AHS Physician Workforce Plan and Forecast

2018-2028

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Executive Summary

As the largest recruiter of physicians in the province, Alberta Health Services' (AHS) 2018 physician workforce plan and forecast projects that over the next three years 690 new specialist FTEs and 175 new family physicians, or an average of around 290 net new physicians per year are required to account for population growth, service delivery changes and current workforce shortfalls[1]. These needs, which include agreed recruitment in the Academic Medicine Health Services Plans as at March 31, 2018, indicate that planning and understanding physician workforce needs and related AHS service delivery requirements is critical, particularly in light of initiatives to manage the physician workforce in the province.

This understanding of short-term needs will provide context for identifying the mid-and longer term specialist physician workforce needs and trends in Alberta, while highlighting the need for a data-driven mechanism for forecasting family physician requirements.

Looking at the forecast to 2028, however, there is an average 3.8% increase per year in the number of FTEs required. While this may seem excessive on the surface, it accounts for both population growth and the increased burden of disease in an aging population; aside from adjustments made by medical leaders, it does not contemplate changes in service delivery models that may impact the need for physician services. The short term forecasts also take into account adjustments by medical leaders to account for part time individuals in their workforce, meaning that the true current workforce is about 70 FTE greater than the opening balance indicates. This, in addition to planned service changes and system capacity changes such as new facilities or facility expansion is reflected in medical leaders' adjustments to the forecast, which are based on their systems knowledge, including changes in care provision, anticipated changes in facility capacity, new programs, and so on. These adjustments bring current health system realities and upcoming changes into the mathematical model and allow for direct connection between the forecast and current health system planning as it affects physician resource requirements. These forecasts will assist the provincial Physician Resource Planning Advisory Committee in determining strategies for managing physician resources while maintaining needed services.

The family physician workforce over the same three years shows a similar increase, although challenges remain in North, Central and, to a lesser extent, South Zones as illustrated in their higher relative replacement recruitment requirement in comparison with other zones. This speaks to challenges in both physician distribution as well as retention that it is hoped will be addressed by work of the Physician Resource Planning Advisory Committee to the Minister of Health.

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[1] This estimate uses both FTEs (specialists) and headcount (family physicians) as mechanisms to consider future need, recognizing that headcount projections may underestimate need when one individual works less than 1 FTE. Readers are reminded that, particularly in Edmonton and Calgary, specialists may have academic and administrative obligations that result in 1 individual working less than 1 FTE.

The budgetary implications of this number of new physicians must be carefully considered. There are opportunities for changes in payment models to incent different models of care, and consider different provider models, and these projections may assist in that exploration.

Some of this exploration may be driven by physician workforce demographics. As new graduates join the workforce, they may desire different models of practice, and may see different ways of delivering patient care. This, in combination with initiatives to change physician payment models may provide an impetus to needed change to manage physician payment budgets.

Although the current physician population is predominantly male that is changing; younger physicians also tend to work fewer hours per week than their older colleagues, meaning that the gap between headcount and FTE commitment to work will increase. This reality may also help to influence different models of care provision.

Over time, the increases in number of physicians may prove to be a budgetary challenge for government and AHS. Greater attention to care provision and infrastructure requirements is needed to determine best use is being made of existing and future resources.

Defining and determining physician full-time equivalents (FTEs) for both family and specialist physicians will require concentrated work at the provincial level by the various stakeholder organizations to develop reasonable assessments and definitions of physician work commitments and determine how they can be practically applied in understanding current and forecast work requirements. At this time, FTEs are defined individually by AHS clinical department, meaning there is variation across the province, and inconsistency between AHS and community work commitment definitions. While it may be appropriate to have different definitions and approaches across the specialties and between specialists and family physicians, without further study it is not possible to state this clearly. Further work in this area will be required in order to better understand and quantify physician work commitments and how to express them as FTEs. In the meantime, AHS will continue to use definitions as developed by its various clinical departments.

AHS physician workforce planning processes and information have improved over the past 3 years, and will continue to do so. At the same time, Medical leaders' participation in and understanding of the work has increased, leading to greater accuracy in the forecasts. Together these improvements are reflected in the more robust forecast and analysis contained in the following report.

Chapter 1. Introduction

1.1 Background and Overview

Alberta Health Services (AHS) is committed to delivering high-quality, sustainable health care that meets the current and future health needs of Albertans. The increasing health needs of an aging and more diverse population and current economic challenges require new and different approaches to delivering health care and promoting wellness and community-based care will result in better health outcomes and more positive experiences for patients. Keeping patients out of hospital and acute care services means these resources will be more accessible for Albertans who truly need them and improve the financial sustainability of Alberta's healthcare system[2]. These initiatives are aligned with government vision and AHS commitment to moving more patient care into the community and out of high cost acute care facilities.

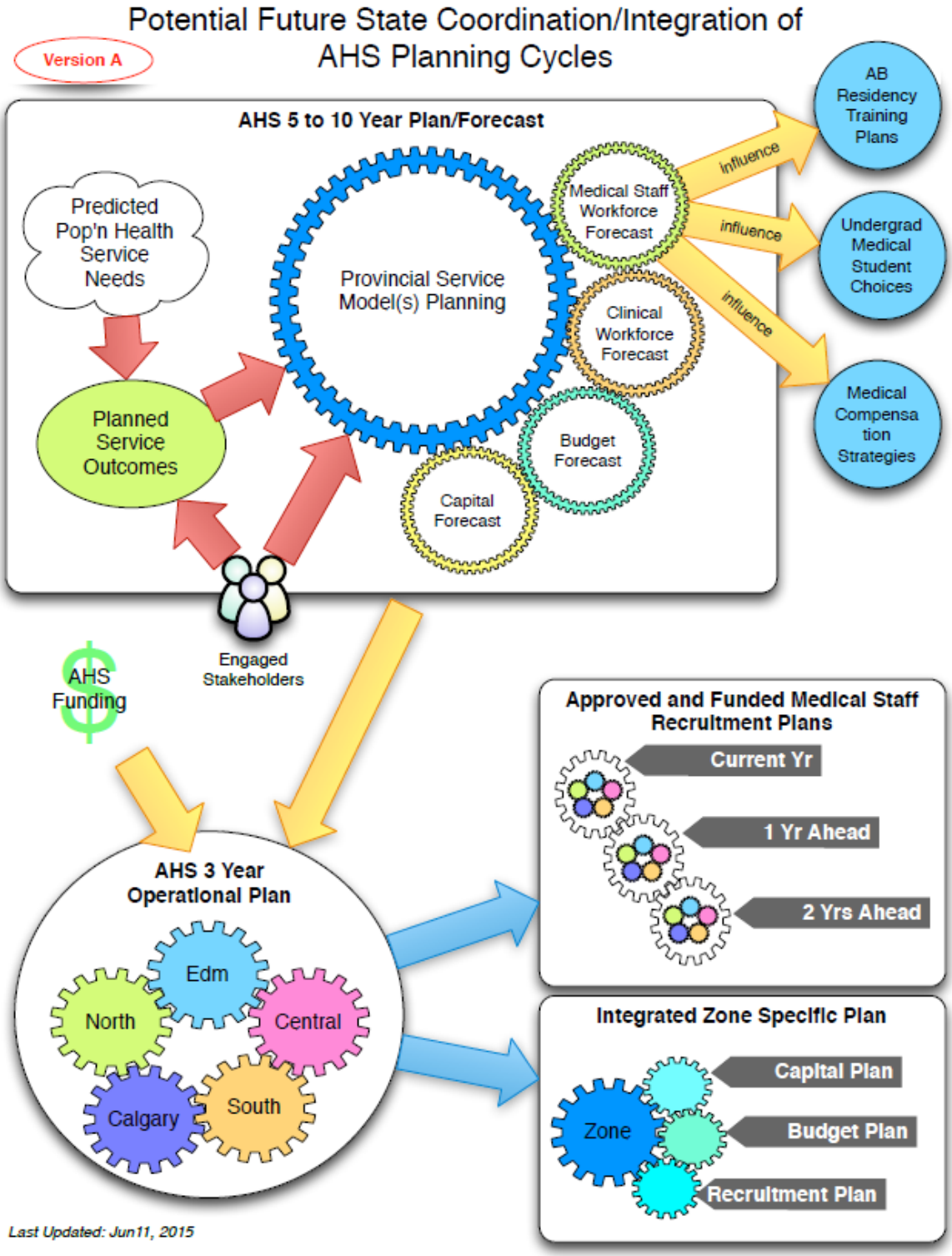
The Chief Medical Officer portfolio contributed to supporting AHS in meeting its vision and goals by producing an annual, sustainable physician workforce plan and forecast report. This report both supports and is influenced by:

- Alignment with overall AHS clinical and non-clinical human resource planning
- Provincial planning with respect to the overall physician workforce in Alberta, particularly through the Physician Resource Planning Advisory Committee (PRPAC)
- Health facility capital and AHS service delivery planning
- Alberta Undergraduate and postgraduate medical residency training plans
- Undergraduate medical student and postgraduate medical resident choices

See figure 1 for more information about a potential future state coordination/integration of AHS planning cycles.

[2] The 2017-2020 Alberta Health Services Health Plan and Business Plan.

Figure 1: Potential Future Planning Cycles



In developing a physician workforce plan, AHS is mindful of the following guiding principles from the Minister of Health's Physician Resource Planning Advisory Committee (PRPAC) which includes representation from the Faculties of Medicine, the Professional Association of Physician Residents of Alberta (PARA), and Medical Students' Associations:

1. **Population Needs Based Plan –** We conduct physician resource planning to meet Albertans' health needs, including health promotion and disease prevention.
2. **Social Responsibility -** We strive to get physicians where they are most needed by ensuring we have the right number, distribution, and mix of physicians providing quality care. This includes aligning medical education and training with physician resource planning.
3. **Measurement and Performance -** We will develop and use a measurement and evaluation framework, including performance indicators, to determine the effectiveness of physician resource planning and support continuous improvement.
4. **Stewardship-** We will be responsible stewards of public resources by taking into account the affordability and fiscal sustainability of the health care system to ensure Albertans have access to the appropriate supply and distribution of health care providers.
5. **Consultation and Engagement-** We will partner and collaborate with key stakeholders through active engagement.
6. **Strategic Alignment-** We will align with health care system priorities and initiatives that may address provincial physician distribution and supply.
7. **Transparency and Accountability-** We will adopt a culture of accountability by communicating findings, evidence, and knowledge openly and transparently, and each stakeholder will take responsibility in proportion to their influence in the implementation of the Plan.

