2,629	2,999	1.1	0.2	0.2	1.0	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.6	0.3	0.2	5.1	6.9%	129.9%	12.1
	ST. THERESA POINT	3,946	4,043	3,999	1.8	0.4	0.4	1.6	0.4	0.4	0.1	0.4	0.4	0.4	0.5	1.0	0.5	0.4	8.2	24.3%	129.9%	20.9
	TADOULE LAKE	269	269	749	0.3	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.4	(0.2%)	129.9%	3.2
	Tataskweyak Cree Nation	-	-	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-	n/a	129.9%	-
	THOMPSON	15,480	15,643	10,000	7.9	1.6	1.6	7.0	1.6	1.6	0.5	1.6	1.6	1.6	2.1	4.4	2.1	1.6	36.4	7.5%	129.9%	86.4

Exhibit 9-25
MyHT Base Case Scenario by SH-SS Catchment Area

RHA	CATCHMENT AREAS	Pop. 2015 - F0	Pop. 2016 - F1	POP. CLASSIFICATION	General Practitioner	Clinical Nurse Specialist (PC)	Licensed Practice Nurse	Public Health Nurse	Nurse Practitioner	Clinical Nurse Specialist (CDM)	Midwife	Mental Health (counselling)	Occupational Therapy	Physiotherapy	Physician Assistant	Psychologist	Pharmacist (Community)	EMT/EMS	TOTAL	% Pop Change (2017-2025)	+ / (-) Relative Burden of Illness	TOTAL FTE @ (F10)
SOUTHERN																						
RHA	5	194,257	198,155	-	91	18	18	79	19	19	7	19	19	19	24	50	24	19	422.3	18.4%	(16.1%)	423.7
	ALTONA	9,513	9,546	9,999	4	0.8	0.8	3.7	0.8	0.8	0.3	0.8	0.8	0.8	1.1	2.3	1.1	0.8	19.5	3.2%	(16.1%)	16.9
	CARMAN	5,744	5,778	7,499	2	0.5	0.5	2.1	0.5	0.5	0.2	0.5	0.5	0.5	0.6	1.3	0.6	0.5	11.2	5.5%	(16.1%)	10.0
	CRYSTAL CITY	3,396	3,417	3,999	2	0.3	0.3	1.3	0.3	0.3	0.1	0.3	0.3	0.3	0.4	0.8	0.4	0.3	7.0	5.6%	(16.1%)	6.2
	ELIE	7,552	7,718	9,999	3	0.7	0.7	3.0	0.7	0.7	0.2	0.7	0.7	0.7	0.9	1.9	0.9	0.7	15.7	21.6%	(16.1%)	16.6
	EMERSON	3,472	3,491	3,999	2	0.3	0.3	1.4	0.3	0.3	0.1	0.3	0.3	0.3	0.4	0.9	0.4	0.3	7.1	5.1%	(16.1%)	6.3
	GLADSTONE	3,678	3,685	3,999	2	0.3	0.3	1.4	0.3	0.3	0.1	0.3	0.3	0.3	0.4	0.9	0.4	0.3	7.5	1.8%	(16.1%)	6.4
	GRUNTHAL	1,479	1,531	1,499	1	0.1	0.1	0.8	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.6	0.4	0.3	5.7	36.3%	(16.1%)	6.9
	ILE DES CHENES	7,238	7,528	7,499	3	0.6	0.6	2.8	0.6	0.6	0.2	0.6	0.6	0.6	0.8	1.8	0.8	0.6	14.6	42.3%	(16.1%)	18.4
	LA SALLE	7,342	7,526	7,499	3	0.6	0.6	2.8	0.6	0.6	0.2	0.6	0.6	0.6	0.8	1.8	0.8	0.6	14.6	24.9%	(16.1%)	15.9
	MACGREGOR	4,381	4,425	4,999	2	0.4	0.4	1.8	0.4	0.4	0.1	0.4	0.4	0.4	0.5	1.1	0.5	0.4	9.3	9.4%	(16.1%)	8.7
	MANITOU	1,400	1,409	1,499	1	0.1	0.1	0.7	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.5	0.3	0.3	5.3	5.6%	(16.1%)	4.7
	MARIUS	2,495	2,500	2,999	1	0.2	0.2	0.9	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.6	0.3	0.2	4.9	1.8%	(16.1%)	4.2
	MIAMI	1,161	1,167	1,499	1	0.1	0.1	0.6	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3	4.4	5.1%	(16.1%)	3.9
	MORDEN	9,844	10,067	9,999	4	0.9	0.9	3.9	0.9	0.9	0.3	0.9	0.9	0.9	1.2	2.5	1.2	0.9	20.5	17.8%	(16.1%)	20.9
	MORRIS	4,496	4,527	4,999	2	0.4	0.4	1.8	0.4	0.4	0.1	0.4	0.4	0.4	0.5	1.1	0.5	0.4	9.5	6.5%	(16.1%)	8.6
	NIVERVILLE	4,903	5,099	4,999	2	0.5	0.5	2.0	0.5	0.5	0.2	0.5	0.5	0.5	0.6	1.3	0.6	0.5	10.7	42.3%	(16.1%)	13.5
	NOTRE-DAME-LOURDES	-	-	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-	n/a	(16.1%)	-
	Portage la Prairie	22,533	22,713	10,000	11	2.3	2.3	10.1	2.3	2.3	0.8	2.3	2.3	2.3	3.0	6.4	3.0	2.3	52.9	7.4%	(16.1%)	48.3
	ROSENORT	572	576	749	1	0.0	0.0	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	3.0	6.5%	(16.1%)	2.7
	SE WINNIPEG	9,468	9,657	9,999	4	0.8	0.8	3.8	0.8	0.8	0.3	0.8	0.8	0.8	1.1	2.4	1.1	0.8	19.7	19.5%	(16.1%)	20.4
	SOMERSET	2,565	2,581	2,999	1	0.2	0.2	1.0	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.6	0.3	0.2	5.0	5.6%	(16.1%)	4.5
	SPRAGUE	490	495	749	0	0.0	0.0	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2.6	9.4%	(16.1%)	2.4
	ST CLAUDE	2,790	2,791	2,999	1	0.2	0.2	1.0	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.7	0.3	0.2	5.4	0.4%	(16.1%)	4.6
	ST JEAN BAPTISTE	1,190	1,197	1,499	1	0.1	0.1	0.6	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3	4.5	5.1%	(16.1%)	4.0
	ST PIERRE JOLYS	4,266	4,300	4,999	2	0.4	0.4	1.7	0.4	0.4	0.1	0.4	0.4	0.4	0.5	1.1	0.5	0.4	9.0	7.4%	(16.1%)	8.2
	STE ANNE	7,659	8,088	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-	63.3%	(16.1%)	-
	STEINBACH	37,542	38,372	10,000	19	3.8	3.8	17.1	3.8	3.8	1.3	3.8	3.8	3.8	5.1	10.7	5.1	3.8	89.4	23.6%	(16.1%)	96.1
	SWAN LAKE	1,860	1,869	1,999	1	0.2	0.2	0.7	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.5	0.2	0.2	3.8	4.4%	(16.1%)	3.4
	VITA	3,534	3,569	3,999	2	0.3	0.3	1.4	0.3	0.3	0.1	0.3	0.3	0.3	0.4	0.9	0.4	0.3	7.3	9.4%	(16.1%)	6.8
	WHITEMOUTH	-	-	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-	n/a	(16.1%)	-
	WINKLER	21,694	22,533	10,000	11	2.3	2.3	10.0	2.3	2.3	0.8	2.3	2.3	2.3	3.0	6.3	3.0	2.3	52.5	19.7%	(16.1%)	54.4
PROVINCIAL	GRAND TOTAL	1,320,343	1,354,826	-	667	130	130	585	135	135	48	135	135	135	178	369	178	135	3,097.3	13.0%	(16.1%)	3,663

Exhibit 9-26
Base Case Scenario Family Medicine Service Categories
 (See 9.3 for Interpretation Key)

PROVINCE WIDE SUMMARY - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)															
BASE CASE SCENARIO															
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	HEALTH SYSTEM PLANNING RELATED VARIABLES														
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)
Family Medicine	72.98	63.27	0.00	72.98	0.18	0.00	73.16	0.00	0.00	0.00	0.00	0.00	0.00	73.16	0.18
General Practice	848.38	575.99	0.00	848.38	5.79	0.00	854.17	(246.4)	0.00	0.00	0.00	0.00	(246.4)	607.80	(240.6)
Family Medicine (SI)-Addiction Medicine	1.66	0.85	0.00	1.66	0.29	(0.1)	1.88	0.00	0.00	0.00	0.00	0.00	0.00	1.88	0.22
Family Medicine (SI)-Child and Adolescent Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Medicine (SI)-Chronic Pain	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Medicine (SI)-Developmental Disabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Medicine (SI)-Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Medicine (SI)-Enhanced Skills Surgery	39.63	37.49	0.00	39.63	6.85	(1.6)	44.91	0.00	0.00	0.00	0.00	0.00	0.00	44.91	5.28
Family Medicine (SI)-Family Practice Anesthesia	10.53	4.30	0.00	10.53	0.98	(0.2)	11.35	0.00	0.00	0.00	0.00	0.00	0.00	11.35	0.82
Family Medicine (SI)-Family Practice Cancer Care	3.04	1.49	0.00	3.04	0.53	(0.1)	3.44	0.00	0.00	0.00	0.00	0.00	0.00	3.44	0.40
Family Medicine (SI)-Global Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Medicine (SI)-Health Care of the Elderly	5.98	5.22	0.00	5.98	1.05	(0.3)	6.78	0.00	0.00	0.00	23.94	0.00	23.94	30.71	24.73
Family Medicine (SI)-Hospital Medicine	6.58	5.37	0.00	6.58	0.70	0.14	7.41	0.00	0.00	0.00	2.55	0.00	2.55	9.96	3.39
Family Medicine (SI)-Maternity and Newborn Care	43.58	32.63	0.00	43.58	7.01	(1.6)	48.95	0.00	0.00	0.00	0.00	0.00	0.00	48.95	5.36
Family Medicine (SI)-Mental Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.10	0.00	12.10	12.10	12.10
Family Medicine (SI)-Occupational Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Medicine (SI)-Palliative Care	12.45	7.09	0.00	12.45	2.19	(0.5)	14.11	0.00	0.00	0.00	0.00	0.00	0.00	14.11	1.66
Family Medicine (SI)-Prison Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Medicine (SI)-Respiratory Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.98	0.00	5.98	5.98	5.98
Family Medicine (SI)-Sport and Exercise Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Practice Total	1,044.82	733.68	0.00	1,044.82	25.57	(4.2)	1,066.16	(246.4)	0.00	0.00	44.57	0.00	(201.8)	864.35	(180.5)

The following figures illustrate the modeling conducted to calculate the population to be rostered with primary care models until 2025 and the conversion of GP FTE's to physician assistants and nurse practitioners, enabling expansion of PHC delivery, increase collaborative teams, greater quality, consistency, and integration of MyHT's and HC's into each targeted community. For these tables and those immediately preceding them:

- Rows 1 and 2** Forecast years from F0 (2015) to F10 (2025)
- Row 3** Population forecast by RHA to 2025
- Row 4** Beginning year balance of GP FTEs delivering community care (excluding SI)
- Rows 5 and 6** Annual replacement FTE recruitment for attrition
- Row 7** Decrease in the number of replacement GPs (5 and 6) through MyHT implementation
- Row 8** Ending year balance of GP FTEs in community care net of increase in NPs and PAs
- Row 10** Annual projected population enrolment in MyHT
- Row 12** Annual recruitment of new NPs/PAs into MyHT relative to size of rostered population
- Row 14** Cumulative rostered population by year
- Row 15** Number of GPs in MyHT
- Row 16** Number of NPs/PAs in MyHT

Exhibit 9-27
Base Case Scenario MOC for Rostering and Conversion from GP to NP/PA

1		WRHA	BASE											
	a	b	c	d	e	f	g	h	i	j	k	l	m	n
1			F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	10-Yr
2	ELEMENT	NOTE	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	Total
3	Population		693,692	715,461	727,361	739,316	751,289	763,298	775,292	787,275	799,221	811,086	822,858	129,166
4	FTE	Beginning	555.7	555.7	555.7	552.7	545.9	535.3	520.7	502.3	480.1	454.0	424.1	555.7
5	Less:	Replacement Needs		(39.6)	(39.6)	(39.6)	(39.6)	(39.6)	(39.6)	(39.6)	(39.6)	(39.6)	(39.6)	(396.31)
6	Plus:	Recruitment		39.6	39.6	39.6	39.6	39.6	39.6	39.6	39.6	39.6	39.6	396.31
7	Less:	Impact of MY HEALTH TEAM implementation		-	(3.0)	(6.8)	(10.7)	(14.5)	(18.4)	(22.2)	(26.1)	(29.9)	(33.8)	(165)
8	Net:	Ending	555.7	555.7	552.7	545.9	535.3	520.7	502.3	480.1	454.0	424.1	390.3	390.3
9	Collaborative Care													
10		Population 'enrollment' Annual		0	9,942	22,867	35,791	48,716	61,641	74,565	87,490	100,415	113,339	554,765
11	@[1:1988]	General Practitioner FTE Annual		0	5.0	11.5	18.0	24.5	31.0	37.5	44.0	50.5	57.0	279
12	KEY DRIVER	NP &/OR PA FTE Annual		0	5	11.5	18	24.5	31	37.5	44	50.5	57	279
13														
14		Population 'enrollment' Cummulative		0	9,942	32,809	68,600	117,316	178,957	253,522	341,012	441,426	554,765	554,765
15		General Practitioner FTE Cummulative		0	5.0	16.5	34.5	59.0	90.0	127.5	171.5	222.0	279.0	279
16		Nurse Practitioner FTE Cummulative		0	5	16.5	34.5	59	90	127.5	171.5	222	279	279

2		PMHA	BASE											
	a	b	c	d	e	f	g	h	i	j	k	l	m	n
1			F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	10-Yr
2	ELEMENT	NOTE	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	Total
3	Population		168,477	172,254	173,795	175,257	176,615	178,005	179,428	180,603	181,794	183,000	184,221	15,744
4	FTE	Beginning	147.7	147.7	147.7	146.2	143.3	138.9	133.0	125.7	116.8	106.5	94.7	147.7
5	Less:	Replacement Needs		(14.8)	(14.8)	(14.8)	(14.8)	(14.8)	(14.8)	(14.8)	(14.8)	(14.8)	(14.8)	(147.67)
6	Plus:	Recruitment		14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	147.67
7	Less:	Impact of MY HEALTH TEAM implementation		-	(1.5)	(2.9)	(4.4)	(5.9)	(7.4)	(8.8)	(10.3)	(11.8)	(13.3)	(66)
8	Net:	Ending	147.7	147.7	146.2	143.3	138.9	133.0	125.7	116.8	106.5	94.7	81.4	81.4
9	Collaborative Care													
10		Population 'enrollment' Annual		0	3,977	7,755	11,732	15,708	19,685	23,662	27,639	31,616	35,592	177,366
11	@[1:1988]	General Practitioner FTE Annual		0	2.0	3.9	5.9	7.9	9.9	11.9	13.9	15.9	17.9	89
12	KEY DRIVER	NP &/OR PA FTE Annual		0	2.0	3.9	5.9	7.9	9.9	11.9	13.9	15.9	17.9	89
13														
14		Population 'enrollment' Cummulative		0	3,977	11,732	23,463	39,172	58,857	82,519	110,158	141,773	177,366	177,366
15		General Practitioner FTE Cummulative		0	2.0	5.9	11.8	19.7	29.6	41.5	55.4	71.3	89.2	89
16		Nurse Practitioner FTE Cummulative		0	2	5.9	11.8	19.7	29.6	41.5	55.4	71.3	89.2	89