This report's key objectives are to:

- Consider needs and project AHS physician resource requirements;
- Meet the information needs of various stakeholders;
- Foster greater collaboration and sharing of information within AHS and with external partners, including Alberta Health, the Faculties of Medicine, College of Physicians and Surgeons of Alberta and Alberta Medical Association; and
- Guide and stimulate thinking about trends and developments in physician workforce and how they will both influence and be influenced by health system planning, forecasting and trends, including those of other health professions.

1.2 Building a sustainable physician workforce

Developing the AHS physician workforce plan is a complex process. It requires ability to maintain awareness of short term needs and realities while taking a long-term outlook. It requires significant collaboration and support from partners, including Faculties of Medicine, Covenant Health, and Zone medical leaders as well as guidance from a variety of stakeholders through various committees such as the Provincial Physician Resource Planning Advisory Committee (PRPAC), AHS' Provincial Practitioner Executive Committee (PPEC), and the PPEC Workforce Planning Subcommittee. Their input is required to ensure the plan and forecast need remain relevant and appropriate and are aligned with the goals and direction of AHS and the Government of Alberta.

The plan's projections are based on assumptions regarding key determinants of population health need, current workforce, retirements and departures from AHS, gender mix, service delivery methods and volumes, and AHS and Covenant Health facility capacity. It also considers anticipated supply of physicians, based on current medical school and residency program enrollment across Canada. Together, these inputs shape a forecast of workforce needs to support organizational strategy and goals (quality, patient-centered, economically sustainable care).

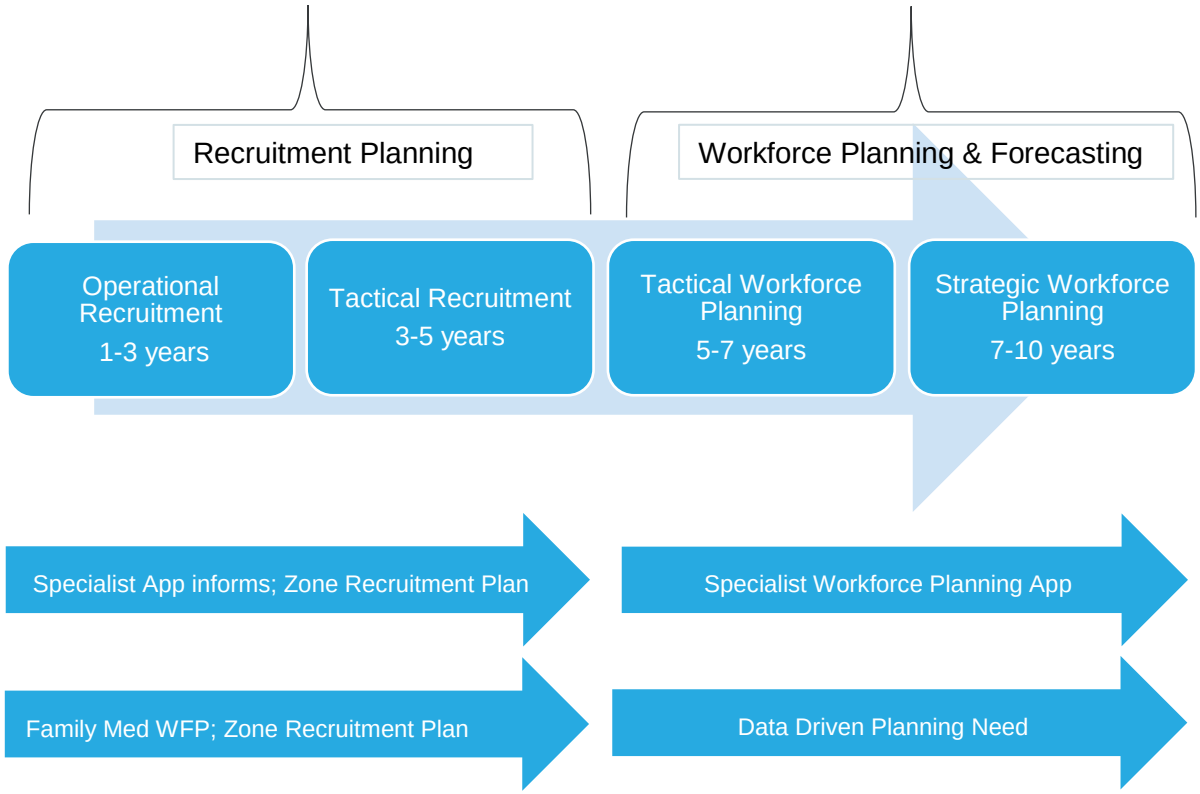
The short-term information focuses on a three-year interval and supports understanding of AHS operational recruitment needs. Intermediate forecasts assist in understanding where future recruitment needs may be and where building awareness of AHS as a recruiting organization is needed, while longer term specialist workforce planning and forecasting assists with understanding trends and anticipated need to support strategic conversations with partners such as Alberta Health and the Faculties of Medicine (see figure 2).

The combined focus on population health needs using past experience as an indicator, physician resource requirements and service delivery plans helps the five AHS zones, Cancer Care Alberta (CCA) and the Provincial Department of Public Health with workforce planning, and provides a foundation for AHS input to provincial physician resource planning initiatives led by the Minister's Physician Resource Planning Advisory Committee (PRPAC).

The 2018 AHS physician workforce planning report has been developed using data and information compiled through internal sources and a specialist Physician Workforce Planning (sPWP) software application (for more information see Appendix A).

Additional data has been collected from the College of Physicians & Surgeons of Alberta (CPSA), the Alberta Health Interactive Health Data Application (IHDA), and the Canadian Institute for Health Information (CIHI).

Figure 2: **Recruitment planning versus workforce planning and forecasting**



Chapter 2. Forecasting Models and Analysis

2.1 Specialist physicians: Trends and Issues

Specialist physician workforce forecasting is supported by a purpose-built software application, however, input from medical leaders is crucial in developing an appropriate forecast that considers AHS current and future service delivery plans.

The specialist Physician Workforce Planning (sPWP) software application provides a data driven platform and generates standardized forecast reports using regression analysis of 10 years' data to predict future need for specialist physicians in FTEs based on past health system utilization experience in Alberta. Medical leader input regarding required adjustments due to health system, service delivery, facility capacity or changing burden of disease in a population and physicians' work commitment in FTEs is a critical part of building a forecast. The context and knowledge Medical Leaders provide results in a more robust plan and forecast that is reflective of current knowledge of health systems trends, anticipated service delivery trends and changes and upcoming changes in facility and infrastructure capacity such as new hospitals or additional bed capacity.

Using this adjusted information in combination with programmed estimates based on trends in the specialist physician workforce (e.g. work commitment of physicians approaching retirement age of 65, entrance of new Canadian graduates to the physician workforce, estimated retirement at age 65), the software application calculates by zone and specialty a 10 year forecast of clinical FTE requirements.

> The data from the application is organized by Royal College of Physicians and Surgeons specialty, not by AHS departments/section based; this means more than one specialty can exist within a department and some departments will receive more than one forecast report. Not all zones have the same mix of specialties within departments of the same name.

The results of these informed forecasts are presented in tables 1, 2 and 3. For more information about the specialist workforce forecasting software application, factors impacting forecasting calculations, the drivers and guiding principles, see Appendix A.

2.1.1 Specialist Physician Workforce Data 2018 – 2028

The provincial analysis is based on consolidated specialist physician forecasts informed by input from medical leaders from all zones as well as Cancer Care Alberta. Unless otherwise noted, all data is as at March 30, 2018. Where necessary, adjustments in these forecasts are made to account for changes in service delivery models and other factors. See Appendix E for more information about the consolidated specialist physician forecast data per zone; how to interpret the outcome; and trends affecting the physician workforce per zone.

Current provincial specialist physician workforce 2018 versus 2017

Compared with last year, the specialist physician workforce clinical FTE appears 1% smaller. However, this is largely due to better data in two large groups in Edmonton Zone where they have refined the FTE data.

Specialist Physician workforce 2018 – 2028

The analysis in this section:

- Excludes family medicine physicians with special skills (e.g., obstetrics, surgery, and anesthesia) as there is not sufficiently detailed data to allow an in-depth look at specific areas of practice. A proposal has been made to add that group to the physician workforce forecasting software application and is under consideration through the multi-stakeholder provincial Physician Resource Planning Committee structure.
- Is focused on the provincial physician workforce. More information about trends and findings related to specific zones can be found in Appendix E.

The forecasting application assumes service delivery needs are being met by the current workforce. Users can adjust the requirement, based on consultation with medical leaders to account for anticipated changes in service delivery, facility and infrastructure capacity, or program services

The total provincial forecast FTE need in 2028 for all specialists shows an increase of 2% compared with last year's forecast for 2027, while, on average, workforce need increases by about 3.8% over the next 10 years, reflecting the projected increase in population, and the burden of caring for an aging population.

The causes of the increased need in future physician workforce vary by category; those with significant projected physician workforce increases are described in the remainder of this section.