3		IEHA	BASE											
	a	b	c	d	e	f	g	h	i	j	k	l	m	n
1			F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	10-Yr
2	ELEMENT	NOTE	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	Total
3	Population		127,273	130,873	133,387	135,091	136,154	136,988	137,936	138,901	139,883	140,882	141,736	14,463
4	FTE	Beginning	55.4	55.4	55.4	55.7	56.2	56.8	57.6	58.5	59.7	61.0	62.5	55.4
5	Less:	Replacement Needs		(3.9)	(3.9)	(3.9)	(3.9)	(3.9)	(3.9)	(3.9)	(3.9)	(3.9)	(3.9)	(38.60)
6	Plus:	Recruitment		3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	38.60
7	Less:	Impact of MY HEALTH TEAM implementati		-	0.3	0.4	0.6	0.8	1.0	1.1	1.3	1.5	1.7	9
8	Net:	Ending	55.4	55.4	55.7	56.2	56.8	57.6	58.5	59.7	61.0	62.5	64.1	64.1
9	Collaborative Care													
10		Population 'enrollment Annual		0	3,977	6,562	9,147	11,732	14,317	16,901	19,486	22,071	24,656	128,849
11	@[1:1988]	General Practitioner FT Annual		0	2.0	3.3	4.6	5.9	7.2	8.5	9.8	11.1	12.4	65
12	KEY DRIVER	NP &/OR PA FTE Annual		0	2.0	3.3	4.6	5.9	7.2	8.5	9.8	11.1	12.4	65
13														
14		Population 'enrollment Cummulative		0	3,977	10,539	19,685	31,417	45,733	62,635	82,121	104,193	128,849	128,849
15		General Practitioner FTi Cummulative		0	2.0	5.3	9.9	15.8	23.0	31.5	41.3	52.4	64.8	65
16		Nurse Practitioner FTE Cummulative		0	2	5.3	9.9	15.8	23	31.5	41.3	52.4	64.8	65

4 NRHA		BASE												
	a	b	c	d	e	f	g	h	i	j	k	l	m	n
1			F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	10-Yr
2	ELEMENT	NOTE	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	Total
3	Population		75,947	76,724	77,514	78,318	79,135	79,966	80,812	81,671	82,419	83,181	83,957	8,010
4	FTE	Beginning	45.4	45.4	45.4	45.2	45.0	44.6	44.1	43.5	42.9	42.1	41.3	45.4
5	Less:	Replacement Needs		(4.5)	(4.5)	(4.5)	(4.5)	(4.5)	(4.5)	(4.5)	(4.5)	(4.5)	(4.5)	(45.43)
6	Plus:	Recruitment		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	45.43
7	Less:	Impact of MY HEALTH TEAM impleme		-	(0.2)	(0.3)	(0.4)	(0.5)	(0.6)	(0.7)	(0.8)	(0.9)	(0.9)	(5)
8	Net:	Ending	45.4	45.4	45.2	45.0	44.6	44.1	43.5	42.9	42.1	41.3	40.3	40.3
9	Collaborative Care													
10		Population 'enrollment Annual		0	1,988	2,983	3,977	4,971	5,965	6,959	7,954	8,948	9,942	53,687
11	@[1:1988]	General Practitioner FTI Annual	0	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	27	
12	KEY DRIVER NP &/OR PA FTE	Annual	0	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	27	
13		Family Practice Nurse F Annual	0	0	0	0	0	0	0	0	0	0	-	
13														
14		Population 'enrollm Cummulative		0	1,988	4,971	8,948	13,919	19,884	26,843	34,797	43,745	53,687	53,687
15		General Practitioner Cummulative	0	1.0	2.5	4.5	7.0	10.0	13.5	17.5	22.0	27.0	27	
16		Nurse Practitioner F Cummulative	0	1	2.5	4.5	7	10	13.5	17.5	22	27	27	

5 SRHA		BASE												
	a	b	c	d	e	f	g	h	i	j	k	l	m	n
1			F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	10-Yr
2	ELEMENT	NOTE	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	Total
3	Population		194,257	198,155	202,190	206,100	210,138	214,309	218,617	223,070	226,991	231,039	234,565	40,308
4	FTE	Beginning	117.1	117.1	117.1	116.9	116.3	115.1	113.6	111.5	109.1	106.1	102.7	117.1
5	Less:	Replacement Needs		(8.1)	(8.1)	(8.1)	(8.1)	(8.1)	(8.1)	(8.1)	(8.1)	(8.1)	(8.1)	(80.96)
6	Plus:	Recruitment		8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	80.96
7	Less:	Impact of MY HEALTH TEAM implement		-	(0.2)	(0.7)	(1.1)	(1.6)	(2.0)	(2.5)	(2.9)	(3.4)	(3.9)	(18)
8	Net:	Ending	117.1	117.1	116.9	116.3	115.1	113.6	111.5	109.1	106.1	102.7	98.9	98.9
9	Collaborative Care													
10		Population 'enrollment Annual		0	1,988	6,562	11,135	15,708	20,282	24,855	29,428	34,002	38,575	182,536
11	@[1:1988]	General Practitioner FTI Annual	0	1.0	3.3	5.6	7.9	10.2	12.5	14.8	17.1	19.4	92	
12	KEY DRIVER NP &/OR PA FTE	Annual	0	1.0	3.3	5.6	7.9	10.2	12.5	14.8	17.1	19.4	92	
13		Family Practice Nurse F Annual	0	0	0	0	0	0	0	0	0	0	-	
13														
14		Population 'enrollm Cummulative		0	1,988	8,550	19,685	35,394	55,675	80,530	109,959	143,961	182,536	182,536
15		General Practitioner Cummulative	0	1.0	4.3	9.9	17.8	28.0	40.5	55.3	72.4	91.8	92	
16		Nurse Practitioner F Cummulative	0	1	4.3	9.9	17.8	28	40.5	55.3	72.4	91.8	92	

The key performance indicators are, as follows:

- By 2020, the number of communities with absent or unstable primary care will decrease by 20%
- By the end of 2020, patients seeking a new primary care provider will succeed within 25 days (this reduces the indicator of 30 set in 2015)
- Patients will be seen within 72 hours of calling for an appointment, by the end of 2018; by the end of 202, this will be further reduced to 24-48 hours
- Provider participation in MyHT will increase to no less than 65% by the end of 2018 and 80% by the end of 2020.

9.10 Public Health

Please cross-reference to the following sections in *Cross-Links and Ten Priorities*:

4.7 Indigenous Peoples

4.8 Maternal Health

4.11 Public and Population Health

[Also, as noted in the *Environmental Scan*, all Clinical Working Groups included a focus on prevention and health promotion]

Leadership has placed priority consistently on health prevention, promotion, and protection as essential to achieving a sustainable health care system that manages costs effectively while optimizing outcomes for all. There are **substantial health inequities across the province** with the north and certain communities within Winnipeg being the most disadvantaged, based upon key metrics of inequity (premature mortality rates, composite index of Health-Promoting Behaviours, and composite index of Health-Risk Behaviours - - smoking and binge alcohol use).

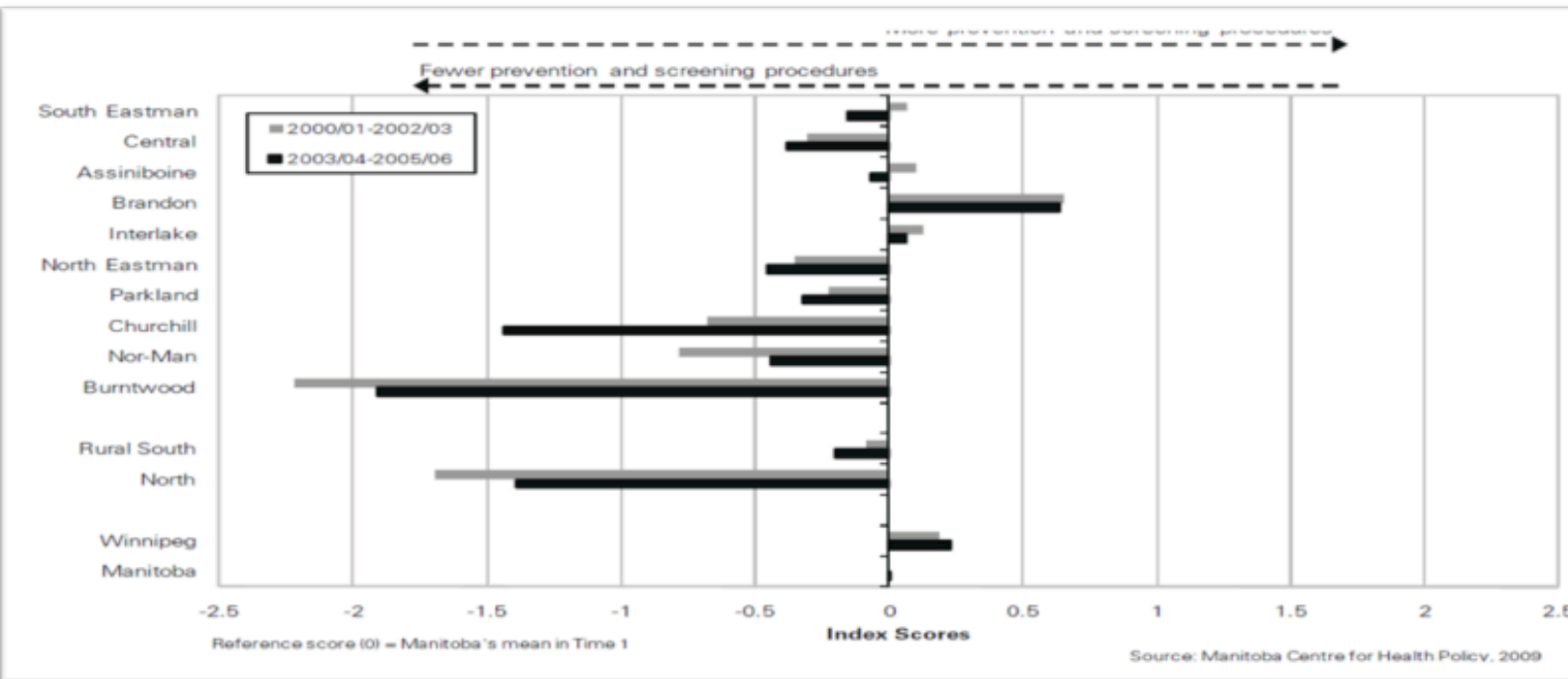
A statistically viable composite index of prevention and screening identified how rates of mammography, pap tests, flu vaccines for older adults, and immunizations for two-year-olds provide a composite picture of how a region prevents and screens for cancer and infection.

The following indicators were used to construct the prevention and screening index:

- Influenza vaccinations for older adults aged 65 (at least one vaccine in a three-year period; annualized average rate over the three years)
- Childhood immunizations (complete immunizations for two-year-olds; annualized average rate over three years)
- Breast cancer screening (at least one mammogram for breast cancer in a two-year period)
- Cervical cancer screening (at least one Pap test in a three-year period for women who had not had a hysterectomy)

The composite index results showed a marked difference in behaviours between those regions with a net positive result (Winnipeg, Interlake, and PMH [Brandon]), and other regions with a net negative result.

Exhibit 9-28
Prevention and Screening Composite Index of Health Promotion Behaviours



In the Canadian Community Health Survey (CCHS), all respondents were asked the question, “In the past 12 months, did you do anything to improve your health? (For example, lost weight, quit smoking, increased exercise).” The crude and adjusted weighted proportions of respondents who made changes to improve their health, were calculated by taking the ratios of the number of respondents who answered “yes” to the question to the number of all respondents. The measured health-promoting behaviours were:

- Changes made to improve health (percent of respondents who indicated that they had done things to improve their health in the previous month).
- Positive food choices (a variable derived from a series of questions about whether respondents make healthy choices about food due to certain health concerns)
- Physical activity (a variable derived from a series of questions about leisure-time physical activities, expressed as hours per week)

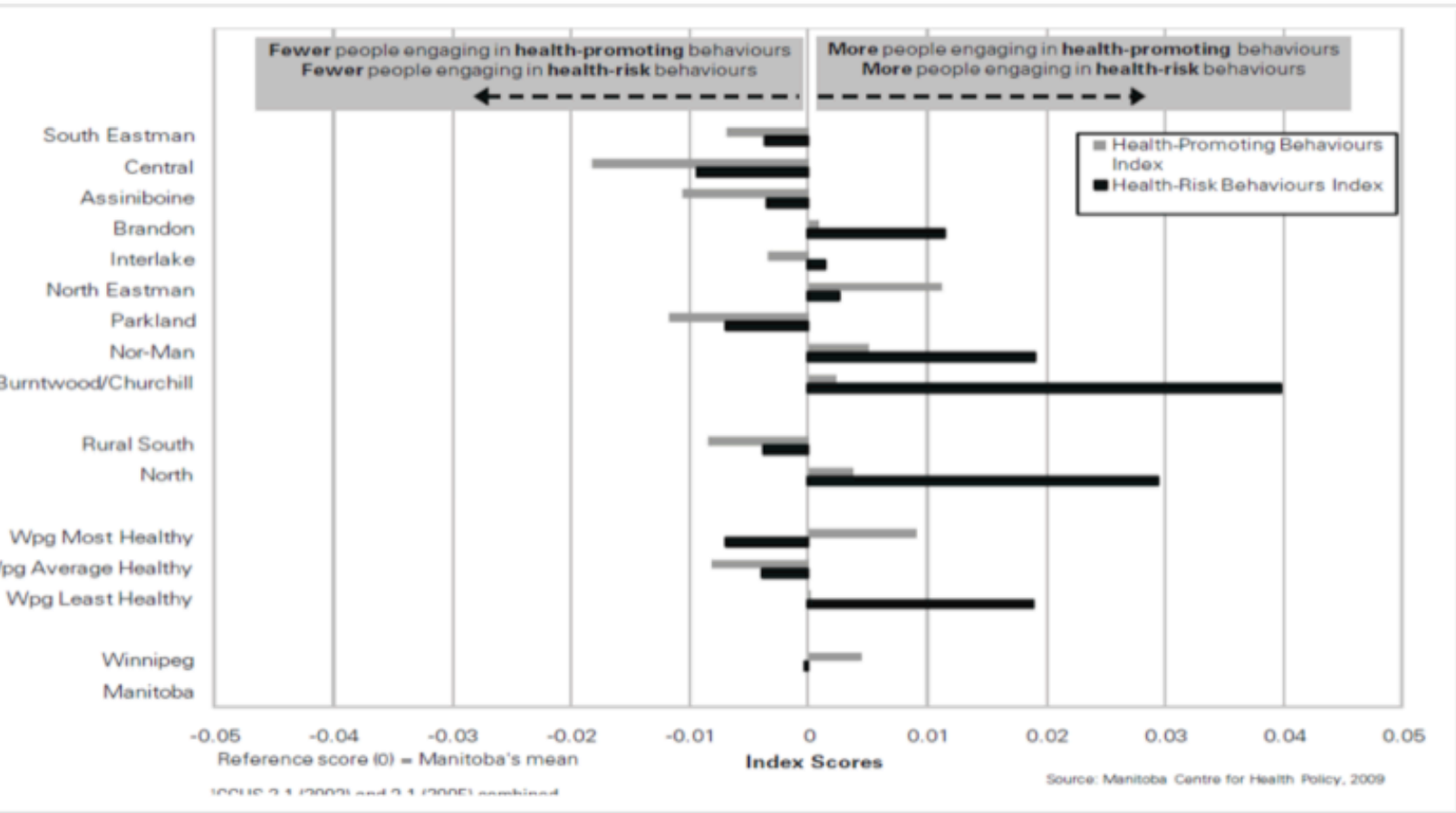
Health-risk behaviours were measured on two indicators only, smoking and binge alcohol use.

- Current smoking (derived from a series of questions about respondent smoking habits; includes daily smoker, occasional (former daily) smoker, always an occasional smoker, former daily smoker, and former occasional smoker)

- Binge alcohol use (percent of respondents who indicated they drank five or more drinks on one occasion at least once in the previous 12 months)

The results were, on the surface, conflicting, with a bias to more health promoting and risk taking behaviour. Relative indicators of health-promoting and health-risk behaviours are related to premature death, largely from preventable diseases: cardiovascular, respiratory, diabetes, and some cancers. It is apparent that the health-risk behaviours are most strongly linked with overall health status as measured by PMR. Continued emphasis on reducing negative behaviours should likely take precedence over efforts to increase positive behaviours.

Exhibit 9-29
Healthy Living Composite Index Score by RHA for 2003 and 2005



The **PHAC model** assembles the critical success factors bringing population health and prevention approaches to dialogue, assessment, and action. **Public health professionals** monitor and assess the health of populations to identify issues, develop policies and programs to address them, deliver services directly or with stakeholders, and assist policy makers and professionals in other sectors in gaining a better understanding of the scale and impact of health issues.

It is essential for success that clear lines of accountability and performance outcomes are established from the outset. Well defined metrics are central to the accountability framework.

- Actionable strategies to reduce health inequities include:
- Address literacy, education and language barriers (throughout the province)
- Improve the health of children through enhanced health-education partnerships to increase the implementation of school-based healthy living programs such as physical activity, healthy eating, and living tobacco-free
- Enhance the health of all women during their childbearing years and the health of women during pregnancy and the postpartum period through universal and targeted screening, perinatal health programs, and maternity care planning
- Promote positive mental health and well-being in settings such as homes, schools, workplaces and care facilities through cross-sectoral partnerships and evidence-based action. Integration of mental health within family practice/community-based care to improve stigma reduction and deliver earlier intervention/treatment.
- Prevent and reduce communicable disease transmission through public health measures and initiatives such as immunization, community health promotion and prevention, harm reduction, and treatment
- Build a culture of safety at work, home and play by increasing awareness of injury risks, implementing prevention education and taking priority actions, such as designing and developing safe environments, systems, and products
- Deliver early intervention and education towards creating effective prevention initiatives, as well as engagement by patients
- Leverage existing tools/technology to improve services and communications
- Leverage community health centre models in meeting both public and primary health care needs in particular for specific populations such as the elderly, rural/remote, Indigenous and socially disadvantaged communities
- While there is broad understanding of the common population health risk factors, changing individual behaviours must go beyond awareness/ education to addressing the environments people live in and the services which actually develop opportunities to be healthy

- A provincially led comprehensive, actionable, strategic plan for health prevention, promotion, protection and surveillance is required if serious health inequities across the province are to be reduced

These approaches, in tandem with those in the section on priorities, are the foundation of advancing public health in Manitoba. All the pieces are available - - the remaining challenge is to provide the necessary funding and infrastructure. Manitoba lags much of the country in public health funding. It is fair to conclude increasing the funding to public health initiatives will likely yield the greatest return on investment in healthcare in the province, over any other initiative. This will be particularly true in the north and remote communities and the inner city of Winnipeg; however, it is equally true that there is no part of the healthcare system not touched by public health. Yet, it remains poorly understood.

What public health really needs in Manitoba is a chance to flourish and to be the robust partner possible with health in every policy.

9.11 Surgical Services

Please cross-reference to the following sections in *Cross-Links and Ten Priorities*:

4.4 Consolidated Services

9.11.1 Quality of Care, Competency, and Itinerant Teams

Critical mass is required to maintain competency across the surgical team (surgeons, anesthesiologists, operating room nurses, and surgical assistants, and postoperative care). Outside of WRHA, resident populations are often inadequate to generate critical mass, with the exceptions of Brandon and certain centres in rural and northern Manitoba with general surgeons, orthopedics and otolaryngology, and sites with core low risk obstetrical procedures. That notwithstanding, there are WRHA services that could be transferred to centres close to Winnipeg. As well, itinerant surgery can contribute to provincial surgical care while maintaining quality and improving cost and patient travel, as long as the selected procedures are appropriate.⁵⁹

The PMLC Working Groups organized around general surgery and around orthopaedic surgery, did identify sites in Manitoba best suited to general surgery and orthopedic services.

The itinerant surgical team model would rotate through the communities identified in the core physician services model, based on a slate of surgical cases. Preoperative and postoperative telehealth would enable maintenance of quality of care, especially through shared care with local physicians and nurse practitioners.

9.11.2 Anaesthesiology

The current anesthesia workforce in WHRA of 117.0 FTE is more than sufficient for the current and future workload over the ten-year forecast period, particularly when viewed as a provincial program that includes general practice anesthesia. The current FTE complement exceeds benchmarks by 55.7 FTE.

9.11.3 Neurosurgery

Currently, there are eleven neurosurgeons with 10.9 FTE and funded by an alternative payment plan. Consistent with national trends, surgical volumes are declining; the current surgeons are performing about 50% of the benchmark average of 250 surgical procedures per FTE per year.

9.11.4 Ophthalmology

Some jurisdictions (Alberta, British Columbia) have contracted out cataract procedures to a public pay - private provider model reducing wait times, freeing up operating room time, and generating cost efficiencies.

⁵⁹ **Orthopaedic surgery has demonstrated this already; other examples are general surgery, ophthalmology, otolaryngology, and some urological services**

In Calgary, for example, for the 12 months ending March 31, 2015, 13,970 cataract procedures were performed by five contracted ophthalmology organizations. Alberta Health Services (AHS) allocates cataract quotas at set rate to eligible individual physicians using a formula on a quarterly basis to calculate the number of procedures permitted, so that the maximum number of cataract procedures does not exceed available AHS budget.

There is a private sector opportunity in WRHA with efficiencies ached through consolidation and transfer outside of traditional centres. Cataract procedures can also be part of the itinerant surgical team case volume.

9.11.5 Other Surgical Disciplines

Exhibit 9-30
Surgical Specialties Base Case Scenario for Manitoba Across Ten Forecast Years
 (See 9.3 for Interpretation Key)

PROVINCE WIDE SUMMARY - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)																
BASE CASE SCENARIO																
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
	HEALTH SYSTEM PLANNING RELATED VARIABLES															
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)	
Anesthesiology	130.76	85.92	(69.1)	61.70	10.84	(2.6)	69.91	0.00	0.00	30.12	0.00	76.50	106.61	176.52	45.77	
Cardiac Surgery	11.05	8.33	(4.5)	6.60	1.16	(0.3)	7.48	0.00	0.00	0.00	0.00	0.00	0.00	7.48	(3.6)	
Colorectal Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
General Surgery	67.51	51.92	13.03	80.54	14.15	(3.4)	91.26	0.00	0.00	39.31	0.00	(2.9)	36.45	127.71	60.20	
General Surgical Oncology	1.00	1.38	0.00	1.00	0.18	(0.0)	1.13	0.00	0.00	0.00	0.00	2.87	2.87	4.00	3.00	
Neurosurgery	10.91	7.80	(4.3)	6.60	1.16	(0.3)	7.48	0.00	0.00	0.00	0.00	0.00	0.00	7.48	(3.4)	
Ophthalmology	29.59	19.42	2.77	32.36	5.69	(1.4)	36.67	0.00	0.00	0.00	0.00	0.00	0.00	36.67	7.08	
Orthopedic Surgery	49.05	29.80	5.06	54.11	9.51	(2.3)	61.32	0.00	0.00	0.00	0.00	0.00	0.00	61.32	12.27	
Otolaryngology - Head and Neck Surgery	18.71	10.01	11.16	29.87	5.25	(1.3)	33.85	0.00	0.00	0.00	0.00	0.00	0.00	33.85	15.14	
Plastic Surgery	15.27	10.30	1.24	16.50	2.90	(0.7)	18.70	0.00	0.00	0.00	0.00	0.00	0.00	18.70	3.43	
Thoracic Surgery	4.16	2.50	1.32	5.48	0.96	(0.2)	6.21	0.00	0.00	0.00	0.00	0.00	0.00	6.21	2.04	
Urology	18.62	13.43	3.38	22.01	3.87	(0.9)	24.94	0.00	0.00	0.00	(0.7)	0.00	(0.7)	24.26	5.64	
Vascular Surgery	3.75	4.29	4.40	8.15	1.43	(0.3)	9.24	0.00	0.00	0.00	0.00	0.00	0.00	9.24	5.48	
Surgical Total	360.38	245.10	(35.4)	324.93	57.09	(13.8)	368.18	0.00	0.00	69.43	(0.7)	76.50	145.25	513.43	153.05	

9.13 Provincial Programs

A Provincial Program Network (PPN) is a provincial subspecialty service with outreach services, as appropriate, and provincial oversight by a single committee or entity.

A specialty example is neurosurgery, where a relatively small patient population is best served by a provincial program that maintains critical mass (quality) and intra-specialty support and on-call programs (spine, vascular, trauma, and paediatric). Academic oversight to this specialty can be provided by an infrastructure that includes a provincial training program. The strengths are documented in the multidisciplinary ideal service delivery model for LHINs in Ontario:

- Coordinated continuum of care
- Best practice guidelines
- Specialized teams (including itinerant)
- Network of care
- Interdisciplinary support
- Health promotion and disease prevention
- Acute care with hub and spoke model (tertiary – large secondary – small community – rehabilitation centre)

A sub-specialty PPN example is geriatric team-based care that incorporates a team-based point of entry, care that is internal to the team, and a navigation responsibility where the team or the team-based geriatrician (or GP with specialized training in care of older adults) processes subsequent referrals to other specialists. It could be anticipated that increased resources would be required in the areas of psychogeriatrics and neurology, and fewer in other medical subspecialties. A geriatric team could be anticipated to require increased primary resources and decreased subspecialty resources by 10% (for the geriatric population).

Provincial Program Network (PPN) oversight can be adopted for each major clinical service stream, namely core services, diagnostic, medical, MHA, paediatric, primary health care, and surgical, with an accountability to the provincial clinical governance leadership. The mandate of each PPN includes achievement of physician extender targets.

PPNs are listed as follows:

- Diagnostic and therapeutic services
- Emergency medicine services
- Medical services – subspecialty medicine
- Mental health and addictions

- Non-acute care
- Obstetrics and gynecology - maternal fetal medicine
- Obstetrics and gynecology - neonatal perinatal medicine
- Pediatrics - subspecialty paediatrics
- Primary care services
- Public health services
- Surgical services - subspecialty surgery

The core functions of PPNs include:

Workforce Resource Plan

- To manage recruitment and retention of workforce resources in accordance with the approved provincial WRP
- To ensure that identification, recruitment, training, and deploy of physician extenders occurs in accordance with the approved provincial WRP
- To liaise with educational institutions to develop alignment with WRP needs

Quality

- To develop, disseminate, train, and monitor clinical best practice guidelines
- To ensure education and training programs are delivered of high quality to local staff e.g., clinical practice guidelines, core competency enhancement.

Planning

- To conduct model of care planning across the province
- To conduct detailed planning in a manner consistent with stakeholder high level strategic plans

Service delivery

- To ensure services are delivered consistent with defined models of care
- To ensure itinerant teams are appropriately resourced, deployed, and managed

Communications and Engagement

- To create a provincial service management committee comprised of key stakeholders to ensure a both a bottom up and top down integration of planning, communication, and engagement

Accountability

- Accountable to the RHA's for all areas of responsibility. This will ensure communication is effective, planning is consistent, and service delivery reflects best practices
- Accountable for defined metrics for outputs and outcomes consistent with the model of care program logic model approach to planning and accountability



Forecasting 2015-2016 to 2024-2025

Detailed forecasting tables for the clinical and preventive services plan are provided as Appendix A.2 from page 212 to page 231.

10.1 Summary Base Case Scenario

The **base case scenario** ten-year forecast to March 31, 2025 calls for an increase of 211.53 FTE across all physician specialties and all RHA's. This increase of 211.53 FTE is contingent on continued and accelerated reform in primary health care (reduction of 246.4 FTE family medicine) and uptake of MyHT. Without progress in PHC reform, the forecast increase in FTE jumps markedly to 457.93 FTE or 1.9% per annum. The forecast turnover due to retirement, migration out of province, gender shift, and death rate is 1,650.06 FTE or 165.0 FTE per annum (6.86% per annum). Forecast turnover is attrition plus a shift to female from male for incoming recruits. Therefore, the required growth for attrition and models is province must recruit 21.1 FTE per annum for growth plus 165.0 FTE per annum for attrition.

The RHA forecasts for the base case scenario project annual increases in FTEs as:

- IERHA at **9.8%**
- NRHA at **6.6%**
- SH-SS at **6.0%**
- WRHA at **0.1%**
- PMH decrease by **(0.2%)**

10.2 Summary Low Case Scenario

The **low case scenario** ten-year forecast to March 31, 2025 calls for a decrease of **(130.2)** FTE across all physician specialties and all RHA's. This decrease of **(130.2)** FTE is contingent on continued and accelerated reform in primary health care (reduction of 280.4 FTE family medicine) and uptake of MyHT. Without progress in PHC reform, the forecast increase in FTE jumps markedly to 150.2 FTE or 0.07% per annum. The forecast turnover due to retirement, migration out of province, gender shift, and death rate is 1,339.0 FTE or 133.9 FTE per annum (5.57% per annum). Forecast turnover is attrition plus a shift to female from male for incoming recruits.

The RHA forecasts for the low case scenario project annual increases in FTEs as:

- IERHA at **7.8%**
- NRHA at **4.5%**
- SH-SS at **3.9%**
- WRHA decrease by **(1.26%)**

- PMH decrease by **(1.45%)**

10.3 Summary High Case Scenario

The **high case scenario** ten-year forecast to March 31, 2025 calls for an increase of 579.69 FTE across all physician specialties and all RHA's. This increase of 579.69 FTE is contingent on continued and accelerated reform in primary health care (reduction of 146.0 FTE family medicine) and uptake of MyHT. Without progress in PHC reform, the forecast increase in FTE jumps markedly to 725.69 FTE or 3.0% per annum. The forecast turnover due to retirement, migration out of province, gender shift, and death rate is 1,948 FTE or 194.8 FTE per annum (8.10% per annum). Forecast turnover is attrition plus a shift to female from male for incoming recruits.

The RHA forecasts for the base case scenario project annual increases in FTEs as:

- IERHA at **10.94%**
- NRHA at **7.81%**
- SH-SS at **7.47%**
- WRHA at **1.65%**
- PMH at **1.25%**

10.4 Detailed Base Case Scenarios

The **detailed base case scenarios** provide the detailed base case scenario at the provincial level and at the RHA levels, by individual specialty with the ten-year forecast total change in FTE to March 31, 2025. Variation in ten-year forecast changes in FTE at the individual specialty level is wide (column 19).



11

Recommendations

Clinical Governance	
A	It is recommended that:
A-01	Clinical governance be developed provincially and be centralized in support of the delivery of health services and measurement of their outcomes.
A-02	Clinical governance be established early during implementation following the identification of leadership and reporting lines.
A-03	The responsibilities of clinical governance be considered as recommended in Exhibit 6-02 of the report.
A-04	A work plan and strategy be drafted for clinical governance as a priority of implementing the clinical and preventive services plan.
A-05	A role description for clinical governance and its leadership be drafted as a priority of implementing the clinical and preventive services plan.
A-06	The draft work plan, strategy, and role descriptions require approval by the Deputy Minister of Health, Seniors, and Active Living.

Core Services	
B	It is recommended that:
B-01	The core services include comprehensive and collaborative primary care, general internal medicine, general paediatrics, general psychiatry, obstetrics and gynecology (normal newborn), general surgery, diagnostic imaging, and general pathology.
B-02	The core services distribution by community type be confirmed in accordance with Exhibit 9-03.
B-03	The planning assumptions for core service specialists be confirmed in accordance with Exhibit 9-04.
B-04	The base, low, and high case scenarios for the core specialist model be confirmed for core service communities in accordance with Exhibits 9-05, 9-06, and 9-07.
B-05	The net on-call ratio for core service specialists should not exceed one-in-three where possible.

Models of Care	
C	It is recommended that:
Home Care	
C-01	The information infrastructure for home care services be upgraded and provincial in scope.
C-02	Home care services be expanded in scope and funding to include Indigenous communities.
C-03	Training for home care aides be upgraded to match acuity.
C-04	Provincial standards for home care services be established and applied to ensure equity and access in all regions and that the constant goal be an interface with the rest of the healthcare system.
Indigenous Peoples	
C-05	The leadership of Indigenous peoples be active participants in all discussions relating to healthcare equity and access for Indigenous peoples.
C-06	Indigenous peoples be provided with autonomy and assistance in managing healthcare in partnership with provincial healthcare resources in order to achieve and maintain quality of care, safety, and required adjustments in a supportive healthcare model, including support for traditional healing and examination of an Indigenous healthcare system led by First Nations
C-07	The leadership of the Northern Regional Health Authority resolve the silos of care that impede optimal care in the region, including challenges evident through the co-existence and relationships among the health authority, the Churchill Health Centre, the Northern Medical Unit, the transportation infrastructure, home care services, and Amdocs, and that this is undertaken to achieve equity and reasonable access.
C-08	The Northern Regional Health Authority provide leadership in achieving diagnostic and therapeutic services to be provided as close to home as possible for Indigenous peoples, when safe and reasonable to do so, and that cooperation be sought from the Ministry of Health, Seniors, and Active Living, the University of Manitoba Faculty of Health Sciences, and Diagnostic Services Manitoba.
Maternal Health	
C-09	The establishment of a provincial program of maternal care include anaesthesiology, neonatology, maternal-fetal medicine (including a northern program with travel clinics), family medicine, obstetrical nurses, and midwifery services (as part of a hospital setting).
C-10	Hospitals providing obstetrical deliveries and newborn care satisfy provincial standards and volume thresholds that are sensitive to travel requirements, leading to a model of regional centres
C-11	A comprehensive perinatal database for Manitoba be established.
Mental Health and Addictions	
C-12	The administration of Selkirk Mental Health Centre be transferred to Winnipeg Regional Health Authority or a provincial entity.
C-13	There be an early expansion of crisis stabilization units under the guidance of the provincial mental health and addictions lead.
C-14	There be support and expansion of Rapid Access to Consultative Expertise.