Our analysis improves organizational and Medical Leaders' insight into short-, mid- and long- term physician resource challenges. Summary tables showing the projected workforce requirements at 3, 7 and 10 years can be found on pages 15, 16 and 17 of this document, and a more detailed table is included in Appendix E. Some considerations in interpreting the tables are:

- The data represent the clinical FTEs worked; research, academic administration and clinical teaching (other than at the bedside) are not included.
- The categories are logical groupings of specialties. For example, medicine includes subspecialties such as cardiology and nephrology as well as pain medicine. For more information about which specialties are included in the different categories, see Appendix F.
- Forecast adjustments are used to amend the initial application-calculated forecasts to account for changes such as introduction of a new service delivery model or to correct for changing facility capacity.
- Zone adjustments for specific groups and the rationale for those adjustments can be found in Appendix E.

Note: Any forecast adjustments apply only to AHS services and do not apply to community work commitments and requirements.

Table 1: **3 Year Forecast Results, by Category, 2017/18 to-2027/28 (Clinical FTE)**

Alberta	A	B		C	D	E		F	G		H
Category	Current Workforce	Unadjusted Forecast		Forecast Adjustments	Replacement - Physicians leaving the workforce	Net New Need - excluding Replacements (B + C)		Forecast Total FTE Recruitment (D+E)	Forecast Total Workforce (A+E)		Average Recruitment Need per year (F/3)
		After 3 yrs		After 3 yrs	After 3 yrs	After 3 yrs		After 3 yrs	After 3 yrs		
		Count	% Change	Count	Count	Count	% Change	Count	Count	% Change	
Anesthesiology	307.07	61.31	20%	9.95	20.59	71.26	23%	91.85	378.33	23%	30.62
Cancer	70.01	7.96	11%	19.80	9.44	27.76	40%	37.20	97.77	40%	12.40
Diagnostic Imaging	363.80	18.22	5%	16.58	34.87	34.80	10%	69.67	398.60	10%	23.22
Emergency Medicine	418.01	71.62	17%	35.00	12.42	106.62	26%	119.04	524.63	26%	39.68
Lab Medicine & Pathology	215.85	20.71	10%	6.85	29.29	27.56	13%	56.85	243.41	13%	18.95
Medicine	941.75	111.60	12%	57.01	105.10	168.61	18%	273.71	1,110.36	18%	91.24
Pediatrics	449.53	48.26	11%	3.52	55.31	51.78	12%	107.09	501.31	12%	35.70
Obstetrics& Gynecology	187.98	5.23	3%	17.65	20.36	22.88	12%	43.24	210.86	12%	14.41
Psychiatry	513.37	66.96	13%	22.10	71.19	89.06	17%	160.25	602.43	17%	53.42
Public Health	19.61	1.20	6%	9.70	2.03	10.90	56%	12.93	30.51	56%	4.31
Surgery	541.45	81.11	15%	(7.57)	63.03	73.54	14%	136.57	614.99	14%	45.52
Pediatric Surgery	21.59	5.39	25%	0.32	4.84	5.71	26%	10.55	27.30	26%	3.52
All categories	**4,050.02**	**499.57**	**12%**	**190.91**	**428.47**	**690.48**	**17%**	**1,118.95**	**4,740.50**	**17%**	**372.98**

Source: sPWP software application (as on April 30, 2018)
Notes:

1. After 3 years: shows the projected change from current fiscal year (2017/18) to fiscal year 2020/21.
2. % Change: Presents the proportional change compared with the current workforce, after 3 years.
3. Forecast Adjustments: Are made by Medical Leaders to account for adjustments, including physicians' supplementary work commitments outside their primary medical staff appointment, corrections for new service delivery models, limited facility corrections.

Table 2: **7 Year Forecast Results, by Category, 2017/18 to 2027/28 (Clinical FTE)**

Alberta	A	B		C	D	E		F	G		H
Category	Current Workforce	Unadjusted Forecast		Forecast Adjustments	Replacement - Physicians leaving the workforce	Net New Need - excluding Replacements (B + C)		Forecast Total FTE Recruitment (D+E)	Forecast Total Workforce (A+E)		Average Recruitment Need per year (F/7)
		After 7 yrs		After 7 yrs	After 7 yrs	After 7 yrs		After 7 yrs	After 7 yrs		
		Count	% Change	Count	Count	Count	% Change	Count	Count	% Change	
Anesthesiology	307.07	81.91	27%	3.95	64.24	85.86	28%	150.10	392.93	28%	21.44
Cancer	70.01	20.56	29%	19.80	21.19	40.36	58%	61.55	110.37	58%	8.79
Diagnostic Imaging	363.80	43.64	12%	21.71	83.15	65.35	18%	148.50	429.15	18%	21.21
Emergency Medicine	418.01	154.28	37%	35.00	54.20	189.28	45%	243.48	607.29	45%	34.78
Lab Medicine & Pathology	215.85	47.79	22%	6.85	69.20	54.64	25%	123.84	270.49	25%	17.69
Medicine	941.75	233.15	25%	57.01	256.20	290.16	31%	546.36	1,231.91	31%	78.05
Pediatrics	449.53	108.75	24%	3.52	118.48	112.27	25%	230.75	561.80	25%	32.96
Obstetrics& Gynecology	187.98	12.26	7%	17.65	45.06	29.91	16%	74.97	217.89	16%	10.71
Psychiatry	513.37	123.40	24%	26.10	158.10	149.50	29%	307.60	662.87	29%	43.94
Public Health	19.61	2.83	14%	9.70	4.04	12.53	64%	16.57	32.14	64%	2.37
Surgery	541.45	143.62	27%	(15.57)	148.39	128.05	24%	276.44	669.50	24%	39.49
Pediatric Surgery	21.59	7.93	37%	1.10	9.75	9.03	42%	18.78	30.62	42%	2.68
All categories	**4,050.02**	**980.12**	**24%**	**186.82**	**1,032.00**	**1,166.94**	**29%**	**2,198.94**	**5,216.96**	**29%**	**314.13**

Source: sPWP software application (as on April 30, 2018)

Notes:

1. After 7 years: shows the projected change from current fiscal year (2017/18) to fiscal year 2024/25.
2. % Change: Presents the proportional change compared with the current workforce, after 7 years.
3. Forecast Adjustments: Are made by Medical Leaders to account for adjustments, including physicians' supplementary work commitments outside their primary medical staff appointment, corrections for new service delivery models, limited facility corrections.

***Table 3*: 10 Year Forecast Results, by Category, 2017/18 to 2027/28 (Clinical FTE)**

Alberta	A	B		C	D	E		F	G		H
Category	Current Workforce	Unadjusted Forecast		Forecast Adjustments	Replacement - Physicians leaving the workforce	Net New Need - excluding Replacements (B + C)		Forecast Total FTE Recruitment (D+E)	Forecast Total Workforce (A+E)		Average Recruitment Need per year (F/10)
		After 10 yrs		After 10 yrs	After 10 yrs	After 10 yrs		After 10 yrs	After 10 yrs		
		Count	% Change	Count	Count	Count	% Change	Count	Count	% Change	
Anesthesiology	307.07	97.38	32%	(0.55)	102.93	96.83	32%	199.77	403.90	32%	19.98
Cancer	70.01	30.02	43%	19.80	32.57	49.82	71%	82.39	119.83	71%	8.24
Diagnostic Imaging	363.80	63.93	18%	21.71	122.11	85.64	24%	207.75	449.44	24%	20.78
Emergency Medicine	418.01	217.06	52%	35.00	94.02	252.06	60%	346.08	670.07	60%	34.61
Lab Medicine & Pathology	215.85	68.14	32%	6.85	98.97	74.99	35%	173.96	290.84	35%	17.40
Medicine	941.75	325.84	35%	57.01	375.08	382.85	41%	757.93	1,324.60	41%	75.79
Pediatrics	449.53	154.32	34%	3.52	170.43	157.84	35%	328.27	607.37	35%	32.83
Obstetrics& Gynecology	187.98	18.44	10%	17.65	64.77	36.09	19%	100.86	224.07	19%	10.09
Psychiatry	513.37	165.70	32%	26.10	214.81	191.80	37%	406.61	705.17	37%	40.66
Public Health	19.61	4.08	21%	9.70	6.51	13.78	70%	20.29	33.39	70%	2.03
Surgery	541.45	190.54	35%	(14.07)	227.30	176.47	33%	403.77	717.92	33%	40.38
Pediatric Surgery	21.59	9.82	45%	1.10	13.80	10.92	51%	24.72	32.51	51%	2.47
All categories	**4,050.02**	**1,345.27**	**33%**	**183.82**	**1,523.31**	**1,529.09**	**38%**	**3,052.40**	**5,579.11**	**38%**	**305.24**

Source: sPWP software application (as on April 30, 2018)

Notes:

1. After 10 years: shows the projected change from current fiscal year (2017/18) to fiscal year 2027/28.
2. % Change: Presents the proportional change compared with the current workforce, after 10 years.
3. Forecast Adjustments: Are made by Medical Leaders to account for adjustments, including physicians' supplementary work commitments outside their primary medical staff appointment, corrections for new service delivery models, limited facility corrections.
    a. Total adjustments made to include additional work commitments for all categories compared with the current workforce is an addition of 71.91 FTE. The current workforce including additional work commitments is 4,121.93 FTE. The group with the most additional work commitments is Emergency Medicine; this adjustment accounts for work by Family Medicine physicians who work in emergency rooms with full-time 24-hour coverage.
    b. Total adjustments to account for changes in system capacity - e.g. changes in service delivery models and enlarging or restricting capacity - for all categories is: 52.40 FTE

3-Year Forecast

Note: See 10 Year Forecast Outcome for more information about forecast adjustments.