Models of Care	
C	It is recommended that:
C-15	There be an accelerated stepwise expansion of the Program of Assertive Community Treatment.
C-16	That the provincial lead for mental health and addictions be supported in a restructure of all related services, and that regional hubs outside of Winnipeg Regional Health Authority be: <ul style="list-style-type: none"> ▪ Provincial (Selkirk Mental Health Centre) ▪ IERHA (Pine Falls Hospital) ▪ SH-SS (Portage Hospital; Boundary Trails Hospital; Steinbach Hospital) ▪ PMH (Brandon Hospital; Dauphin Hospital; Swan River Hospital) ▪ NRHA (Thompson Hospital; The Pas Hospital; Flin Flon Hospital)
C-17	The provision and uptake of addiction services in Manitoba be recognized as unsustainable with the current resource allocation; and, the provincial program be assessed for its baseline status and the status one year after administrative merger with mental health services.
C-18	Programs be expanded for forensic psychiatry, sexual assault, victimization, and victims of assault.
C-19	The deficiency of doctoral clinical psychologists be addressed through educational and recruitment initiatives and that the roles of doctoral clinical psychologists be considered, as follows: <ul style="list-style-type: none"> ▪ Existing roles in tertiary centres ▪ Members of MyHealthTeams to include rotations to rural and remote communities ▪ Referral assessments for psychiatric services to determine urgency and appropriate therapeutic streams
C-20	Mental health and addiction funding be diverted from general practitioners other than those with recognized training.
C-21	An adolescent suicide prevention strategy be supported at the provincial level at the earliest possible date.
C-22	Tele-psychiatry be expanded with support from Manitoba eHealth.
Older Adults	
C-23	Services provided in the care of older adults and rehabilitation in WRHA be expanded through community hospital restructuring as part of consolidated services.
C-24	Personal care homes across Manitoba be expanded, as required, after completion of consolidated services enables an accurate determination of actual need.
Palliative Care	
C-26	The funding for comprehensive palliative care be stabilized in Manitoba, especially in support of care to Indigenous peoples.
C-27	A multi-jurisdictional working group headed by Indigenous leadership be established to explore and address barriers to palliative care in Indigenous communities where each community is identified as socially, culturally, and spiritually unique and end-of-life issues impact on all of these.

Models of Care	
C	It is recommended that:
C-28	Under the guidance of the provincial palliative care lead, a provincial leadership team develop a role in facilitating consistent standards and symptom management guidelines.
C-29	Regional palliative care leadership teams be constituted by a full-time physician, nurse, psychosocial specialist, and, where required, a spiritual care specialist defined by cultural diversity.
C-30	The use of both telehealth and palliative care nurse practitioners be expanded in Manitoba as integral parts of the provincial palliative programs.
Primary Care	
C-31	Manitoba utilize the combined impact of primary care modeling and replacement recruitment to change the percentage of family physicians in the workforce (excluding special interests) from 38% to 27% by 2025 and increase the number of non-physician healthcare professionals proportionately.
C-32	Manitoba utilize the combined impact of primary care modeling and replacement recruitment to increase the number of primary care practitioners by 3.7% from 1 FTE per 975 population to 1 FTE per 940 population.
C-33	By 2025, the mix of providers change from 1.0 FTE nurse practitioner and physician assistant per 7.7 FTE family physicians to 1.0 FTE to 2.0 FTE family physicians.
C-34	Existing models of primary care services (Physician Integrated Networks, fee-for-service, fee-for-service with incentive payments, ACCESS centres, community health clinics, Quick Care, and teaching clinics) continue to be supported during planned primary care transformation in Manitoba, until such time as providers decide to change their extant model of care.
C-35	That existing models of primary care services be integrated with MyHealthTeams (MyHT) when the principals of each model agree to an integration.
C-36	A funding model be established for MyHealthTeams (MyHT), and consideration be given to a hybrid model with base funding and a modified benefit schedule for physicians and a salary model for the other healthcare professionals.
C-37	MyHealthTeams (MyHT) be expanded in Manitoba and include a minimum roster of providers (numbers to be determined through the report formula) that include physicians, nurses, nurse practitioners, psychologists, dietitians, physiotherapists, occupational therapists, and pharmacists.
C-38	Each MyHealthTeam (MyHT) be linked to a remote community selected by the Ministry of Health, Seniors, and Active Living, as determined by needs-based assessments and priorities, and that each remote community maintain direct electronic communication with that MyHT on a regular basis, as required, and that the MyHT healthcare professionals maintain regular rotations through the remote community.
C-39	The preferred model of care in rural and remote communities be a community health centre staffed by nurse practitioner(s) and physician assistant(s), with clusters of these communities also served by an advanced care paramedic.

Models of Care	
C	It is recommended that:
C-40	An annual report from each MyHealthTeam (MyHT) be submitted to the Deputy Minister of Health, Seniors, and Active living with respect to services provided to remote communities and evidence of the outcomes of those services.
	Public and Population Health
C-41	Investment in public health and mental health addictions are the two most critical funding challenges for Manitoba with the greatest return on investment.
C-42	Public health initiatives have a greater potential to succeed if incorporated into system-wide organizational change.
C-43	Public health and prevention incorporate Indigenous leadership and training.
C-44	“Health in all policies” be encouraged across departments in the Government of Manitoba and be led by public health experts.
C-45	Prevention and health equity strategies be strongly emphasized through provincial governance.

Consolidating Services	
D	It is recommended that:
D-01	Facilities outside of the Winnipeg Regional Health Authority, but in proximity to it, be assessed for the capacity and interest in availability to provide day surgery and inpatient surgery to be performed by specific disciplines.
D-02	General surgery services in Winnipeg Regional Health Authority be consolidated to three sites (St. Boniface General Hospital, Health Sciences Centre, and one community hospital) and that resources made available in the remaining community hospitals be designated for convalescent and rehabilitation services.
D-03	Orthopaedic surgery services in Winnipeg Regional Health Authority be consolidated to three sites (St. Boniface General Hospital, Health Sciences Centre, and one community hospital) and that resources made available in the remaining community hospitals be designated for convalescent and rehabilitation services.
D-04	Critical care units in Winnipeg Regional Health Authority be consolidated to three sites (St. Boniface General Hospital, Health Sciences Centre, and one community hospital) and that the Emergency Departments in the other three community hospitals become urgent care centres; and, that cardiac critical care be contemplated separately from these critical care units.
D-05	Acute care internal medicine beds in Winnipeg Regional Health Authority be consolidated to three sites (St. Boniface General Hospital, Health Sciences Centre, and one community hospital) and that resources made available in the remaining community hospitals be designated for convalescent and rehabilitation services.
D-06	All rural hospitals in Manitoba be assessed independently to determine the propriety of continuing to be designated as a hospital, the nature of the use of its beds, and the continuing provision of Emergency Department services.
D-07	All rural hospitals in Manitoba be assessed independently to determine the propriety of continuing to provide obstetrical delivery and care of newborn services.
D-08	Where it is determined independently that the nature of the use of hospital beds will change, and/or that the Emergency Department will close or change to urgent care, and/or obstetrical delivery and care of newborn services will be discontinued, the clinical governance will assess whether replacement regional services are available or can be made available.
D-09	Cataract surgery services be tendered for consideration for provision at private sites, but continuing to be publicly funded services.
D-10	Spinal surgery be consolidated at a single site in the Winnipeg Regional Health Authority.
D-11	Facilities outside of the Winnipeg Regional Health Authority, but in proximity to it, be assessed for the capacity and interest in providing day surgery and inpatient surgery to be performed by specific disciplines.
D-12	The clinical governance assess all rural hospitals in Manitoba for critical mass and satisfactory outcomes of day surgery and inpatient surgery, and the suitability for specific itinerant surgical procedures, and where it is decided that either or both of critical mass or outcomes are deficient, regional consolidation for these services will be facilitated.

Ministry of Health, Seniors, and Active Living	
E	It is recommended that:
E-01	Operational oversight be enhanced for Emergency Health Services at a provincial level, with the initial focus on access, equity, and provincial standards, and that the Provincial Emergency Consultation Service be fully implemented
E-02	The scope of the Provincial Health Contact Centre be expanded to provincial.
E-03	The Ministry of Health, Seniors, and Active Living and Health Canada address the disadvantage that results from separate funding streams to Indigenous peoples and jointly correct this to achieve equity and reasonable access.
E-04	<p>The Ministry of Health, Seniors, and Active Living provide leadership in the following areas:</p> <ul style="list-style-type: none"> ▪ Improve support for healthcare workers in Indigenous communities ▪ Address prejudice among healthcare workers ▪ Provide benefits for Indigenous peoples not recognized by the Indian Act ▪ Place less addictive pharmaceutical options on the formulary ▪ Make trauma-informed care the standard of care ▪ Increase the presence of public health initiatives in Indigenous communities ▪ Increase mental health and addiction services to Indigenous peoples through psychological resources on connected MyHealthTeams
E-05	Mental health and addictions be reunited as a division of the Ministry of Health, Seniors, and Active Living.
E-06	Diagnostic imaging services in the province be managed as a provincial program, like laboratory services, within Diagnostic Services Manitoba or another organization, as designated by the Ministry of Health, Seniors, and Active Living and the clinical governance

Digital Health	
F	It is recommended that:
F-01	The use of telemedicine be broadened to be available consistently in distant rural and remote communities.
F-02	The use of eConsultation be initiated in Manitoba through Manitoba eHealth and time-based funding by the Ministry of Health, Seniors, and Active Living.
F-03	Manitoba eHealth be asked to define the business scenarios and benefits from consumer engagement, virtual care, integration and advanced analytics, including the necessary infrastructure investments to connect partners, locations, providers, and patients across the province.
F-04	Manitoba eHealth craft a strategy for a general approach to predictive analytics and precision medicine that includes real-time clinical decision-support for medication ordering.
F-05	Manitoba eHealth report on a six-monthly basis to the leadership of clinical governance on achievements and opportunities to develop technology-enabled strategies for the next generation of digital health, addressing the challenges that Manitoba faces in the healthcare environment as industry value, economic, and health models continue to shift.
F-06	A provincial strategy be developed to provide direction and to establish a footprint that enables new capabilities for digital health through partnerships, collaboration, and an improved understanding of the investment.
F-07	A provincial electronic prenatal record be established in cooperation with Manitoba eHealth.
F-08	Electronic surveillance technology be funded for public health in Manitoba.

Future Planning	
G	It is recommended that:
i	The Foundation
G-01	The principles of clinical and preventive services planning as listed in the final report continue to underpin clinical and preventive services planning in Manitoba.
G-02	The base case scenario and forecast be the strategic direction and framework of the clinical and preventive services plan for Manitoba to 2025.
G-03	The basic tenets of clinical and preventive services planning in Manitoba are role optimization of providers and the provision of patient-centred care.
G-04	Nurse practitioners and physician assistants assume progressive roles in healthcare services in Manitoba, and that these roles be coordinated by the provincial clinical leads and the provincial clinical governance.
G-05	The numbers of nursing and allied health professionals be adjusted proportionately to the roles and models of care and include role optimization.
G-06	Recruitment and retention of physicians be centralized in Manitoba and no longer be undertaken at the regional levels; this is best undertaken by a provincial agency with a requirement to report, at least quarterly to the Health Workforce Secretariat and the clinical governance
ii	The Model
G-07	Each clinical service in Manitoba be considered a provincial program, rather than regional, and that a provincial lead be appointed for each service, with reporting responsibility to the clinical governance.
G-08	The high case and low case forecasts be the upper and lower boundaries for the various disciplines to 2025.
G-09	Implementation of the workforce planning model is led by an implementation group, in concert with the clinical services plan led by the clinical governance.
G-10	An annual review confirm the continuing alignment of clinical and preventive services planning with the strategic direction of the government of Manitoba.
G-11	The adjusted population needs-based model be formalized as the methodology and policy of the Ministry of Health, Seniors, and Active Living, and that needs be the basis of planning rather than demand.
G-12	A skilled unit with a provincial mandate be assigned responsibility for the use, maintenance, and enhancement of the resource planning model, in concert with the clinical services plan led by the clinical governance.
G-13	The College of Medicine and the Ministry of Health, Seniors, and Active Living review the size of the undergraduate medical program and the size and mix of the postgraduate medical program in consideration of the number of funded seats, retention in Manitoba, ratio of generalists to subspecialists, and the identified variables of supply.
G-14	The workforce ten-year planning forecasts be updated on an annual basis so that they are compared to actual results.

Future Planning	
G	It is recommended that:
iii	The Data
G-15	A robustly engineered database support all relevant views that include, but are not limited to, licensed and functional specialties, clinical FTE, academic FTE, and administration FTE, alternative payment FTE, address of primary practice location, and academic rank or status, and other elements to be considered.
G-16	Academic FTE be linked to a named individual and be allocated to clinical, academic, and administration components with notation of percentage allocations.
G-17	<p>The planning model be maintained, as follows:</p> <ul style="list-style-type: none"> ▪ Family physician special interest profiles ▪ NIPM/RFA adjustment ▪ Age adjustment ▪ Death rate adjustment ▪ Gender adjustment ▪ Work hours (hold at zero impact unless contrary evidence) ▪ Benchmark FTE adjustment ▪ Population adjustment ▪ Relative burden of illness ▪ Models of care: <ul style="list-style-type: none"> ▪ Core services ▪ Diagnostic services ▪ Emergency medical services ▪ Medical services ▪ Mental health and addiction services ▪ Paediatric services ▪ Primary health care ▪ Physician extenders ▪ Provincial programs ▪ Public health services ▪ Surgical services
G-18	All non-fee-for-service data be refined and reported in a defined, timely, accurate, and comprehensive manner.
G-19	The Physician Appointment Information System (PAIS) be maintained as a provincial resource.

Ten steps in the transition to implementation

1	Assessment of consonance of CPSP with KPMG phase one report
2	Constitution of the implementation group and its leadership
3	Constitution of the analytic group and its leadership
4	Initiate process of data refreshing
5	Detailed one-year work plan for the implementation group
6	High-level three-year plan for the implementation group
7	Develop funding model for MyHT
8	Develop an accountability framework for Manitoba
9	Develop detailed role descriptions and reporting lines for clinical governance and its leadership
10	Series of presentations on CPSP to stakeholder groups and regional leadership across Manitoba



Appendices

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A.2 Ten-Year Forecasting Tables

Exhibit A-01 Provincial Summary BASE Case Scenario 2015-2016 to 2024-2025 (See 9.3 for Interpretation Key)

PROVINCE WIDE SUMMARY - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)															
BASE CASE SCENARIO															
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	HEALTH SYSTEM PLANNING RELATED VARIABLES														
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)
Diagnostic/Therapeutic Total	157.17	99.44	(2.0)	155.20	25.75	(0.8)	180.09	0.00	0.00	1.13	0.00	0.00	1.13	181.23	24.06
Emergency Medicine Total	102.58	50.84	0.00	102.58	17.95	(4.0)	116.51	0.00	103.22	0.00	0.00	0.00	103.22	219.73	117.15
Family Practice Total	1,044.82	733.68	0.00	1,044.82	25.57	(4.2)	1,066.16	(246.4)	0.00	0.00	44.57	0.00	(201.8)	864.35	(180.5)
Medical Total	308.74	205.47	74.82	383.56	65.95	(9.2)	440.26	0.00	0.00	(0.1)	(36.2)	2.20	(34.1)	406.15	97.42
Obstetrics and Gynecology Total	91.44	62.15	(25.3)	66.12	10.78	0.46	77.35	0.00	0.00	6.08	0.00	6.31	12.39	89.74	(1.7)
Pediatric Total	187.45	131.32	(48.9)	138.50	23.36	1.38	163.24	0.00	0.00	(4.5)	0.00	28.08	23.60	186.85	(0.6)
Psychiatry Total	153.72	122.05	4.76	158.48	25.30	6.70	190.48	0.00	0.00	(0.3)	(37.9)	4.00	(34.1)	156.34	2.62
Surgical Total	360.38	245.10	(35.4)	324.93	57.09	(13.8)	368.18	0.00	0.00	69.43	(0.7)	76.50	145.25	513.43	153.05
TOTAL	2,406.30	1,650.06	(32.1)	2,374.19	251.74	(23.6)	2,602.28	(246.4)	103.22	71.82	(30.2)	117.09	15.55	2,617.83	211.53
% Change per Annum		6.86%	(0.13%)		1.05%	(0.10%)		(1.0%)	0.43%	0.30%	(0.13%)	0.49%	0.06%		0.88%

Exhibit A-02 Provincial Summary LOW Case Scenario 2015-2016 to 2024-2025 (See 9.3 for Interpretation Key)

PROVINCE WIDE SUMMARY - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)															
LOW CASE SCENARIO															
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	HEALTH SYSTEM PLANNING RELATED VARIABLES														
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)
Diagnostic/Therapeutic Total	157.17	78.03	(14.9)	142.25	23.64	(0.2)	165.70	0.00	0.00	(4.4)	0.00	0.00	(4.4)	161.28	4.11
Emergency Medicine Total	102.58	35.89	0.00	102.58	17.95	(3.9)	116.65	0.00	76.38	0.00	0.00	0.00	76.38	193.03	90.44
Family Practice Total	1,044.82	594.90	0.00	1,044.82	25.57	(4.1)	1,066.29	(280.4)	0.00	0.00	58.40	0.00	(222.0)	844.28	(200.5)
Medical Total	308.74	168.71	17.18	325.92	55.98	(6.4)	375.48	0.00	0.00	(5.6)	(47.7)	2.20	(51.0)	324.47	15.74
Obstetrics and Gynecology Total	91.44	51.70	(43.1)	48.32	7.91	1.18	57.40	0.00	0.00	(2.5)	0.00	7.06	4.54	61.94	(29.5)
Pediatric Total	187.45	107.18	(58.6)	128.80	21.65	1.94	152.39	0.00	0.00	(7.7)	0.00	33.66	25.94	178.34	(9.1)
Psychiatry Total	153.72	102.58	(13.8)	139.88	22.27	7.53	169.69	0.00	0.00	(8.3)	(45.7)	4.00	(50.1)	119.62	(34.1)
Surgical Total	360.38	200.32	(93.9)	266.43	46.82	(11.0)	302.29	0.00	0.00	53.64	1.45	35.74	90.82	393.11	32.73
TOTAL	2,406.30	1,339.31	(207.3)	2,199.01	221.78	(14.9)	2,405.89	(280.4)	76.38	25.07	(33.5)	82.66	(129.8)	2,276.06	(130.2)
% Change per Annum		5.57%	(0.86%)		0.92%	(0.06%)		(1.2%)	0.32%	0.10%	(0.14%)	0.34%	(0.54%)		(0.54%)

Exhibit A-03
Provincial Summary HIGH Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

PROVINCE WIDE SUMMARY - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)															
HIGH CASE SCENARIO															
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	HEALTH SYSTEM PLANNING RELATED VARIABLES														
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)
Diagnostic/Therapeutic Total	157.17	120.30	11.80	168.97	28.03	(1.6)	195.43	0.00	0.00	5.67	0.00	0.00	5.67	201.10	43.93
Emergency Medicine Total	102.58	65.51	0.00	102.58	17.95	(4.1)	116.39	0.00	119.83	0.00	0.00	0.00	119.83	236.22	133.64
Family Practice Total	1,044.82	860.04	0.00	1,044.82	25.57	(4.3)	1,066.04	(146.0)	0.00	0.00	15.15	0.00	(130.8)	935.19	(109.6)
Medical Total	308.74	245.64	128.54	437.27	75.27	(12.0)	500.53	0.00	0.00	3.59	(19.7)	2.21	(13.9)	486.67	177.93
Obstetrics and Gynecology Total	91.44	74.10	(15.9)	75.56	12.30	0.03	87.89	0.00	0.00	10.47	0.00	5.54	16.01	103.91	12.47
Pediatric Total	187.45	152.18	(35.6)	151.84	25.70	0.66	178.20	0.00	0.00	0.47	0.00	21.07	21.55	199.74	12.29
Psychiatry Total	153.72	138.62	10.01	163.73	26.14	6.38	196.24	0.00	0.00	2.36	(28.9)	4.00	(22.5)	173.72	20.00
Surgical Total	360.38	291.68	51.90	412.27	72.44	(18.1)	466.63	0.00	0.00	75.96	0.00	106.85	182.81	649.44	289.06
TOTAL	2,406.30	1,948.08	150.75	2,557.05	283.41	(33.1)	2,807.35	(146.0)	119.83	98.52	(33.4)	139.67	178.63	2,985.99	579.69
% Change per Annum		8.10%	0.63%		1.18%	(0.14%)		(0.6%)	0.50%	0.41%	(0.14%)	0.58%	0.74%		2.41%

Exhibit A-04 (one of three)
PROVINCE Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

PROVINCE WIDE SUMMARY - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)

BASE CASE SCENARIO

	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	HEALTH SYSTEM PLANNING RELATED VARIABLES														
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)
Anatomical Pathology	23.70	15.50	0.00	23.70	3.94	(0.9)	26.71	0.00	0.00	0.00	0.00	0.00	(8.6)	18.11	(5.6)
Diagnostic Radiology	68.87	47.10	4.48	73.36	11.70	2.53	87.58	0.00	0.00	1.13	0.00	0.00	1.13	88.72	19.84
Forensic Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	6.00	6.00	6.00
General Pathology	25.48	10.70	(4.8)	20.67	3.63	(0.9)	23.42	0.00	0.00	0.00	0.00	0.00	0.00	23.42	(2.1)
Hematological Pathology	6.66	3.63	0.00	6.66	1.17	(0.3)	7.55	0.00	0.00	0.00	0.00	0.00	0.00	7.55	0.89
Interventional Radiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Biochemistry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Microbiology	3.78	2.41	0.00	3.78	0.66	(0.2)	4.28	0.00	0.00	0.00	0.00	0.00	0.00	4.28	0.50
Neuropathology	3.00	1.59	0.00	3.00	0.53	(0.1)	3.40	0.00	0.00	0.00	0.00	0.00	0.00	3.40	0.40
Neuroradiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear Medicine	8.96	7.55	0.00	8.96	1.46	(0.3)	10.08	0.00	0.00	0.00	0.00	0.00	0.00	10.08	1.12
Radiation Oncology	16.72	10.97	(1.6)	15.07	2.65	(0.6)	17.08	0.00	0.00	0.00	0.00	0.00	0.00	17.08	0.36
Transfusion Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.60	2.60	2.60	2.60
Diagnostic/Therapeutic Total	157.17	99.44	(2.0)	155.20	25.75	(0.8)	180.09	0.00	0.00	1.13	0.00	0.00	1.13	181.23	24.06
Emergency Medicine	4.58	1.36	0.00	4.58	0.80	(0.2)	5.19	0.00	0.00	0.00	0.00	0.00	0.00	5.19	0.61
Family Medicine (EM)	98.01	49.48	0.00	98.01	17.15	(3.8)	111.32	0.00	103.22	0.00	0.00	0.00	103.22	214.54	116.54
General Practice (EM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emergency Medicine Total	102.58	50.84	0.00	102.58	17.95	(4.0)	116.51	0.00	103.22	0.00	0.00	0.00	103.22	219.73	117.15
Family Medicine	72.98	63.27	0.00	72.98	0.18	0.00	73.16	0.00	0.00	0.00	0.00	0.00	0.00	73.16	0.18
General Practice	848.38	575.99	0.00	848.38	5.79	0.00	854.17	(246.4)	0.00	0.00	0.00	0.00	(246.4)	607.80	(240.6)
Family Medicine (SI)-Addiction Medicine	1.66	0.85	0.00	1.66	0.29	(0.1)	1.88	0.00	0.00	0.00	0.00	0.00	0.00	1.88	0.22
Family Medicine (SI)-Child and Adolescent Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Medicine (SI)-Chronic Pain	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Medicine (SI)-Developmental Disabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Medicine (SI)-Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Medicine (SI)-Enhanced Skills Surgery	39.63	37.49	0.00	39.63	6.85	(1.6)	44.91	0.00	0.00	0.00	0.00	0.00	0.00	44.91	5.28
Family Medicine (SI)-Family Practice Anesthesia	10.53	4.30	0.00	10.53	0.98	(0.2)	11.35	0.00	0.00	0.00	0.00	0.00	0.00	11.35	0.82
Family Medicine (SI)-Family Practice Cancer Care	3.04	1.49	0.00	3.04	0.53	(0.1)	3.44	0.00	0.00	0.00	0.00	0.00	0.00	3.44	0.40
Family Medicine (SI)-Global Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Medicine (SI)-Health Care of the Elderly	5.98	5.22	0.00	5.98	1.05	(0.3)	6.78	0.00	0.00	0.00	23.94	0.00	23.94	30.71	24.73
Family Medicine (SI)-Hospital Medicine	6.58	5.37	0.00	6.58	0.70	0.14	7.41	0.00	0.00	0.00	2.55	0.00	2.55	9.96	3.39
Family Medicine (SI)-Maternity and Newborn Care	43.58	32.63	0.00	43.58	7.01	(1.6)	48.95	0.00	0.00	0.00	0.00	0.00	0.00	48.95	5.36
Family Medicine (SI)-Mental Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.10	0.00	12.10	12.10	12.10
Family Medicine (SI)-Occupational Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Medicine (SI)-Palliative Care	12.45	7.09	0.00	12.45	2.19	(0.5)	14.11	0.00	0.00	0.00	0.00	0.00	0.00	14.11	1.66
Family Medicine (SI)-Prison Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Medicine (SI)-Respiratory Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.98	0.00	5.98	5.98	5.98
Family Medicine (SI)-Sport and Exercise Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family Practice Total	1,044.82	733.68	0.00	1,044.82	25.57	(4.2)	1,066.16	(246.4)	0.00	0.00	44.57	0.00	(201.8)	864.35	(180.5)

Exhibit A-04 (two of three)
PROVINCE Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

PROVINCE WIDE SUMMARY - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)

BASE CASE SCENARIO																		
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19			
	HEALTH SYSTEM PLANNING RELATED VARIABLES																	
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)			
Cardiology	32.79	19.55	17.39	50.17	8.82	(2.1)	56.85	0.00	0.00	0.00	(11.4)	0.00	(11.4)	45.48	12.70			
Clinical Immunology and Allergy	6.71	6.01	0.00	6.71	1.18	(0.3)	7.61	0.00	0.00	0.00	0.00	0.00	0.00	7.61	0.89			
Clinical Pharmacology and Toxicology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Critical Care Medicine	9.46	4.50	0.00	9.46	1.66	(0.4)	10.72	0.00	0.00	0.00	0.00	0.00	0.00	10.72	1.26			
Dermatology	13.58	11.27	7.55	21.13	3.71	(0.9)	23.94	0.00	0.00	0.00	0.00	0.00	0.00	23.94	10.36			
Endocrinology and Metabolism	11.46	11.10	8.34	19.81	3.48	(0.8)	22.44	0.00	0.00	0.00	(4.5)	0.00	(4.5)	17.95	6.49			
Gastroenterology	23.72	15.76	4.13	27.86	4.89	(1.2)	31.56	0.00	0.00	0.00	(6.3)	0.00	(6.3)	25.25	1.53			
General Internal Medicine (GIM)	77.37	53.54	11.84	89.21	14.22	3.29	106.72	0.00	0.00	(0.1)	0.00	0.00	(0.1)	106.65	29.28			
Geriatric Medicine	10.91	10.19	(1.7)	9.24	1.62	(0.4)	10.47	0.00	0.00	0.00	0.00	0.00	0.00	10.47	(0.4)			
Hematology	5.22	2.18	0.00	5.22	0.92	(0.2)	5.91	0.00	0.00	0.00	0.00	0.00	0.00	5.91	0.69			
Infectious Diseases	9.43	5.65	0.94	10.37	1.82	(0.4)	11.75	0.00	0.00	0.00	0.00	0.00	0.00	11.75	2.32			
Internal Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Medical Oncology	13.22	9.05	3.43	16.65	2.93	(0.7)	18.87	0.00	0.00	0.00	0.00	0.00	0.00	18.87	5.65			
Nephrology	26.13	11.87	(4.5)	21.58	3.79	(0.9)	24.45	0.00	0.00	0.00	0.00	0.00	0.00	24.45	(1.7)			
Neurology	27.64	19.90	8.01	35.65	6.26	(1.5)	40.40	0.00	0.00	0.00	(8.1)	0.00	(8.1)	32.32	4.68			
Occupational Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Pain Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Physical Medicine and Rehabilitation	16.13	9.46	1.03	17.16	3.02	(0.7)	19.45	0.00	0.00	0.00	0.00	0.00	0.00	19.45	3.32			
Public Health & Preventative Medicine	1.58	0.87	0.00	1.58	0.28	(0.1)	1.80	0.00	0.00	0.00	0.00	2.20	2.20	4.00	2.42			
Respirology	10.18	8.14	16.23	26.41	4.64	(1.1)	29.92	0.00	0.00	0.00	(6.0)	0.00	(6.0)	23.94	13.76			
Rheumatology	13.21	6.43	2.14	15.35	2.70	(0.7)	17.40	0.00	0.00	0.00	0.00	0.00	0.00	17.40	4.18			
Medical Total	308.74	205.47	74.82	383.56	65.95	(9.2)	440.26	0.00	0.00	(0.1)	(36.2)	2.20	(34.1)	406.15	97.42			
Gynecologic Oncology	4.47	2.98	0.00	4.47	0.78	(0.2)	5.06	0.00	0.00	0.00	0.00	0.00	0.00	5.06	0.59			
Gynecologic Reproductive Endocrinology & Infertilit	4.00	0.00	0.00	4.00	0.70	(0.2)	4.53	0.00	0.00	0.00	0.00	0.00	0.00	4.53	0.53			
Maternal-Fetal Medicine	3.34	1.50	(1.0)	2.38	0.42	(0.1)	2.69	0.00	0.00	0.00	0.00	1.31	1.31	4.00	0.66			
Neonatal-Perinatal Medicine	14.82	9.78	(12.2)	2.64	0.46	(0.1)	2.99	0.00	0.00	0.00	0.00	5.01	5.01	8.00	(6.8)			
Obstetrics and Gynecology	64.82	47.89	(12.2)	52.63	8.41	1.03	62.07	0.00	0.00	6.08	0.00	0.00	6.08	68.15	3.33			
Obstetrics and Gynecology Total	91.44	62.15	(25.3)	66.12	10.78	0.46	77.35	0.00	0.00	6.08	0.00	6.31	12.39	89.74	(1.7)			

Exhibit A-04 (three of three)
PROVINCE Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

PROVINCE WIDE SUMMARY - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)