The following categories show a high recruitment need for specialist physicians (column F) in the province and have short-term challenges within the next 3 years:
• **Anesthesiology**: around 90 FTE - driven by changes in population and service delivery model (70 FTE), and to a lesser extent by physicians leaving the workforce (20 FTE); Zone with highest risk: Edmonton • **Cancer:** *Medical Oncology* and *Radiation Oncology* have a forecast total FTE recruitment need after 3 years of around 40 FTE. This proportional increase of around 50% is due to aging and growing population, and changes in service delivery models, including additional capacity created by new facilities or services in Calgary, Grande Prairie and Lethbridge. • **Emergency Medicine:** 120 FTE **-** driven by increased population and forecast adjustments (107 FTE), as well as graduated reduction of work by physicians approaching the age of 65 and adjustments to account for changes in workforce -- gender balance and working fewer hours -- (13 FTE). Zone adjustments focused on accounting for work done by physicians with part-time work commitments in Emergency Medicine. While this adjustment is important, it also highlights the need to include family medicine in the forecasting application to better account for various areas of work. • **Medicine**: more than 270 FTE - due to increase in population health need and forecast adjustments (170 FTE) and to account for physicians leaving the workforce due to retirement (100 FTE). Primary reasons for forecast adjustments include: recognizing physicians' work commitments outside their usual specialty, adjusting the workforce to address wait times and new service delivery models. Examples of new service delivery models include expansion of geriatric services, new cardiac catheterization services in Central Zone and teledermatology service in Calgary Zone as well as additional capacity in the new Grande Prairie hospital to meet currently unmet need. • **Pediatric-Medicine:** around 110 FTE - due to high population health need and physicians retiring. Zone at risk: Central Zone: challenge to ensure that the service delivery model provided by their Pediatric Program in Red Deer remains sustainable for the future. • **Psychiatry:** more than 160 FTE – population health need and forecast adjustment (90 FTE), and anticipated physician retirement approaching the age of 65 is the foundation for this recruitment need (70 FTE). Adjustments were made to some forecasts to correct for higher future psychiatric service need than historical levels would predict. This need is linked to mental health and addictions challenges such as the opioid addiction crisis as well as specific zone based initiatives, including: North Zone's need for additional Child and Adolescent Psychiatry services for recovery and stabilization following the wildfires in Fort McMurray and to reduce wait times; Central Zone's significant and challenging deficit of 10-12 FTEs; Calgary Zone's increasing demand for court assessments from the Solicitor General and new inpatient forensic beds coming on stream – expected in 2020/21.

- **Public Health:** 13 FTE – primarily to account for current shortfall. These forecast adjustments will support Public Health's move to a better representation of the population-based service delivery requirements, including a greater focus on indigenous peoples' health.
- **Surgery:** 140 FTE - due to population health need (80 FTE) and surgeons reducing practice as they approach age 65 (60 FTE); Calgary has decreased their forecast as no increases in facility capacity are planned; Edmonton Zone made adjustments for Vascular Surgery to keep the current FTE over the 10 year span and indicates that Neurosurgery has a high recruitment need and is at risk; North Zone adjusted their forecast in preparation for the new hospital opening in Grande Prairie in 2019.

10-Year Forecast Outcome

Within each of the categories listed below, individual specialties will, to a greater or lesser extent, drive the forecast. A category's increased need for physicians is driven by population health need as well as adjustments made by the zones to account for service delivery changes, infrastructure or system capacity changes and so on. Replacement recruitment need is estimated based on current workforce age, but does not increase the forecast need.

Anesthesiology

The forecast projects an increase in their current workforce of just over 20% after a decade (from 307 FTE to 380 FTE) driven by changes in population health need, forecast adjustments and replacements to account for departures from practice through retirement, leaving the province, or reducing work commitment.

Zones adjusted their *Anesthesiology* to account for no anticipated change in system/facility Capacity (Calgary), preparation for expanded capacity with opening of a new facility (North Zone). In contrast with Calgary, Edmonton Zone has not adjusted their forecast as they have a current staffing shortfall. More information about individual zones' resource challenges can be found in Appendix E.

Diagnostic Imaging

Diagnostic Radiology shows a high recruitment need over 10 years; 35% of the physicians in this specialty group will leave or significantly reduce their practice as they move to retirement. South and North Zones have adjusted their forecasts to account for current workforce

shortfall; Calgary Zone has adjusted their forecast to account for the impact of the new Cancer Centre set to open in 2022 and to match their Department's own workforce projections.

Cancer

This category includes *Radiation Oncology* and *Medical Oncology*. *Pediatric Hematology/Oncology, Gynecologic Oncology*, and *General Surgical Oncology*, are included in other categories. Any contextual information about these specialties can be found in the relevant categories.

The 43% needs-based increase after 10 years reflects higher anticipated service requirement in Alberta's aging and growing population. In line with the AHS 2017-2020 Health Plan and Business Plan, Cancer Control Alberta (CCA) further adjusted their forecast to address their current resource gap, reduce wait times, and improve access. CCA has added an additional 13 clinical FTEs for the 2018-19 fiscal year in both *Radiation Oncology* (5 FTE) and *Medical Oncology* (8 FTE) to account for:

- expanding clinic capacity in Grande Prairie, Lethbridge, and Calgary;
- increased access to specific care models (such as radiation therapy treatment for curative and palliative care),
- extended clinical hours and surgical capacity to reduce wait times;
- better transition of care between tertiary cancer services and closer to home service in regional and community cancer centers.

This group's forecast also projects an almost 50% replacement of the current FTE complement due to anticipated retirements over the 10-year forecast period.

Emergency Medicine

This category includes *Emergency Medicine specialists*, *Family Medicine (CCFP-EM certificants)* and *Pediatric Emergency Medicine*.

Emergency Medicine is the only group where an exception has been made to include the proportional FTE for family physicians who work in an emergency room with 24-hour on-site coverage in this forecast group, in addition to Emergency Medicine specialists and Pediatric Emergency Medicine specialists.

The Emergency Medicine forecast shows an increase in their total workforce of 60% over the next 10 years based on projected population need in particular and forecast adjustments.

Zones have adjusted their forecasts to account for work done by physicians with part-time work commitments in Emergency Medicine (28 FTEs). While this adjustment is important, it also highlights the need to include family medicine in the forecasting application to better account for various areas of work.

Lab Medicine & Pathology

This category has a high recruitment need, with the primary driver linked to physician retirement and reducing practice as they approach 65. Averaged over the initial three years of the forecast, just under 20 new laboratory medicine specialists need to be recruited per year. The recruitment need to fill vacancies caused by attrition is not acute in the short term, but becomes more of a challenge in the longer-term. Over 10 years, the replacement need to fill vacancies for physicians reaching the age of 65 is around 100 FTE.

Medicine

Medical specialties as a group see an approximately 40% forecast increase in their total workforce compared with their current workforce FTEs at the end of 10 years, due to population health needs and attrition. The replacement need is primarily due to physicians approaching retirement with some adjustments for physicians leaving the province.

Population health need is the impetus for the increase in recruitment need for *Critical Care Medicine, Dermatology, Internal Medicine,* and *Respirology. Cardiology, Neurology,* and *Rheumatology* have a high recruitment need which is mainly age related. *Gastroenterology* has a high recruitment need after 10 years which is driven by population changes as well as physicians approaching the age of 65.

Recognizing physicians' work commitments outside their usual specialty, adjusting workforce to address wait times and new service delivery models are the primary reasons for forecast adjustments. In total, around 26 FTEs are added to anticipate on changes in service delivery models and enlarging capacity, including new service delivery models for Geriatric Medicine, and Infectious Diseases in South Zone, expansion of geriatric services and new cardiac catheterization services in Central Zone and teledermatology service in Calgary Zone, as well as the additional capacity created by the new Grande Prairie hospital to meet unfulfilled need. Furthermore, around 22 FTEs are added to account for a shortfall in the current workforce; South Zone in particular has resource challenges in Cardiology, General Internal Medicine, Infectious Diseases, Hematology, Nephrology, Neurology, and Rheumatology.

Pediatric-Medicine

After 10 years, Pediatrics as a group sees a total recruitment need of around 330 FTE because of population health needs (160 FTE) and reduction in work commitments and/or retirements as individuals approach age 65 (170FTE). Additionally, the Pediatric Program in Red

Deer (Central Zone) remains a high priority for recruitment and program development. To ensure that the service delivery model provided by this program remains sustainable for the future, recruiting multi-skilled pediatric specialists (combined Pediatric/NICU skills) is required. In the North Zone, the new hospital in Grande Prairie will require additional pediatrics recruitment to meet service obligations. South Zone continues to have a shortfall in their current Pediatrics workforce.

Psychiatry

As a group, psychiatry has a high FTE recruitment need after 10 years – around 405 FTE – which is driven by the population need and forecast adjustments (190 FTE), as well as the need to replace retiring physicians (215 FTE).

Adjustments were made to some forecasts to correct for higher service need than historical levels would predict. This need is linked to mental health and addictions challenges such as the opioid addiction crisis as well as specific zone based initiatives, including: North Zone's need for additional Child and Adolescent Psychiatry services for recovery and stabilization following the wildfires in Fort McMurray and to reduce wait times; Central Zone's significant and challenging deficit in psychiatry and estimated need for 10 to 20 more psychiatrist FTEs in the coming years; South Zone's current shortfall in Child and Adolescent Psychiatry. Calgary Zone has corrected the forecast for *Forensic Psychiatry* to account for increasing demand for court assessments from the Solicitor General and new inpatient forensic beds coming on stream – assuming in 2020/21.

Public Health

Public Health has adjusted their workforce requirement to address the current resource gap in their workforce of around 10 FTE. These forecast adjustments will support Public Health in moving to a better representation of the population-based service delivery requirements, including the greater focus on indigenous peoples' health. This is aligned with AHS' strategic priority to promote wellness and community-based care, which requires a sustainable workforce in Public Health to support health promotion, disease and injury prevention, and particularly focus on the health needs of Indigenous People.

Surgery

Surgery has a forecast total workforce increase of just over 30% compared with their current workforce after 10 years, driven primarily by changes in population health need. The highest change takes place in the first 3 years where the increased need is about 135 FTE. More concerning is the just over 40% (around 230 FTE) replacement recruitment requirement within the next 10 years, linked to surgeons leaving

the workforce at retirement and reducing work commitment as they move toward retirement. This significant need and departure-based recruitment need requires attention from medical leaders to develop possible mitigation strategies.

It is important to note that not all zones have made adjustments in their forecasts for this group to account for the reality that there are no planned expansions in AHS OR capacity in the near future. Only Calgary Zone has adjusted its forecasts, particularly for general surgery, ophthalmology and thoracic surgery to account for the limitation to current facility capacity. North Zone has adjusted their forecast to show an increase in their surgery workforce in general surgery, orthopedic surgery and urology to account for additional capacity when the new Grande Prairie hospital opens in 2019. Edmonton Zone has adjusted *Vascular Surgery* to keep the current FTE stable over the 10 year span and indicates that *Neurosurgery* has a high recruitment need and is at risk and has indicated that any adjustments to account for the planned South Edmonton hospital will be included in the 2019 plan development.

More information about individual zones' rationale for adjusting workforce forecast for specific specialties in this group can be found in Appendix E.

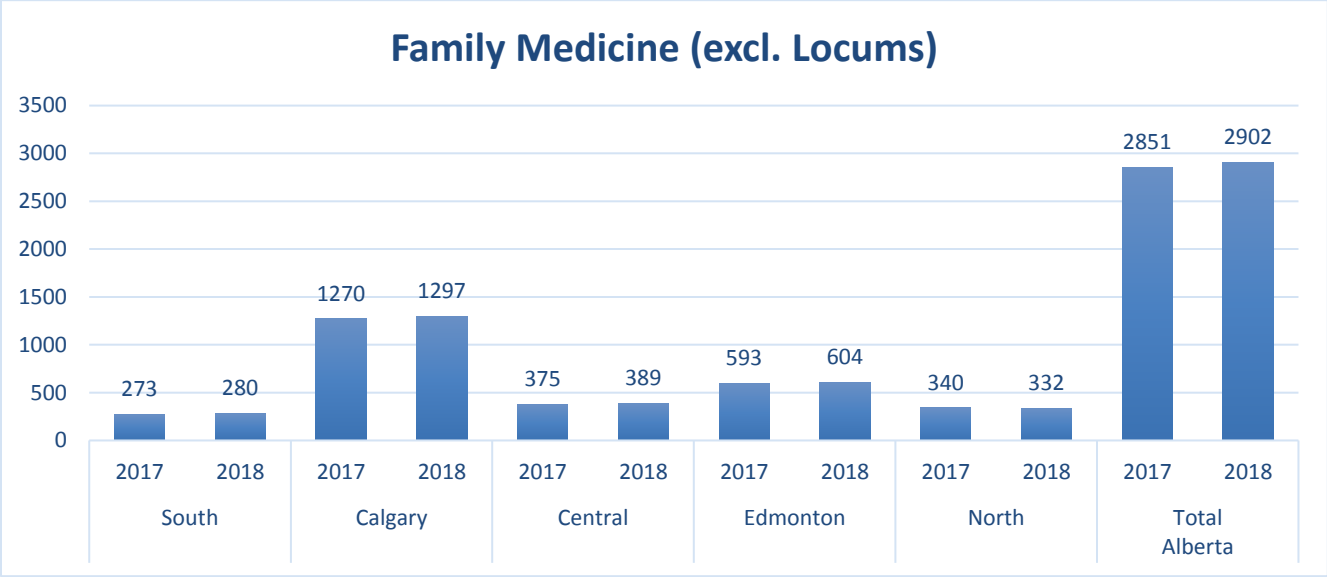
2.2 Family Medicine: Trends and Issues

There is currently no software application supporting a data-driven forecast for family medicine. Forecasting is therefore limited to a three-year horizon. Current Family Medicine workforce data is collected from the AHS Appointment and Privileging Application; projected recruitment need and new position information is gathered from the zones as of March 31, 2018. The results of this data collection and additional detail regarding locums and the family medicine workforce are shown in tables 4 and 5 and Appendix C.

2.2.1 Family Medicine: Current Workforce and Recruitment Plan 2018-2021

Family Medicine Workforce 2017 - 2018

Figure 3: **Total AHS Appointed family medicine physicians (headcount), 2017 and 2018 (excl. locums)**



Source AHS Appointment & Privileging Database (at March 31, each year)

Family Medicine Core Workforce (excluding locums)

When only the core workforce (family medicine physicians, excluding locums, with a primary appointment in the zone) is considered, the AHS family medicine workforce has increased by 2% over the last year. Central Zone shows the highest increase in their core workforce (4%). The lowest growth - 2% - is seen in Calgary and Edmonton Zones. North Zone shows a slight decline (around 2%) in their core workforce over 2017. This could be an effect of greater clarity in data resulting from amalgamation of the appointment and privileging data into one pool from five in June 2017. The result of this was that Practitioners now appear in only one zone's count when they previously could have appeared in multiple zones if there were data errors, which could impact zones with smaller numbers of physicians.

Additional information about the AHS family medicine counts including locum tenens physicians, long-term versus short-term locums, and urban versus rural family medicine counts in the five zones can be found in Appendix C.

Observations:

- Compared with 2017, the family medicine core workforce (excluding locums) shows growth of 2%, which is in line with the annual population growth of 1.6%.
- Family Medicine workforce characteristics (table 4):
  - For the second year, the North Zone had the highest proportion of vacancies (10%) and the lowest proportion of their core workforce in the age group of 55-64 showing a younger than average family physician population.
  - Edmonton and Central Zones had a comparatively older workforce with the highest proportion of their core workforce in the age group 65 and older.

Table 4: **Family Medicine: Current Workforce Characteristics 2018 (headcount)**

	Z1-South Zone		Z2-Calgary Zone		Z3-Central Zone		Z4-Edmonton Zone		Z5-North Zone		Total Alberta	
	Total AHS Appointed	Core Workforce	Total AHS Appointed	Core Workforce	Total AHS Appointed	Core Workforce	Total AHS Appointed	Core Workforce	Total AHS Appointed	Core Workforce	Total AHS Appointed	Core Workforce
Number (headcount) of AHS appointed physicians	310	280	1347	1297	465	389	640	604	422	332	3184	2902
Current Vacancies	8		29		28		6		34		105	
% between the age of 55 - 64	20%	21%	21%	22%	21%	21%	24%	25%	17%	17%	21%	22%
% of 65 and older	8%	9%	10%	10%	10%	12%	13%	13%	7%	7%	10%	10%
Total number of exits in fiscal year 2017-2018	5		41		22		20		11		99	
% Female	34%	34%	54%	53%	31%	31%	44%	43%	32%	33%	44%	44%

Sources: a) AHS Appointment & Privileging Database as on March 31, 2018
b) Data collected by the zones as on March 31, 2018

Notes:
1. Total AHS appointed: all AHS appointed family medicine physicians, including locums (Locum Tenens and Probationary physicians in the locum stream)
2. Core workforce:
   a. Consists of all the AHS primary appointed family medicine physicians, excluding locums (Locum Tenens and Probationary physicians in the locum stream)
   b. Data provided by the zones: includes AHS primary appointed family medicine physicians and long-term locums (family medicine physicians who are working in the same role for more than 12 months); excludes short-term locums (family medicine physicians who are working in the same role for less than 12 months), long-term LOAs and family medicine physicians who have a primary appointment in Emergency Medicine & family medicine physicians who have a supplementary appointment in Emergency Medicine and work in a 24 hours on-site emergency coverage facility
3. Current vacancies: unfilled positions as on March 31, 2018
4. Total number of exits in fiscal year 2017-2018: All exits of family medicine physicians due to retirement, relocation, termination, etc.

Recruitment Needs 2018-2021 (headcount)

Table 5 shows the zone family medicine headcounts, vacancies and planned recruitment over the next 3 years as collected on March 31, 2018. For more information about family medicine data regarding Urban versus Rural in Calgary Zone, see Appendix C.

Observations and trends

- Although Calgary Zone has the highest number of planned recruitments over the next three years and an increase in planned recruitments over 2017, further work is required with the Calgary Department of Family Medicine to determine the full impact on physician headcount. This work will occur over the next year, and more clarity will be present regarding their recruitment counts in the 2019 workforce plan.
- Overall, Calgary's larger Department of Family Medicine and the Department of Rural Medicine serving the surrounding area stretching west to Banff means they will recruit more family physicians than Edmonton. Initiatives to provide opiate substitution at specific AHS sites, in addition to the opening of private opiate dependency clinics are expected to narrow the service gap.
- Compared with last year, South Zone has more than doubled their estimated need family medicine recruitment for the next three years. This reflects their recruitment success in past years as 2017 recruitment requirements were comparatively low.
- In contrast with last year, North Zone shows fewer estimated exits and a lower forecast need to create new positions, reflecting a greater stability in their core physician workforce and decreased need to expand service delivery. This is supported by the decline in their estimated recruitment need for the next three years of just over 40% compared with their 2017 need.
- Calgary, North, and Central Zones have the highest planned recruitments as a proportion of their core workforce - around 20% each.
- In Central Zone, Family Medicine Workforce recruitment remains at a stable rate of approximately 25 physicians per year (table 5). The analysis of age related numbers also shows a consistent status of 30% over the age of 55 with 10% of that number being 65 and over (table 4). Discussions with Red Deer primary care physicians have shown a significant deficit in recruitment needs identification resulting in immediate and ongoing recruitment of at least five family medicine physicians per year for the next five years at least.
- Edmonton Zone's new positions in the next 3 years are related to changes in their service delivery model, including Fort Saskatchewan Community Hospital's change to a Hospitalist Care Team Model. Programs expected to impact future recruitment plans include the Virtual Hospital Project and the Indigenous Wellness program.
- North Zone: Family Medicine (including enhanced skills) will see an increase in 11 positions primarily due to Hospitalist programs being established in GP and Bonnyville.