BASE CASE SCENARIO															
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	HEALTH SYSTEM PLANNING RELATED VARIABLES														
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)
Adolescent Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Developmental Pediatrics	5.66	4.62	(3.8)	1.85	0.32	(0.1)	2.09	0.00	0.00	0.00	0.00	3.91	3.91	6.00	0.34
Medical Genetics	6.31	4.87	0.00	6.31	1.11	(0.3)	7.14	0.00	0.00	0.00	0.00	0.00	0.00	7.14	0.84
Pediatric Anesthesiology	8.85	7.80	0.00	8.85	1.55	(0.4)	10.02	0.00	0.00	0.00	0.00	0.00	0.00	10.02	1.18
Pediatric Cardiac Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pediatric Cardiology	3.98	1.79	0.12	4.10	0.72	(0.2)	4.65	0.00	0.00	0.00	0.00	0.00	0.00	4.65	0.67
Pediatric Clinical Immunology and Allergy	7.29	5.15	0.00	7.29	1.28	(0.3)	8.26	0.00	0.00	0.00	0.00	0.00	0.00	8.26	0.97
Pediatric Critical Care Medicine	3.99	1.67	0.00	3.99	0.70	(0.2)	4.53	0.00	0.00	0.00	0.00	2.47	2.47	7.00	3.01
Pediatric Emergency Medicine	14.06	6.78	0.00	14.06	2.47	(0.6)	15.94	0.00	0.00	0.00	0.00	0.00	0.00	15.94	1.87
Pediatric Endocrinology and Metabolism	4.51	2.78	(2.5)	2.04	0.36	(0.1)	2.31	0.00	0.00	0.00	0.00	2.69	2.69	5.00	0.49
Pediatric Gastroenterology	1.39	0.74	(0.0)	1.36	0.24	(0.1)	1.54	0.00	0.00	0.00	0.00	3.46	3.46	5.00	3.61
Pediatric Hematology/Oncology	16.56	13.22	(15.1)	1.45	0.25	(0.1)	1.64	0.00	0.00	0.00	0.00	4.36	4.36	6.00	(10.6)
Pediatric Infectious Diseases	3.94	2.92	(2.3)	1.61	0.28	(0.1)	1.82	0.00	0.00	0.00	0.00	2.18	2.18	4.00	0.06
Pediatric Nephrology	5.15	2.45	(3.5)	1.61	0.28	(0.1)	1.82	0.00	0.00	0.00	0.00	3.18	3.18	5.00	(0.1)
Pediatric Neurology	3.97	2.71	(0.3)	3.65	0.64	(0.2)	4.14	0.00	0.00	0.00	0.00	0.86	0.86	5.00	1.03
Pediatric Orthopedic Surgery	3.93	2.50	0.00	3.93	0.69	(0.2)	4.45	0.00	0.00	0.00	0.00	0.00	0.00	4.45	0.52
Pediatric Radiology	6.04	3.79	0.00	6.04	1.06	(0.3)	6.84	0.00	0.00	0.00	0.00	0.00	0.00	6.84	0.80
Pediatric Respiriology	2.21	1.27	0.28	2.49	0.44	(0.1)	2.82	0.00	0.00	0.00	0.00	2.18	2.18	5.00	2.79
Pediatric Rheumatology	1.62	0.83	(0.6)	1.07	0.19	(0.0)	1.21	0.00	0.00	0.00	0.00	2.79	2.79	4.00	2.38
Pediatric Surgery	5.14	3.42	0.51	5.65	0.99	(0.2)	6.40	0.00	0.00	0.00	0.00	0.00	0.00	6.40	1.26
Pediatrics	82.86	62.02	(21.7)	61.17	9.77	4.68	75.61	0.00	0.00	(4.5)	0.00	0.00	(4.5)	71.14	(11.7)
Pediatric Total	187.45	131.32	(48.9)	138.50	23.36	1.38	163.24	0.00	0.00	(4.5)	0.00	28.08	23.60	186.85	(0.6)
Child and Adolescent Psychiatry	27.22	19.17	(2.2)	25.03	4.02	1.76	30.81	0.00	0.00	0.00	9.39	0.00	9.39	40.20	12.97
Forensic Psychiatry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	4.00	4.00	4.00
Geriatric Psychiatry	7.08	3.86	0.00	7.08	1.24	(0.3)	8.02	0.00	0.00	0.00	(0.6)	0.00	(0.6)	7.40	0.32
Psychiatry	119.42	99.02	6.96	126.37	20.04	5.25	151.66	0.00	0.00	(0.3)	(46.6)	0.00	(46.9)	104.75	(14.7)
Psychiatry Total	153.72	122.05	4.76	158.48	25.30	6.70	190.48	0.00	0.00	(0.3)	(37.9)	4.00	(34.1)	156.34	2.62
Anesthesiology	130.76	85.92	(69.1)	61.70	10.84	(2.6)	69.91	0.00	0.00	30.12	0.00	76.50	106.61	176.52	45.77
Cardiac Surgery	11.05	8.33	(4.5)	6.60	1.16	(0.3)	7.48	0.00	0.00	0.00	0.00	0.00	0.00	7.48	(3.6)
Colorectal Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Surgery	67.51	51.92	13.03	80.54	14.15	(3.4)	91.26	0.00	0.00	39.31	0.00	(2.9)	36.45	127.71	60.20
General Surgical Oncology	1.00	1.38	0.00	1.00	0.18	(0.0)	1.13	0.00	0.00	0.00	0.00	2.87	2.87	4.00	3.00
Neurosurgery	10.91	7.80	(4.3)	6.60	1.16	(0.3)	7.48	0.00	0.00	0.00	0.00	0.00	0.00	7.48	(3.4)
Ophthalmology	29.59	19.42	2.77	32.36	5.69	(1.4)	36.67	0.00	0.00	0.00	0.00	0.00	0.00	36.67	7.08
Orthopedic Surgery	49.05	29.80	5.06	54.11	9.51	(2.3)	61.32	0.00	0.00	0.00	0.00	0.00	0.00	61.32	12.27
Otolaryngology - Head and Neck Surgery	18.71	10.01	11.16	29.87	5.25	(1.3)	33.85	0.00	0.00	0.00	0.00	0.00	0.00	33.85	15.14
Plastic Surgery	15.27	10.30	1.24	16.50	2.90	(0.7)	18.70	0.00	0.00	0.00	0.00	0.00	0.00	18.70	3.43
Thoracic Surgery	4.16	2.50	1.32	5.48	0.96	(0.2)	6.21	0.00	0.00	0.00	0.00	0.00	0.00	6.21	2.04
Urology	18.62	13.43	3.38	22.01	3.87	(0.9)	24.94	0.00	0.00	0.00	(0.7)	0.00	(0.7)	24.26	5.64
Vascular Surgery	3.75	4.29	4.40	8.15	1.43	(0.3)	9.24	0.00	0.00	0.00	0.00	0.00	0.00	9.24	5.48
Surgical Total	360.38	245.10	(35.4)	324.93	57.09	(13.8)	368.18	0.00	0.00	69.43	(0.7)	76.50	145.25	513.43	153.05
TOTAL	2,406.30	1,650.06	(32.1)	2,374.19	251.74	(23.6)	2,602.28	(246.4)	103.22	71.82	(30.2)	117.09	15.55	2,617.83	211.53
% Change per Annum		6.86%	(0.13%)		1.05%	(0.10%)		(1.0%)	0.43%	0.30%	(0.13%)	0.49%	0.06%		0.88%

Exhibit A05 (one of three)
WINNIPEG REGIONAL HEALTH AUTHORITY Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

WRHA - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)

BASE CASE SCENARIO																
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
	HEALTH SYSTEM PLANNING RELATED VARIABLES															
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)	
Anatomical Pathology	21.00	13.92	0.00	21.00	3.69	(0.9)	23.80					(8.6)	(8.6)	15.20	(5.8)	
Diagnostic Radiology	53.72	37.25	(9.1)	44.64	7.84	(1.9)	50.58						0.00	50.58	(3.1)	
Forensic Pathology		0.00	0.00	0.00	0.00	0.00	0.00					6.00	6.00	6.00	6.00	
General Pathology	25.48	10.70	(4.8)	20.67	3.63	(0.9)	23.42						0.00	23.42	(2.1)	
Hematological Pathology	6.66	3.63	0.00	6.66	1.17	(0.3)	7.55						0.00	7.55	0.89	
Interventional Radiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Medical Biochemistry	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Medical Microbiology	3.78	2.41	0.00	3.78	0.66	(0.2)	4.28		0.00				0.00	4.28	0.50	
Neuropathology	3.00	1.59	0.00	3.00	0.53	(0.1)	3.40						0.00	3.40	0.40	
Neuroradiology		0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Nuclear Medicine	7.61	7.41	0.00	7.61	1.34	(0.3)	8.62					0.00	0.00	8.62	1.01	
Radiation Oncology	15.72	10.62	(0.6)	15.07	2.65	(0.6)	17.08					0.00	0.00	17.08	1.36	
Transfusion Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					2.60	2.60	2.60	2.60	
Diagnostic/Therapeutic Total	136.96	87.52	(14.5)	122.42	21.51	(5.2)	138.72	0.00	0.00	0.00	0.00	0.00	0.00	138.72	1.76	
Emergency Medicine	4.58	1.36	0.00	4.58	0.80	(0.2)	5.19						0.00	5.19	0.61	
Family Medicine (EM)	89.87	44.96	0.00	89.87	15.79	(3.8)	101.84		18.51				18.51	120.35	30.47	
General Practice (EM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Emergency Medicine Total	94.45	46.32	0.00	94.45	16.60	(4.0)	107.03	0.00	18.51	0.00	0.00	0.00	18.51	125.54	31.08	
Family Medicine	70.34	60.78	0.00	70.34	0.00	0.00	70.34						0.00	70.34	0.00	
General Practice	485.37	335.53	0.00	485.37	0.00	0.00	485.37	(165.4)					(165.4)	319.95	(165.4)	
Family Medicine (SI)-Addiction Medicine	1.66	0.85	0.00	1.66	0.29	(0.1)	1.88						0.00	1.88	0.22	
Family Medicine (SI)-Child and Adolescent Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Family Medicine (SI)-Chronic Pain	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Family Medicine (SI)-Developmental Disabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Family Medicine (SI)-Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Family Medicine (SI)-Enhanced Skills Surgery	31.77	30.12	0.00	31.77	5.58	(1.4)	36.00						0.00	36.00	4.23	
Family Medicine (SI)-Family Practice Anesthesia		0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Family Medicine (SI)-Family Practice Cancer Care	3.04	1.49	0.00	3.04	0.53	(0.1)	3.44						0.00	3.44	0.40	
Family Medicine (SI)-Global Health		0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Family Medicine (SI)-Health Care of the Elderly	5.98	5.22	0.00	5.98	1.05	(0.3)	6.78				23.94		23.94	30.71	24.73	
Family Medicine (SI)-Hospital Medicine	0.85	0.46	0.00	0.85	0.15	(0.0)	0.96				2.55		2.55	3.51	2.66	
Family Medicine (SI)-Maternity and Newborn Care	35.73	29.37	0.00	35.73	6.28	(1.5)	40.48						0.00	40.48	4.76	
Family Medicine (SI)-Mental Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00				5.62		5.62	5.62	5.62	
Family Medicine (SI)-Occupational Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Family Medicine (SI)-Palliative Care	12.45	7.09	0.00	12.45	2.19	(0.5)	14.11						0.00	14.11	1.66	
Family Medicine (SI)-Prison Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Family Medicine (SI)-Respiratory Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00				5.98		5.98	5.98	5.98	
Family Medicine (SI)-Sport and Exercise Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Family Practice Total	647.17	470.91	0.00	647.17	16.07	(3.9)	659.35	(165.4)	0.00	0.00	38.09	0.00	(127.3)	532.02	(115.2)	

Exhibit A-05 (two of three)
WINNIPEG REGIONAL HEALTH AUTHORITY Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

WRHA - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)															
BASE CASE SCENARIO															
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	HEALTH SYSTEM PLANNING RELATED VARIABLES														
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)
Cardiology	32.17	19.11	18.00	50.17	8.82	(2.1)	56.85						(11.4)	45.48	13.31
Clinical Immunology and Allergy	6.71	6.01	0.00	6.71	1.18	(0.3)	7.61					0.00	0.00	7.61	0.89
Clinical Pharmacology and Toxicology		0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Critical Care Medicine	9.46	4.50	0.00	9.46	1.66	(0.4)	10.72					0.00	0.00	10.72	1.26
Dermatology	12.43	10.99	8.70	21.13	3.71	(0.9)	23.94					0.00	0.00	23.94	11.51
Endocrinology and Metabolism	11.46	11.10	8.34	19.81	3.48	(0.8)	22.44				(4.5)	0.00	(4.5)	17.95	6.49
Gastroenterology	22.72	15.14	5.14	27.86	4.89	(1.2)	31.56				(6.3)	0.00	(6.3)	25.25	2.53
General Internal Medicine (GIM)	68.26	45.70	(14.6)	53.66	9.43	(2.3)	60.81						0.00	60.81	(7.5)
Geriatric Medicine	10.27	9.73	(1.0)	9.24	1.62	(0.4)	10.47					0.00	0.00	10.47	0.21
Hematology	5.22	2.18	0.00	5.22	0.92	(0.2)	5.91					0.00	0.00	5.91	0.69
Infectious Diseases	9.43	5.65	0.94	10.37	1.82	(0.4)	11.75					0.00	0.00	11.75	2.32
Internal Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Medical Oncology	13.22	9.05	3.43	16.65	2.93	(0.7)	18.87				0.00	0.00	0.00	18.87	5.65
Nephrology	24.13	10.28	(2.5)	21.58	3.79	(0.9)	24.45				0.00	0.00	0.00	24.45	0.32
Neurology	26.56	18.57	9.09	35.65	6.26	(1.5)	40.40				(8.1)	0.00	(8.1)	32.32	5.75
Occupational Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Pain Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Physical Medicine and Rehabilitation	16.13	9.46	1.03	17.16	3.02	(0.7)	19.45					0.00	0.00	19.45	3.32
Public Health & Preventative Medicine	1.58	0.87	0.00	1.58	0.28	(0.1)	1.80					2.20	2.20	4.00	2.42
Respirology	10.18	8.14	16.23	26.41	4.64	(1.1)	29.92				(6.0)	0.00	(6.0)	23.94	13.76
Rheumatology	13.21	6.43	2.14	15.35	2.70	(0.7)	17.40					0.00	0.00	17.40	4.18
Medical Total	293.14	192.91	54.87	348.01	61.15	(14.8)	394.34	0.00	0.00	0.00	(36.2)	2.20	(34.0)	360.31	67.17
Gynecologic Oncology	4.47	2.98	0.00	4.47	0.78	(0.2)	5.06					0.00	0.00	5.06	0.59
Gynecologic Reproductive Endocrinology & Infertility	4.00	0.00	0.00	4.00	0.70	(0.2)	4.53					0.00	0.00	4.53	0.53
Maternal-Fetal Medicine	3.10	1.27	(0.7)	2.38	0.42	(0.1)	2.69					1.31	1.31	4.00	0.90
Neonatal-Perinatal Medicine	14.82	9.78	(12.2)	2.64	0.46	(0.1)	2.99					5.01	5.01	8.00	(6.8)
Obstetrics and Gynecology	56.93	42.96	(22.6)	34.29	6.03	(1.5)	38.86					0.00	0.00	38.86	(18.1)
Obstetrics and Gynecology Total	83.30	56.99	(35.5)	47.77	8.39	(2.0)	54.13	0.00	0.00	0.00	0.00	6.31	6.31	60.45	(22.9)

Exhibit A-05 (three of three)
WINNIPEG REGIONAL HEALTH AUTHORITY Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

WRHA - FORECAST BY RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)