Table 5: **Family Medicine Recruitment 2017-2020 (headcount)**

	Z1 South Zone	Z2 Calgary Zone	Z3 Central Zone	Z4 Edmonton Zone	Z5 North Zone	Alberta
Number (headcount) AHS appointed family physicians (excl. locums)	**280**	**1,297**	**389**	**604**	**332**	**2,902**
Total number of recruits commenced in fiscal year 2017/18	14	42	25	11	24	116
Current vacancies (a)	8	29	28	6	34	105
Estimated exits (attrition) in next 3 years (b)	19	114	28	30	26	217
Forecast new positions created (net new)in 3 yrs (c)	16	130	16	0	11	173
Total recruitment needed (a + b + c)	**43**	**273**	**72**	**36**	**71**	495
Reality check:						
Recruitment target in year 1 (2018-2019)	27	72	32	19	67	217
Recruitment target in year 2 (2019-2020)	2	37	5	6	20	70
Recruitment target in year 3 (2020-2021)	14	48	7	7	9	85
Total recruited in 3 yrs (2018-2021)	43	157	44	32	96	372
Recruitment deficiency	**0**	**116**	**28**	**4**	**-25**	**123**

Source: Data collected by the zones as on March 31, 2018

Notes:
1. Number of recruits commenced: Total number of AHS recruits who have started work in the zone.
3. Current vacancies: vacant (unfilled) Family medicine positions as at March 31, 2018
4. Estimated exits (attrition) in next 3 years: Expected exits of family medicine physicians due to retirement, relocation, termination, etc. for the fiscal years t1, t2, t3.
5. Forecast most new positions created (net new) in next 3 years: Total of any position that is not a replacement due to retirement, relocation, termination, etc. for the fiscal years t1, t2, t3.
6. Total recruitment needed: Current vacancies plus estimated exits (attrition) in next 3 years plus forecast new positions created (net new) in 3 years.
7. Recruitment target in year t1, t2, t3: How many (headcount) of the total recruitment needed does the zone plan to recruit in year t1, t2, t3.
8. Total recruited in 3 years (2017-2020): Sum of recruitment targets in years t1 + t2 +t3
9. Recruitment deficiency: Total recruitment need minus total recruited in years t1 + t2+ t3 = Difference between recruitment need after 3 years and recruitment ability.

2.3 Physician Supply in Alberta

This section focuses on key trends and issues which will impact the future physician workforce in Alberta, such as demographic changes, specific population health issues, changes in service delivery or infrastructure planning. Data collected from the AHS Medical Staff Appointment and Privileging Application focuses on the zones' core physician workforce; it excludes physicians with locum tenens appointments and those whose primary appointment is in another zone. The 20 Public Health physicians in AHS (at March 31, 2018) are appointed to the Provincial Department of Public Health, and are therefore not included in this chapter. AHS medical staff counts by zone exclude these physicians as they are part of the provincial department. For more detailed information about Public Health see paragraph 2.1.1.

2.3.1 CPSA licensed versus AHS appointed physicians

In Alberta, the majority of CPSA licensed specialist physicians work in AHS facilities as part of providing care to patients in their community or have a connection with an AHS clinical department. In contrast, many family physicians in urban areas are less connected to AHS clinical departments and facilities and many do not hold an AHS Medical Staff Appointment. See appendices C and D for more information.

Compared with last year, the difference between CPSA licensed versus AHS appointed physicians (including locums) increased in all the five zones. South and Central Zones' smaller differences between the counts of CPSA licensed physicians and AHS appointed physicians *excluding* locums shows that in these zones more physicians work in AHS facilities or have a connection to an AHS clinical department. North Zone's difference reflects their greater dependence on locum tenens physicians and the reality that many North Zone appointed physicians live outside the zone. Edmonton Zone has historically not focused on encouraging community family physician to apply for a medical staff appointment in the Community category, although this is changing. Central Zone's comparatively small difference is related to the greater engagement of rural physicians.

Table 6: **CPSA licensed versus AHS appointed physicians, by zone, 2018**

Zone	CPSA Licensed Physicians	AHS Appointed Physicians			Difference CPSA Licensed less AHS Appointed
		Core Workforce	Locums Only	Total Appointed	Core Workforce
Z1 South	574	537	76	613	37
Z2 Calgary	4,590	3,333	164	3,497	1,257
Z3 Central	696	609	140	749	87
Z4 Edmonton	3,930	2,725	194	2,919	1,205
Z5 North	529	483	141	624	46
Outside Alberta	421	-	-	-	421
Total	**10,740**	**7,687**	**715**	**8,402**	

Sources: a) CPSA Listings (file date March 28, 2018)
b) AHS Appointment & Privileging database (Data extracted on March 31, 2018)

Notes:

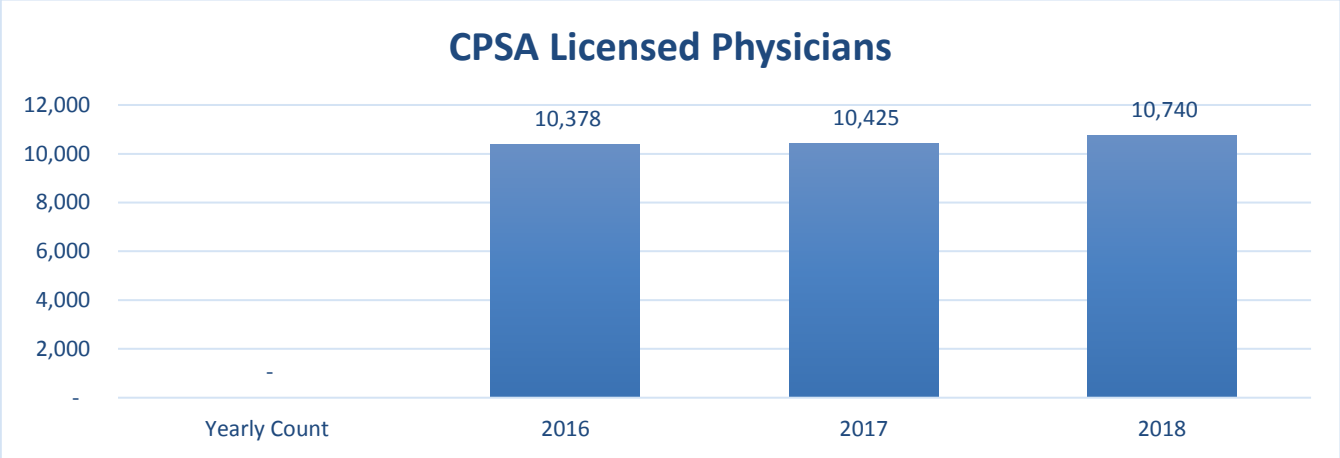
1. Physicians: include family medicine and specialist physicians.
2. The total CPSA licensed physician count includes those who reside outside Alberta; Outside Alberta reflects CPSA licensed physicians having a CPSA address outside Alberta.
3. The CPSA count of licensed physicians by zone is based on the address they have on file for the individual physician. AHS Appointed location is the zone where the physician has their primary appointment.
4. AHS Appointees counts those from Active, Locum Tenens, Probationary (both Active and Locum), and Community medical staff categories.
5. AHS appointed physicians:
    a. Core workforce: consists of all AHS appointed physicians in the zone, excluding locums (Locum Tenens and Probationary Locums)
    b. Locums only: the number of physicians holding Locum Tenens medical staff appointment or a Probationary appointment in the locum tenens stream
    c. Total appointed: total AHS appointed physicians, including locums (Locum Tenens and Probationary Locums)

CPSA licensed physicians

In all five zones, the number of CPSA-licensed physicians has increased. Across Alberta, a slight increase of 3% is seen from 2017 to 2018 (see figure 4). Broken down by zone:

- Edmonton Zone shows the highest increase in their 2017/18 CPSA-licensed physicians – around 4%, followed by Calgary Zone.
- South Zone is one of the zones, besides North Zone, with the lowest increase of their CPSA-licensed physicians compared with last year, although South Zone has the highest increase in AHS appointed physicians.

Figure 4: **CPSA licensed physicians (family medicine and specialists), 2016 - 2018**



Calgary and Edmonton Zone comparison

Calgary and Edmonton have a slightly different population demographics, which indicate different health needs and differing numbers of physicians. Calgary has a higher number of physician per capita than Edmonton. See Appendix A for more information.

In 2017, Calgary Zone had 270,000 more people than Edmonton Zone and higher projected annual population growth. Calgary Zone also had around 19,000 more people in the 65 and older age group than Edmonton Zone in 2017 and is projected to have around 50,000 more people in that age group in 2027. A similar situation is seen in the female population between 15 and 49 years of age. Both will result in higher needs for physician services for elderly, childbearing, and for pediatric patients.

Calgary Zone's slightly higher population and higher numbers of 65 and over and females of childbearing age does not explain the current and historical greater number of CPSA-licensed physicians in Calgary Zone than Edmonton Zone. This, combined with historically different approaches to medical staff appointments has resulted in Calgary Zone having a higher number of family physician members of the medical staff, reflecting their encouraging community practice family physicians to join the medical staff.

Calgary Zone's larger rural area, where physicians traditionally have a medical staff appointment. Edmonton has recognized the need for a stronger relationship with community-based physicians and is committed to working towards building that relationship.