BASE CASE SCENARIO

	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
	HEALTH SYSTEM PLANNING RELATED VARIABLES															
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 -) Col 1)	
Adolescent Medicine		0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Developmental Pediatrics	4.66	4.13	(2.8)	1.85	0.32	(0.1)	2.09					3.91	3.91	6.00	1.34	
Medical Genetics	6.31	4.87	0.00	6.31	1.11	(0.3)	7.14					0.00	0.00	7.14	0.84	
Pediatric Anesthesiology	8.85	7.80	0.00	8.85	1.55	(0.4)	10.02					0.00	0.00	10.02	1.18	
Pediatric Cardiac Surgery		0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Cardiology	3.98	1.79	0.12	4.10	0.72	(0.2)	4.65					0.00	0.00	4.65	0.67	
Pediatric Clinical Immunology and Allergy	7.29	5.15	0.00	7.29	1.28	(0.3)	8.26			0.00		0.00	0.00	8.26	0.97	
Pediatric Critical Care Medicine	3.99	1.67	0.00	3.99	0.70	(0.2)	4.53			0.00		2.47	2.47	7.00	3.01	
Pediatric Emergency Medicine	14.06	6.78	0.00	14.06	2.47	(0.6)	15.94			0.00		0.00	0.00	15.94	1.87	
Pediatric Endocrinology and Metabolism	4.51	2.78	(2.5)	2.04	0.36	(0.1)	2.31					2.69	2.69	5.00	0.49	
Pediatric Gastroenterology	1.39	0.74	(0.0)	1.36	0.24	(0.1)	1.54					3.46	3.46	5.00	3.61	
Pediatric Hematology/Oncology	16.56	13.22	(15.1)	1.45	0.25	(0.1)	1.64					4.36	4.36	6.00	(10.6)	
Pediatric Infectious Diseases	3.94	2.92	(2.3)	1.61	0.28	(0.1)	1.82					2.18	2.18	4.00	0.06	
Pediatric Nephrology	5.15	2.45	(3.5)	1.61	0.28	(0.1)	1.82					3.18	3.18	5.00	(0.1)	
Pediatric Neurology	3.97	2.71	(0.3)	3.65	0.64	(0.2)	4.14					0.86	0.86	5.00	1.03	
Pediatric Orthopedic Surgery	3.93	2.50	0.00	3.93	0.69	(0.2)	4.45					0.00	0.00	4.45	0.52	
Pediatric Radiology	6.04	3.79	0.00	6.04	1.06	(0.3)	6.84					0.00	0.00	6.84	0.80	
Pediatric Respiriology	2.21	1.27	0.28	2.49	0.44	(0.1)	2.82					2.18	2.18	5.00	2.79	
Pediatric Rheumatology	1.62	0.83	(0.6)	1.07	0.19	(0.0)	1.21					2.79	2.79	4.00	2.38	
Pediatric Surgery	5.14	3.42	0.51	5.65	0.99	(0.2)	6.40					0.00	0.00	6.40	1.26	
Pediatrics	75.98	57.19	(43.0)	32.96	5.79	(1.4)	37.35					0.00	0.00	37.35	(38.6)	
Pediatric Total	179.57	126.01	(69.3)	110.30	19.38	(4.7)	124.98	0.00	0.00	0.00	0.00	28.08	28.08	153.06	(26.5)	
Child and Adolescent Psychiatry	26.60	18.67	(12.5)	14.08	2.47	(0.6)	15.96					9.39	0.00	9.39	25.35	(1.3)
Forensic Psychiatry		0.00	0.00	0.00	0.00	0.00	0.00					4.00	4.00	4.00	4.00	
Geriatric Psychiatry	7.08	3.86	0.00	7.08	1.24	(0.3)	8.02					(0.6)	0.00	(0.6)	7.40	0.32
Psychiatry	100.74	81.92	(27.6)	73.13	12.85	(3.1)	82.86					(20.7)	0.00	(20.7)	62.15	(38.6)
Psychiatry Total	134.42	104.45	(40.1)	94.29	16.57	(4.0)	106.84	0.00	0.00	0.00	(11.9)	4.00	(7.9)	98.90	(35.5)	
Anesthesiology	117.44	76.30	(55.7)	61.70	10.84	(2.6)	69.91					76.50	76.50	146.41	28.97	
Cardiac Surgery	11.05	8.33	(4.5)	6.60	1.16	(0.3)	7.48					0.00	0.00	7.48	(3.6)	
Colorectal Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
General Surgery	50.98	34.15	29.56	80.54	14.15	(3.4)	91.26					(2.9)	(2.9)	88.40	37.41	
General Surgical Oncology	1.00	1.38	0.00	1.00	0.18	(0.0)	1.13					2.87	2.87	4.00	3.00	
Neurosurgery	10.91	7.80	(4.3)	6.60	1.16	(0.3)	7.48					0.00	0.00	7.48	(3.4)	
Ophthalmology	28.29	19.19	4.08	32.36	5.69	(1.4)	36.67					0.00	0.00	36.67	8.38	
Orthopedic Surgery	42.47	26.78	11.64	54.11	9.51	(2.3)	61.32					0.00	0.00	61.32	18.84	
Otolaryngology - Head and Neck Surgery	17.60	9.70	12.28	29.87	5.25	(1.3)	33.85					0.00	0.00	33.85	16.25	
Plastic Surgery	15.27	10.30	1.24	16.50	2.90	(0.7)	18.70					0.00	0.00	18.70	3.43	
Thoracic Surgery	2.96	1.98	2.52	5.48	0.96	(0.2)	6.21					0.00	0.00	6.21	3.25	
Urology	16.99	12.34	5.02	22.01	3.87	(0.9)	24.94					(1.0)	0.00	(1.0)	23.93	6.94
Vascular Surgery	3.75	4.29	4.40	8.15	1.43	(0.3)	9.24					0.00	0.00	9.24	5.48	
Surgical Total	318.71	212.54	6.22	324.93	57.09	(13.8)	368.18	0.00	0.00	0.00	(1.0)	76.50	75.49	443.68	124.96	
TOTAL	1,887.74	1,297.65	(98.4)	1,789.35	216.77	(52.5)	1,953.58	(165.4)	18.51	0.00	(11.1)	117.09	(40.9)	1,912.67	24.93	
% Change per Annum		6.87%	(0.52%)		1.15%	(0.28%)		(0.9%)	0.10%	0.00%	(0.06%)	0.62%	(0.22%)		0.13%	

Exhibit A-06 (one of three)
PRAIRIE MOUNTAIN HEALTH Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

PMHA- FORECAST by RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)															
BASE CASE SCENARIO															
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	HEALTH SYSTEM PLANNING RELATED VARIABLES														
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+/- Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+/- Change in Population	+/- Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)
Anatomical Pathology	2.70	1.58	0.00	2.70	0.25	(0.0)	2.91					0.00	0.00	2.91	0.21
Diagnostic Radiology	7.52	4.50	2.45	9.97	0.93	(0.2)	10.74			0.16			0.16	10.90	3.39
Forensic Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
General Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Hematological Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Interventional Radiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Medical Biochemistry	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Medical Microbiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00				0.00	0.00	0.00
Neuropathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Neuroradiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Nuclear Medicine	1.35	0.14	0.00	1.35	0.13	(0.0)	1.46					0.00	0.00	1.46	0.10
Radiation Oncology	1.00	0.35	(1.0)	0.00	0.00	0.00	0.00					0.00	0.00	0.00	(1.0)
Transfusion Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Diagnostic/Therapeutic Total	12.57	6.58	1.45	14.02	1.31	(0.2)	15.11	0.00	0.00	0.16	0.00	0.00	0.16	15.27	2.70
Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (EM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00		27.48				27.48	27.48	27.48
General Practice (EM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Emergency Medicine Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.48	0.00	0.00	0.00	27.48	27.48	27.48
Family Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
General Practice	147.67	96.58	0.00	147.67	0.00	0.00	147.67	(66.3)					(66.3)	81.41	(66.3)
Family Medicine (SI)-Addiction Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Child and Adolescent	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Chronic Pain	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Developmental Disab	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Enhanced Skills Surger	1.31	0.50	0.00	1.31	0.12	(0.0)	1.41						0.00	1.41	0.10
Family Medicine (SI)-Family Practice Anest	10.53	4.30	0.00	10.53	0.98	(0.2)	11.35						0.00	11.35	0.82
Family Medicine (SI)-Family Practice Canc	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Global Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Health Care of the Eld	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Hospital Medicine	4.67	3.40	0.00	4.67	0.44	(0.1)	5.03						0.00	5.03	0.36
Family Medicine (SI)-Maternity and Newbo	7.86	3.25	0.00	7.86	0.73	(0.1)	8.47						0.00	8.47	0.61
Family Medicine (SI)-Mental Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00				1.02		1.02	1.02	1.02
Family Medicine (SI)-Occupational Medicin	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Palliative Care	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Prison Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Respiratory Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Sport and Exercise Me	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Practice Total	172.05	108.03	0.00	172.05	2.28	(0.4)	173.94	(66.3)	0.00	0.00	1.02	0.00	(65.2)	108.70	(63.4)

Exhibit A-06 (two of three)
PRAIRIE MOUNTAIN HEALTH Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

PMHA- FORECAST by RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)																
BASE CASE SCENARIO																
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
HEALTH SYSTEM PLANNING RELATED VARIABLES																
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+/- Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+/- Change in Population	+/- Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)	
Cardiology	0.61	0.44	(0.6)	0.00	0.00	0.00	0.00					0.00	0.00	0.00	(0.6)	
Clinical Immunology and Allergy	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Clinical Pharmacology and Toxicology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Critical Care Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Dermatology	1.15	0.28	(1.1)	0.00	0.00	0.00	0.00					0.00	0.00	0.00	(1.1)	
Endocrinology and Metabolism	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Gastroenterology	1.00	0.61	(1.0)	0.00	0.00	0.00	0.00					0.00	0.00	0.00	(1.0)	
General Internal Medicine (GIM)	6.75	7.30	5.23	11.98	1.12	(0.2)	12.91			0.19		0.00	0.19	13.10	6.35	
Geriatric Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Hematology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Infectious Diseases	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Internal Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Medical Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Nephrology	2.00	1.59	(2.0)	0.00	0.00	0.00	0.00				0.00	0.00	0.00	0.00	(2.0)	
Neurology	1.07	1.34	(1.1)	0.00	0.00	0.00	0.00					0.00	0.00	0.00	(1.1)	
Occupational Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Pain Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Physical Medicine and Rehabilitation	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Public Health & Preventative Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Respirology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Rheumatology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Medical Total	12.59	11.56	(0.6)	11.98	1.12	(0.2)	12.91	0.00	0.00	0.19	0.00	0.00	0.19	13.10	0.51	
Gynecologic Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Gynecologic Reproductive Endocrinology &	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Maternal-Fetal Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Neonatal-Perinatal Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Obstetrics and Gynecology	3.48	2.48	4.17	7.66	0.72	(0.1)	8.25			0.12		0.00	0.12	8.37	4.89	
Obstetrics and Gynecology Total	3.48	2.48	4.17	7.66	0.72	(0.1)	8.25	0.00	0.00	0.12	0.00	0.00	0.12	8.37	4.89	

Exhibit A-06 (three of three)
PRAIRIE MOUNTAIN HEALTH Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

PMHA- FORECAST by RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)															
BASE CASE SCENARIO															
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	HEALTH SYSTEM PLANNING RELATED VARIABLES														
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)
Adolescent Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Developmental Pediatrics	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Medical Genetics	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Anesthesiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Cardiac Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Cardiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Clinical Immunology and Allergy	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00		0.00	0.00	0.00	0.00
Pediatric Critical Care Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00		0.00	0.00	0.00	0.00
Pediatric Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00		0.00	0.00	0.00	0.00
Pediatric Endocrinology and Metabolism	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00		0.00	0.00	0.00	0.00
Pediatric Gastroenterology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Hematology/Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Infectious Diseases	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Nephrology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Neurology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Orthopedic Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Radiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Respiriology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Rheumatology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatrics	2.71	2.37	4.65	7.36	0.69	(0.1)	7.93			0.61	0.00	0.00	0.61	8.54	5.83
Pediatric Total	2.71	6.01	4.65	7.36	0.69	(0.1)	7.93	0.00	0.00	0.61	0.00	0.00	0.61	8.54	5.83
Child and Adolescent Psychiatry	0.00	0.00	2.85	2.85	0.27	(0.0)	3.08					0.00	0.00	3.08	3.08
Forensic Psychiatry	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Geriatric Psychiatry	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Psychiatry	12.45	11.21	5.47	17.91	1.67	(0.3)	19.30			0.29	(4.1)		(3.8)	15.49	3.04
Psychiatry Total	12.45	11.21	8.32	20.77	1.94	(0.3)	22.38	0.00	0.00	0.29	(4.1)	0.00	(3.8)	18.56	6.12
Anesthesiology	6.51	4.29	(6.5)	0.00	0.00	0.00	0.00			8.61		0.00	8.61	8.61	2.10
Cardiac Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Colorectal Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
General Surgery	5.62	5.51	(5.6)	0.00	0.00	0.00	0.00			11.24		0.00	11.24	11.24	5.61
General Surgical Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Neurosurgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Ophthalmology	1.30	0.24	(1.3)	0.00	0.00	0.00	0.00					0.00	0.00	0.00	(1.3)
Orthopedic Surgery	2.96	2.11	(3.0)	0.00	0.00	0.00	0.00					0.00	0.00	0.00	(3.0)
Otolaryngology - Head and Neck Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Plastic Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Thoracic Surgery	1.20	0.52	(1.2)	0.00	0.00	0.00	0.00					0.00	0.00	0.00	(1.2)
Urology	1.63	1.09	(1.6)	0.00	0.00	0.00	0.00					0.33	0.33	0.33	(1.3)
Vascular Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Surgical Total	19.23	13.76	(19.2)	0.00	0.00	0.00	0.00	0.00	0.00	19.85	0.33	0.00	20.17	20.17	0.94
TOTAL	235.08	159.63	(1.2)	233.84	8.05	(1.4)	240.52	(66.3)	27.48	21.22	(2.7)	0.00	(20.3)	220.20	(14.9)
% Change per Annum		6.79%	(0.05%)		0.34%	(0.06%)		(2.8%)	1.17%	0.90%	(0.12%)	0.00%	(0.86%)		(0.63%)

Exhibit A-07 (one of three)
INTERLAKE-EASTERN REGIONAL HEALTH AUTHORITY Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

IEHA- FORECAST by RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)																		
BASE CASE SCENARIO																		
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19			
	HEALTH SYSTEM PLANNING RELATED VARIABLES																	
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ /(-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ /(-) Change in Population	+ /(-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)			
Anatomical Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00			
Diagnostic Radiology	2.12	1.63	3.89	6.00	0.65	1.41	8.06			0.33			0.33	8.39	6.27			
Forensic Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00			
General Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Hematological Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Interventional Radiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Medical Biochemistry	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Medical Microbiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00				0.00	0.00	0.00			
Neuropathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Neuroradiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Nuclear Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00			
Radiation Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00			
Transfusion Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Diagnostic/Therapeutic Total	2.12	1.63	3.89	6.00	0.65	1.41	8.06	0.00	0.00	0.33	0.00	0.00	0.33	8.39	6.27			
Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (EM)	3.29	1.51	0.00	3.29	0.35	0.77	4.42		5.68				5.68	10.10	6.81			
General Practice (EM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Emergency Medicine Total	3.29	1.51	0.00	3.29	0.35	0.77	4.42	0.00	5.68	0.00	0.00	0.00	5.68	10.10	6.81			
Family Medicine	1.64	1.13	0.00	1.64	0.18	0.00	1.82						0.00	1.82	0.18			
General Practice	53.81	37.47	0.00	53.81	5.79	0.00	59.59	8.67					8.67	68.26	14.45			
Family Medicine (SI)-Addiction Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Child and Adolescent	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Chronic Pain	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Developmental Disab	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Enhanced Skills Surger	2.17	2.61	0.00	2.17	0.23	0.51	2.92						0.00	2.92	0.74			
Family Medicine (SI)-Family Practice Anest	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Family Practice Cance	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Global Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Health Care of the Eld	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Hospital Medicine	1.06	1.51	0.00	1.06	0.11	0.25	1.42						0.00	1.42	0.36			
Family Medicine (SI)-Maternity and Newbo	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Mental Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00					1.68	1.68	1.68	1.68			
Family Medicine (SI)-Occupational Medicin	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Palliative Care	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Prison Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Respiratory Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Sport and Exercise Me	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Practice Total	58.68	42.73	0.00	58.68	6.31	0.76	65.75	8.67	0.00	0.00	1.68	0.00	10.35	76.09	17.41			

Exhibit A-07 (two of three)
INTERLAKE-EASTERN REGIONAL HEALTH AUTHORITY Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

IEHA- FORECAST by RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)																
BASE CASE SCENARIO																
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
	HEALTH SYSTEM PLANNING RELATED VARIABLES															
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+/- Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+/- Change in Population	+/- Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)	
Cardiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Clinical Immunology and Allergy	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Clinical Pharmacology and Toxicology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Critical Care Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Dermatology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Endocrinology and Metabolism	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Gastroenterology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
General Internal Medicine (GIM)	0.00	0.00	7.54	7.54	0.81	1.77	10.13			(0.0)			0.00	(0.0)	10.08	
Geriatric Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Hematology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Infectious Diseases	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Internal Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Medical Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Nephrology	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00	0.00	0.00	
Neurology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Occupational Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pain Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Physical Medicine and Rehabilitation	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Public Health & Preventative Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Respirology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Rheumatology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Medical Total	0.00	0.00	7.54	7.54	0.81	1.77	10.13	0.00	0.00	(0.0)	0.00	0.00	(0.0)	10.08	10.08	
Gynecologic Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Gynecologic Reproductive Endocrinology & Infertility	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Maternal-Fetal Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Neonatal-Perinatal Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Obstetrics and Gynecology	0.00	0.00	3.42	3.42	0.37	0.80	4.59			1.85			0.00	1.85	6.44	
Obstetrics and Gynecology Total	0.00	0.00	3.42	3.42	0.37	0.80	4.59	0.00	0.00	1.85	0.00	0.00	1.85	6.44	6.44	

Exhibit A-07 (three of three)
INTERLAKE-EASTERN REGIONAL HEALTH AUTHORITY Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

IEHA- FORECAST by RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)																		
BASE CASE SCENARIO																		
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19			
	HEALTH SYSTEM PLANNING RELATED VARIABLES																	
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)			
Adolescent Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Developmental Pediatrics	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Medical Genetics	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatric Anesthesiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatric Cardiac Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatric Cardiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatric Clinical Immunology and Allergy	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00			0.00	0.00	0.00			
Pediatric Critical Care Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00			0.00	0.00	0.00			
Pediatric Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00			0.00	0.00	0.00			
Pediatric Endocrinology and Metabolism	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatric Gastroenterology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatric Hematology/Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatric Infectious Diseases	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatric Nephrology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatric Neurology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatric Orthopedic Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatric Radiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatric Respiriology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatric Rheumatology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatric Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Pediatrics	1.00	1.44	4.14	5.14	0.55	1.21	6.90			(1.1)			0.00	(1.1)	5.76			
Pediatric Total	1.00	5.08	4.14	5.14	0.55	1.21	6.90	0.00	0.00	(1.1)	0.00	0.00	(1.1)	5.76	4.76			
Child and Adolescent Psychiatry	0.62	0.50	1.37	1.99	0.21	0.47	2.68						0.00	0.00	2.68			
Forensic Psychiatry	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Geriatric Psychiatry	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Psychiatry	2.36	1.82	8.95	11.31	1.22	2.66	15.19			(0.1)	(6.7)		0.00	(6.8)	8.35			
Psychiatry Total	2.98	2.32	10.33	13.31	1.43	3.12	17.87	0.00	0.00	(0.1)	(6.7)	0.00	(6.8)	11.03	8.05			
Anesthesiology	2.08	1.20	(2.1)	0.00	0.00	0.00	0.00			6.62			0.00	6.62	4.54			
Cardiac Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Colorectal Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
General Surgery	2.02	1.72	(2.0)	0.00	0.00	0.00	0.00			8.65			0.00	8.65	6.62			
General Surgical Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Neurosurgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Ophthalmology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Orthopedic Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Otolaryngology - Head and Neck Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Plastic Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Thoracic Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Urology	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00	0.00	0.00			
Vascular Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Surgical Total	4.10	2.92	(4.1)	0.00	0.00	0.00	0.00	0.00	0.00	15.27	0.00	0.00	15.27	15.27	11.16			
TOTAL	72.17	56.19	25.22	97.39	10.47	9.85	117.71	8.67	5.68	16.15	(5.0)	0.00	25.46	143.17	70.99			
% Change per Annum		7.79%	3.49%		1.45%	1.36%		1.2%	#####	2.24%	(0.70%)	0.00%	3.53%		9.84%			