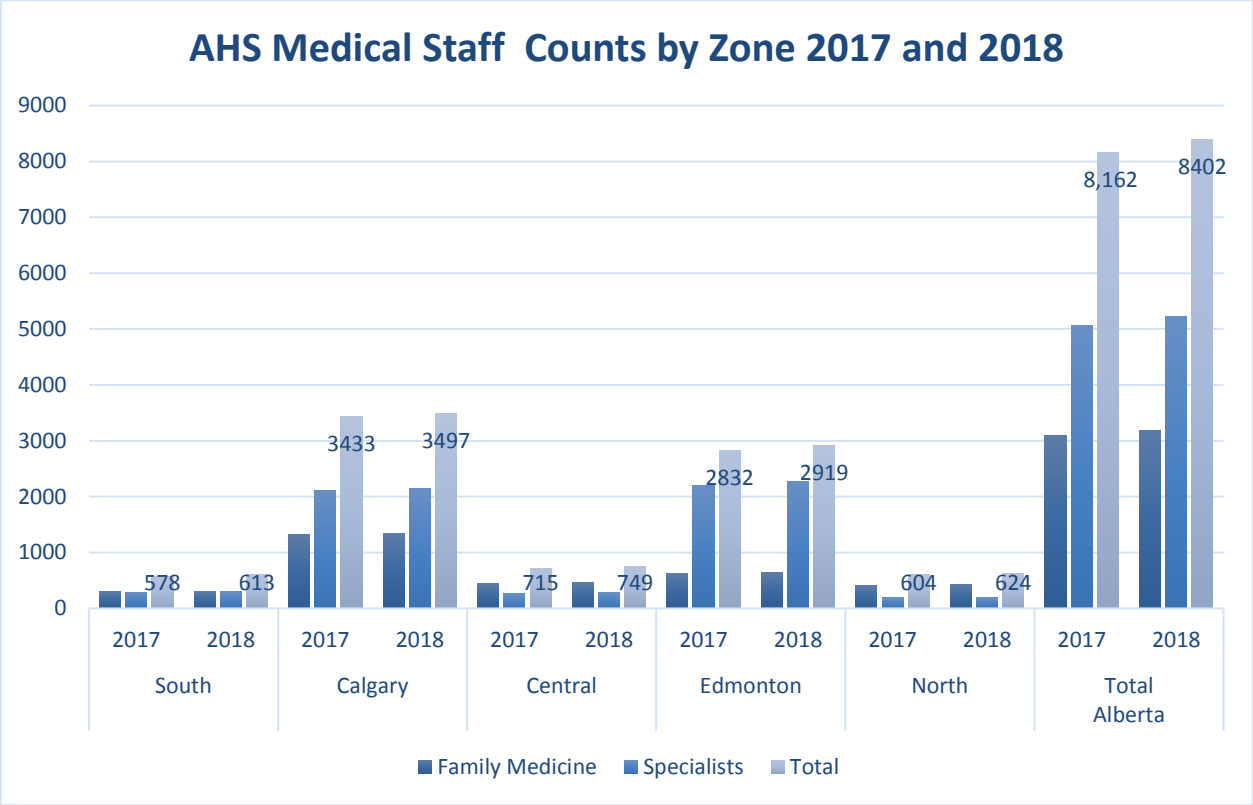
For more family medicine data information, such as distribution of medical staff categories by zone, gender distribution and age groups, see Appendix C.

2.3.2 AHS Physician Workforce

Total AHS appointed physicians (headcount) – including locums

As of March 31, 2018, AHS had a total of 8,402 physician members of the medical staff, including locums (Locum Tenens and Probationary Locums) and excluding those whose primary appointment is in the Provincial Department of Public Health.

Figure 5: **Total AHS Appointed physicians (headcount), Alberta, 2017 and 2018**



Source AHS Appointment & Privileging Database (as on March 31, in 2017 and 2018)

South and Central Zones show the highest increase in their total physician workforce from 2017 to 2018 of respectively 6% and 5%. Calgary Zone shows the lowest increase in their workforce of 2%. Edmonton and North Zones show each a 3% increase of their total AHS physician workforce.

Physicians working as locums

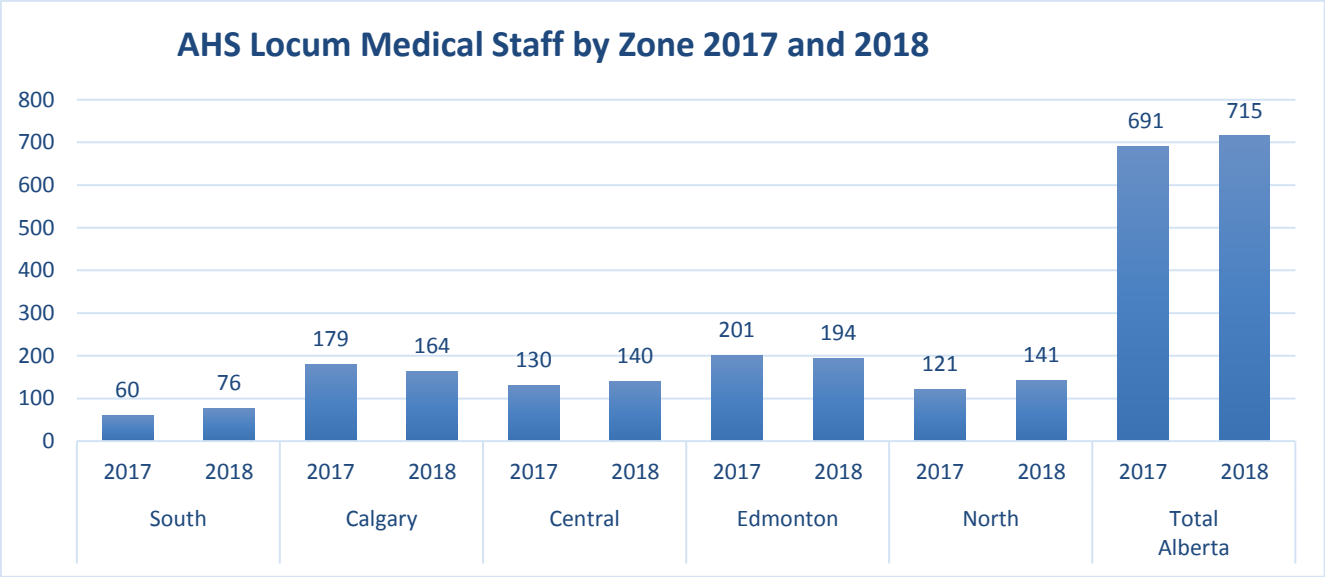
Locums fill a crucial role by supporting programs while recruitment of a permanent physician is underway, working as a replacement when permanent physicians are on leave or are ill, working in communities/practice

settings where the regular workforce isn't large enough to cover unexpected short term gaps on their own, or in other situations where a temporary replacement physician is required in case of an emergency or when workloads temporarily increase due to disease outbreaks.

At March 31 2018, 9% of the 8,402 total physician members of the medical staff were working exclusively as locum tenens. North Zone has the highest proportion of physicians with a locum medical staff appointment (20%), followed by Central (20%) and South (10%) Zone. See Appendix C for the total count and proportion of physicians by zone, by medical staff category in 2018. The same picture appears when looking at family physicians and specialist physicians separately (Appendix C). However, the proportion of family medicine physicians holding a locum position in each of the five zones is lower than their specialist physician workforce holding a locum position. This may reflect the infrequency that specialist physicians are available for locum tenens postings vs. their family practice colleagues.

North, Central and South Zones continue to have higher proportions of physicians appointed to the locum medical staff category, indicating the extent to which they depend on locum physicians for continuity of services in some locations. As work continues on physician distribution at both the provincial and AHS levels, it is anticipated that need for locum physicians may decrease in some communities, although it will not completely cease due to need for appropriate leave while maintaining reasonable call schedules.

Figure 6: **AHS locum physician count (family medicine and specialists) by zone, Alberta, 2017 and 2018**



Source AHS Appointment & Privileging Database (as on March 31, in 2017 and 2018)

2.3.2 Characteristics of Alberta's Physician Population

AHS Appointment and Privileging data reporting (headcount) focuses on the core workforce of the zones and excludes locum appointees. More information can be found in Appendix C about the AHS physician workforce including locums.

Age and gender distribution

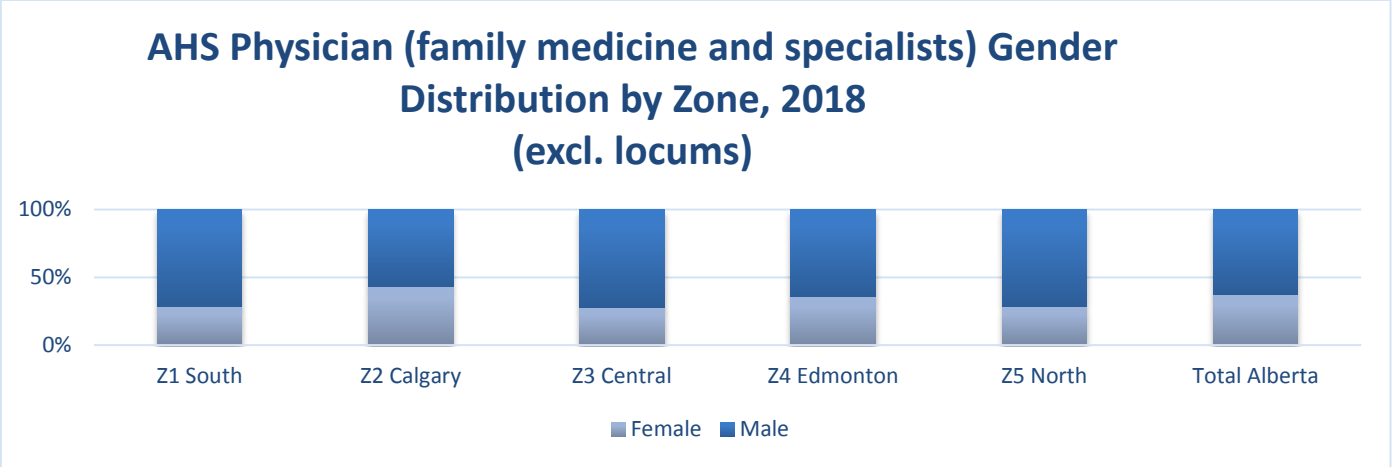
The age and gender distributions for the physician workforce working in AHS facilities has not changed significantly since the 2017 report.