Exhibit A-08 (one of three)
NORTHERN REGIONAL HEALTH AUTHORITY Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

NRHA- FORECAST by RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)																		
BASE CASE SCENARIO																		
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19			
	HEALTH SYSTEM PLANNING RELATED VARIABLES																	
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ /(-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ /(-) Change in Population	+ /(-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)			
Anatomical Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00			
Diagnostic Radiology	1.09	0.84	2.50	3.58	0.38	4.65	8.61						(3.6)	4.97	3.88			
Forensic Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00			
General Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Hematological Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Interventional Radiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Medical Biochemistry	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Medical Microbiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00				0.00	0.00	0.00			
Neuropathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Neuroradiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Nuclear Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00			
Radiation Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00			
Transfusion Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Diagnostic/Therapeutic Total	1.09	0.84	2.50	3.58	0.38	4.65	8.61	0.00	0.00	(3.6)	0.00	0.00	(3.6)	4.97	3.88			
Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (EM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00		22.61				22.61	22.61	22.61			
General Practice (EM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Emergency Medicine Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.61	0.00	0.00	0.00	22.61	22.61	22.61			
Family Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
General Practice	45.43	26.79	0.00	45.43	0.00	0.00	45.43	(5.1)					(5.1)	40.32	(5.1)			
Family Medicine (SI)-Addiction Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Child and Adolescent	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Chronic Pain	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Developmental Disabi	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Enhanced Skills Surger	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Family Practice Anesth	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Family Practice Canc	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Global Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Health Care of the Eld	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Hospital Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Maternity and Newbo	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Mental Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.77		0.77	0.77	0.77			
Family Medicine (SI)-Occupational Medicin	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Palliative Care	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Prison Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Respiratory Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Medicine (SI)-Sport and Exercise Me	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00			
Family Practice Total	45.43	26.79	0.00	45.43	0.00	0.00	45.43	(5.1)	0.00	0.00	0.77	0.00	(4.3)	41.08	(4.3)			

Exhibit A-08 (two of three)
NORTHERN REGIONAL HEALTH AUTHORITY Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

NRHA- FORECAST by RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)															
BASE CASE SCENARIO															
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19
HEALTH SYSTEM PLANNING RELATED VARIABLES															
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ /(-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ /(-) Change in Population	+ /(-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)
Cardiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Clinical Immunology and Allergy	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Clinical Pharmacology and Toxicology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Critical Care Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Dermatology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Endocrinology and Metabolism	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Gastroenterology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
General Internal Medicine (GIM)	2.36	0.54	2.14	4.50	0.47	5.85	10.82			(4.9)		0.00	(4.9)	5.97	3.61
Geriatric Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Hematology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Infectious Diseases	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Internal Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Medical Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Nephrology	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00	0.00	0.00
Neurology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Occupational Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pain Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Physical Medicine and Rehabilitation	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Public Health & Preventative Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Respirology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Rheumatology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Medical Total	2.36	0.54	2.14	4.50	0.47	5.85	10.82	0.00	0.00	(4.9)	0.00	0.00	(4.9)	5.97	3.61
Gynecologic Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Gynecologic Reproductive Endocrinology &	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Maternal-Fetal Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Neonatal-Perinatal Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Obstetrics and Gynecology	3.63	1.94	(1.6)	2.04	0.22	2.65	4.91			(1.1)		0.00	(1.1)	3.82	0.19
Obstetrics and Gynecology Total	3.63	1.94	(1.6)	2.04	0.22	2.65	4.91	0.00	0.00	(1.1)	0.00	0.00	(1.1)	3.82	0.19

Exhibit A-08 (three of three)
NORTHERN REGIONAL HEALTH AUTHORITY Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

NRHA- FORECAST by RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)																
BASE CASE SCENARIO																
	1	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
	HEALTH SYSTEM PLANNING RELATED VARIABLES															
Specialty	BASE YEAR FTE - 2014/15	SUBTOTAL: Replacement Needs	+ /(-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ /(-) Change in Population	+ /(-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)	
Adolescent Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Developmental Pediatrics	1.00	0.49	(1.0)	0.00	0.00	0.00	0.00						0.00	0.00	(1.0)	
Medical Genetics	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Anesthesiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Cardiac Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Cardiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Clinical Immunology and Allergy	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00			0.00	0.00	0.00	
Pediatric Critical Care Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00			0.00	0.00	0.00	
Pediatric Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00			0.00	0.00	0.00	
Pediatric Endocrinology and Metabolism	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Gastroenterology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Hematology/Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Infectious Diseases	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Nephrology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Neurology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Orthopedic Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Radiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Respiriology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Rheumatology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatric Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Pediatrics	1.94	0.74	3.21	5.15	0.54	6.69	12.38			(6.6)			(6.6)	5.76	3.83	
Pediatric Total	2.94	4.87	2.21	5.15	0.54	6.69	12.38	0.00	0.00	(6.6)	0.00		(6.6)	5.76	2.83	
Child and Adolescent Psychiatry	0.00	0.00	2.00	2.00	0.21	2.60	4.81						0.00	4.81	4.81	
Forensic Psychiatry	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Geriatric Psychiatry	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Psychiatry	2.67	2.15	4.09	6.75	0.71	8.77	16.23			(7.3)	(3.1)		(10.4)	5.86	3.20	
Psychiatry Total	2.67	2.15	6.08	8.75	0.92	11.36	21.04	0.00	0.00	(7.3)	(3.1)	0.00	(10.4)	10.67	8.00	
Anesthesiology	2.25	0.79	(2.3)	0.00	0.00	0.00	0.00			3.92			3.92	3.92	1.67	
Cardiac Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Colorectal Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
General Surgery	2.38	3.56	(2.4)	0.00	0.00	0.00	0.00			5.12			5.12	5.12	2.74	
General Surgical Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Neurosurgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Ophthalmology	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Orthopedic Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Otolaryngology - Head and Neck Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Plastic Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Thoracic Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Urology	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00	0.00	0.00	
Vascular Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	
Surgical Total	4.64	4.35	(4.6)	0.00	0.00	0.00	0.00	0.00	0.00	9.04	0.00		9.04	9.04	4.41	
TOTAL	62.75	41.48	6.71	69.46	2.53	31.20	103.19	(5.1)	22.61	(14.5)	(2.3)	0.00	0.73	103.93	41.18	
% Change per Annum		6.61%	1.07%		0.40%	4.97%		(0.8%)	3.60%	(2.31%)	(0.37%)	0.00%	0.12%		6.56%	

Exhibit A-09 (one of three)
SOUTHERN HEALTH - SANTÉ SUD Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

SRHA- FORECAST by RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)

BASE CASE SCENARIO																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	WORKFORCE RESOURCE VARIABLES					HEALTH SYSTEM PLANNING RELATED VARIABLES													
Specialty	BASE YEAR FTE - 2014/15	+ / (-) NIPM & RFA	+ / (-) Aging Adjustment	+ / (-) Death Rate Adjustment	+ / (-) Gender Adjustment	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Care Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)
Anatomical Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Diagnostic Radiology	4.43	1.01	1.70	0.09	0.08	2.88	4.73	9.16	1.90	(1.5)	9.59			4.29			4.29	13.88	9.45
Forensic Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
General Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Hematological Pathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Interventional Radiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Medical Biochemistry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Medical Microbiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00				0.00	0.00	0.00
Neuropathology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Neuroradiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Nuclear Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Radiation Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Transfusion Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Diagnostic/Therapeutic Total	4.43	1.01	1.70	0.09	0.08	2.88	4.73	9.16	1.90	(1.5)	9.59	0.00	0.00	4.29	0.00	0.00	4.29	13.88	9.45
Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (EM)	4.84	1.21	2.30	0.38	(0.9)	3.01	0.00	4.84	1.00	(0.8)	5.06		28.94				28.94	34.00	29.16
General Practice (EM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Emergency Medicine Total	4.84	1.21	2.30	0.38	(0.9)	3.01	0.00	4.84	1.00	(0.8)	5.06	0.00	28.94	0.00	0.00	0.00	28.94	34.00	29.16
Family Medicine	1.00	0.20	1.13	0.02	0.00	1.35	0.00	1.00	0.00	0.00	1.00						0.00	1.00	0.00
General Practice	116.11	24.11	40.71	4.39	10.40	79.61	0.00	116.11	0.00	0.00	116.11	(18.2)					(18.2)	97.87	(18.2)
Family Medicine (SI)-Addiction Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Child and Adolescent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Chronic Pain	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Developmental Disab	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Enhanced Skills Surger	4.38	1.01	3.36	0.26	(0.4)	4.26	0.00	4.38	0.91	(0.7)	4.58						0.00	4.58	0.20
Family Medicine (SI)-Family Practice Anest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Family Practice Cance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Global Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Health Care of the Eld	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Hospital Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Maternity and Newbo	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Mental Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				3.01		3.01	3.01	3.01
Family Medicine (SI)-Occupational Medicin	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Palliative Care	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Prison Health	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Respiratory Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Medicine (SI)-Sport and Exercise Me	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00
Family Practice Total	121.49	25.32	45.20	4.67	10.04	85.22	0.00	121.49	0.91	(0.7)	121.70	(18.2)	0.00	0.00	3.01	0.00	(15.2)	106.46	(15.0)

Exhibit A-09 (two of three)
SOUTHERN HEALTH - SANTÉ SUD Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

SRHA- FORECAST by RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)

BASE CASE SCENARIO																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
	WORKFORCE RESOURCE VARIABLES					HEALTH SYSTEM PLANNING RELATED VARIABLES														
Specialty	BASE YEAR FTE - 2014/15	+ / (-) NIPM & RFA	+ / (-) Aging Adjustment	+ / (-) Death Rate Adjustment	+ / (-) Gender Adjustment	SUBTOTAL: Replacement Needs	+ / (-) Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+ / (-) Change in Population	+ / (-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs	SUBTOTAL: MOC's	TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)	
Cardiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Clinical Immunology and Allergy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Clinical Pharmacology and Toxicology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Critical Care Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Dermatology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Endocrinology and Metabolism	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Gastroenterology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
General Internal Medicine (GIM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.52	11.52	2.39	(1.9)	12.05			4.63		0.00	4.63	16.69	16.69
Geriatric Medicine	0.64	0.08	0.07	0.01	0.30	0.46	(0.6)	0.00	0.00	0.00	0.00						0.00	0.00	0.00	(0.6)
Hematology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Infectious Diseases	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Internal Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Medical Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Nephrology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00	0.00	0.00	0.00
Neurology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Occupational Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Pain Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Physical Medicine and Rehabilitation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Public Health & Preventative Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Respirology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Rheumatology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Medical Total	0.64	0.08	0.07	0.01	0.30	0.46	10.87	11.52	2.39	(1.9)	12.05	0.00	0.00	4.63	0.00	0.00	4.63	16.69	16.04	16.04
Gynecologic Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Gynecologic Reproductive Endocrinology & Infertility	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Maternal-Fetal Medicine	0.24	0.01	0.03	0.00	0.19	0.23	(0.2)	0.00	0.00	0.00	0.00						0.00	0.00	0.00	(0.2)
Neonatal-Perinatal Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.00
Obstetrics and Gynecology	0.78	0.12	0.12	0.02	0.25	0.51	4.44	5.22	1.08	(0.8)	5.47			5.20			0.00	5.20	10.66	9.88
Obstetrics and Gynecology Total	1.02	0.14	0.15	0.02	0.44	0.74	4.20	5.22	1.08	(0.8)	5.47	0.00	0.00	5.20	0.00	0.00	5.20	10.66	9.64	9.64

Exhibit A-09 (three of three)
SOUTHERN HEALTH - SANTÉ SUD Detailed BASE Case Scenario 2015-2016 to 2024-2025
 (See 9.3 for Interpretation Key)

SRHA- FORECAST by RHA, Base Year 2014/15, Forecast Years 2015/16 (F1) - 2024/25 (F10)																			
BASE CASE SCENARIO																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Specialty	BASE YEAR FTE - 2014/15	WORKFORCE RESOURCE VARIABLES				HEALTH SYSTEM PLANNING RELATED VARIABLES											TOTAL FTE - 2024/25 (Col 11+16)	CHANGE IN FTE 2014/15 to 2024/25 (Col 17 (-) Col 1)	
		+/- NPM & RFA	+/- Aging Adjustment	+/- Death Rate Adjustment	+/- Gender Adjustment	SUB TOTAL: Replacement Needs	+/- Benchmark	ADJUSTED FTE April 1, 2015 (Col 1+Col 7)	+/- Change in Population	+/- Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Emergency Physician Services	MOC - Specialty Core Services	MOC - Physician Extenders	MOC - Provincial Programs			SUBTOTAL: MOC's
Adolescent Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Developmental Pediatrics	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Medical Genetics	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Anesthesiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Cardiac Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Cardiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Clinical Immunology and Allergy	0.00	0.33	2.77	0.18	0.35	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Critical Care Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Emergency Medicine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Endocrinology and Metabolism	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Gastroenterology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Hematology/Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Infectious Diseases	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Nephrology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Neurology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Orthopedic Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Radiology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Respiriology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Rheumatology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatric Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Pediatrics	1.23	0.31	0.15	0.04	(0.2)	0.26	9.33	10.56	2.19	(1.7)	11.05				2.67	0.00	2.67	13.72	12.49
Pediatric Total	1.23	0.64	2.92	0.22	0.12	3.90	9.33	10.56	2.19	(1.7)	11.05	0.00	0.00	2.67	0.00	0.00	2.67	13.72	12.49
Child and Adolescent Psychiatry	0.00	0.00	0.00	0.00	0.00	0.00	4.10	4.10	0.85	(0.7)	4.29					0.00	0.00	4.29	4.29
Forensic Psychiatry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Geriatric Psychiatry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Psychiatry	1.21	0.30	1.57	0.04	0.00	1.91	16.06	17.27	3.58	(2.8)	18.07				6.86	(12.0)	(5.2)	12.89	11.69
Psychiatry Total	1.21	0.30	1.57	0.04	0.00	1.91	20.16	21.37	4.43	(3.4)	22.36	0.00	0.00	6.86	(12.0)	0.00	(5.2)	17.18	15.97
Anesthesiology	2.47	0.43	2.84	0.06	0.00	3.33	(2.5)	0.00	0.00	0.00	0.00				10.96	0.00	10.96	10.96	8.49
Cardiac Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Colorectal Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
General Surgery	6.49	1.43	3.74	0.26	1.54	6.98	(6.5)	0.00	0.00	0.00	0.00				14.31	0.00	14.31	14.31	7.81
General Surgical Oncology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Neurosurgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Ophthalmology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Orthopedic Surgery	3.61	0.89	0.46	0.12	(0.6)	0.91	(3.6)	0.00	0.00	0.00	0.00					0.00	0.00	0.00	(3.6)
Otolaryngology - Head and Neck Surgery	1.12	0.25	0.06	0.02	(0.0)	0.31	(1.1)	0.00	0.00	0.00	0.00					0.00	0.00	0.00	(1.1)
Plastic Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Thoracic Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Urology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Vascular Surgery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
Surgical Total	13.69	3.00	7.11	0.46	0.95	11.53	(13.7)	0.00	0.00	0.00	0.00	0.00	0.00	25.27	0.00	0.00	25.27	25.27	11.58
TOTAL	148.55	31.70	61.02	5.90	11.05	109.66	35.60	184.16	13.91	(10.8)	187.28	(18.2)	28.94	48.92	(9.0)	0.00	50.58	237.86	89.31
% Change per Annum						7.38%	2.40%		0.94%	(0.73%)		(1.2%)	1.95%	3.29%	(0.61%)	0.00%	3.40%		6.01%

A.3 Acronyms and Initialisms

Refer to Environmental Scan

A.4 Committees

Refer to Environmental Scan

A.5 Data Compendium

Refer to Environmental Scan