Gender distribution

AHS Medical Staff continues to have more males than females:

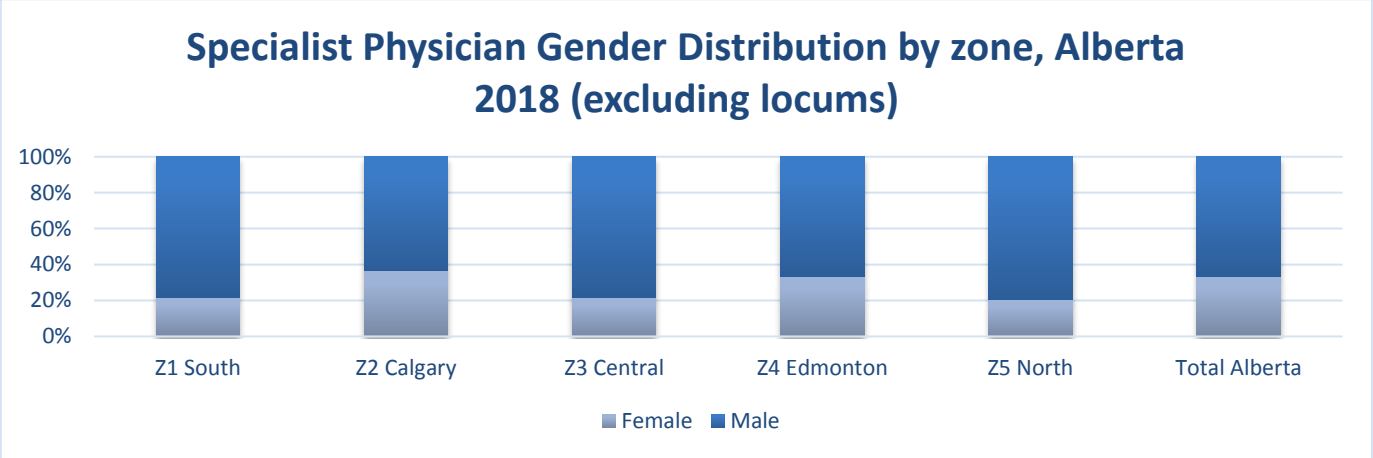
- The specialist physician workforce continues to have a higher proportion of male than female physicians.
- Family medicine shows a similar balance, with the exception for Calgary Zone which continues to have a slightly higher proportion of female family medicine physicians (53%). Additionally, the Calgary female family physicians group is comparatively younger than in other zones.

Figure 7: **Gender distribution physicians, by zone, Alberta, 2018 (excl. locums)**



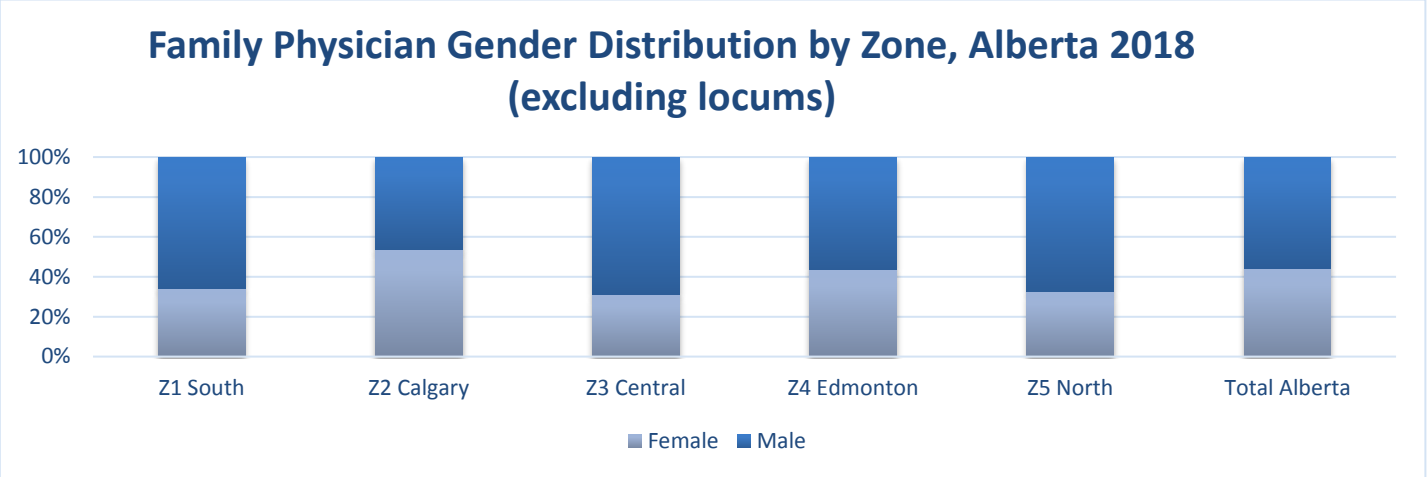
Source AHS Appointment & Privileging Database (March 31, 2018)

Figure 8: **Specialist physician Gender distribution, by zone, 2018 (excl. locums)**



Source AHS Appointment & Privileging Database (March 31, 2018)

Figure 9: **Family medicine gender distribution, by zone, 2018 (excl. locums)**



Source AHS Appointment & Privileging Database (March 31, 2018)

Physician Populations are aging

Similar to 2017, just over 30% of the current AHS core physician workforce – excluding locums –is in the 55-64 and over 65 age groups and may start to reduce or leave practice over the next 10 years. See figure 10 and Appendix C for more information. When looking at a physician's productive years – between 35 and 60 years of age – one would expect to see 30% of the workforce in the 55 and older age group.

Looking at the 55-64 and over 65 age groups together:

- Central and South Zones have the oldest core specialist physician workforce – around 40% of specialists in each zone are in these two groups.
- Edmonton (38%) and Central (33%) Zoneshave the oldest core family physician workforce.
- Overall Central Zone has the oldest core physician workforce working in AHS facilities

Zones with greater than 30% of their physician workforce in these cohorts (55 to 64 and over 65) will need to plan for a higher number of exits and increased recruitment need. Understanding this and the specific groups impacted will be key to planning physician recruitment strategies over that term. Central Zone's relatively older physician population means they will experience an earlier impact, while North Zone may see a lower impact as their physician population is comparatively younger (see Appendix C for more information).

Figure 10: **AHS appointed physicians by gender andage, by zone, 2018 (excl. locums)**

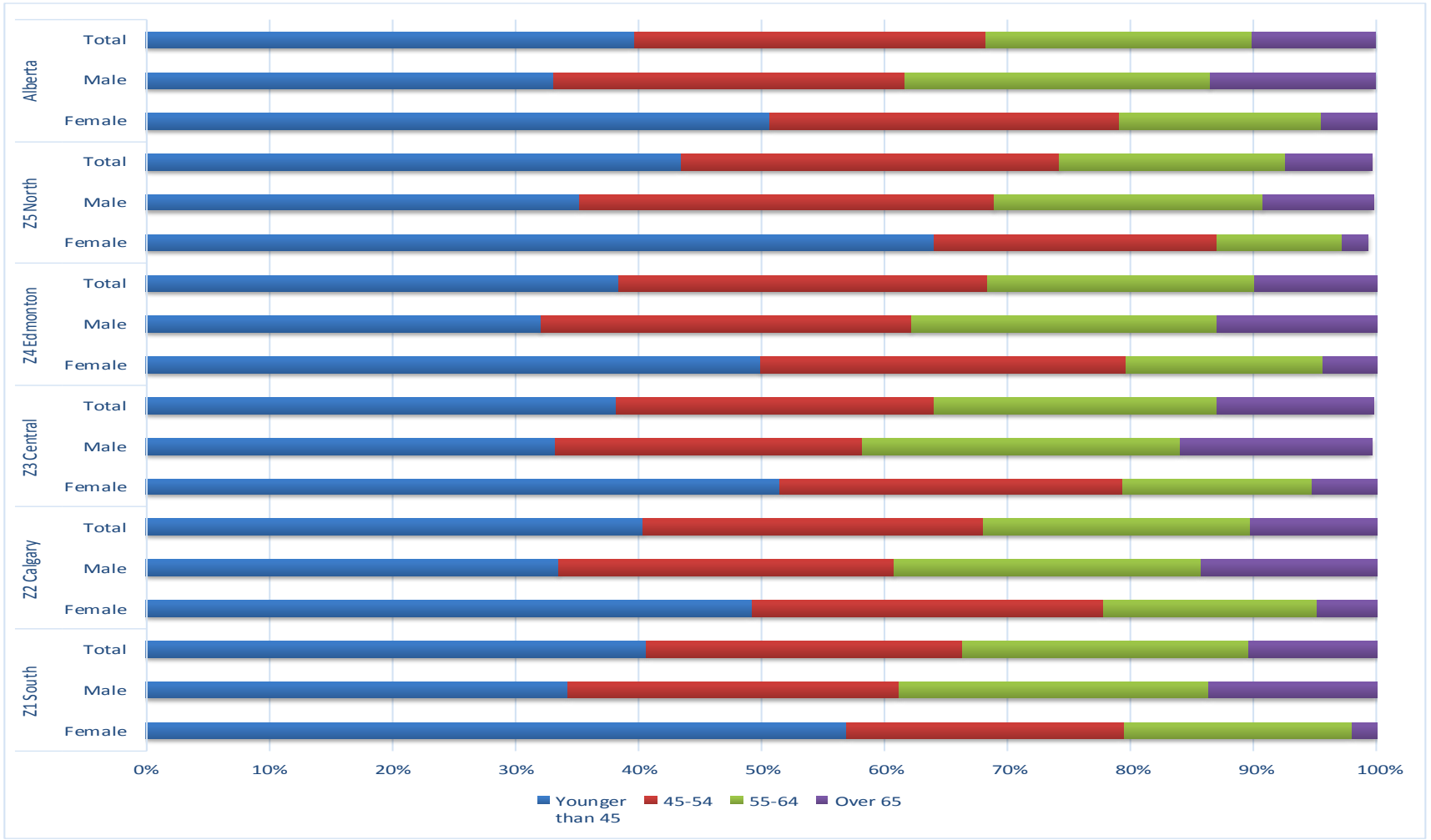
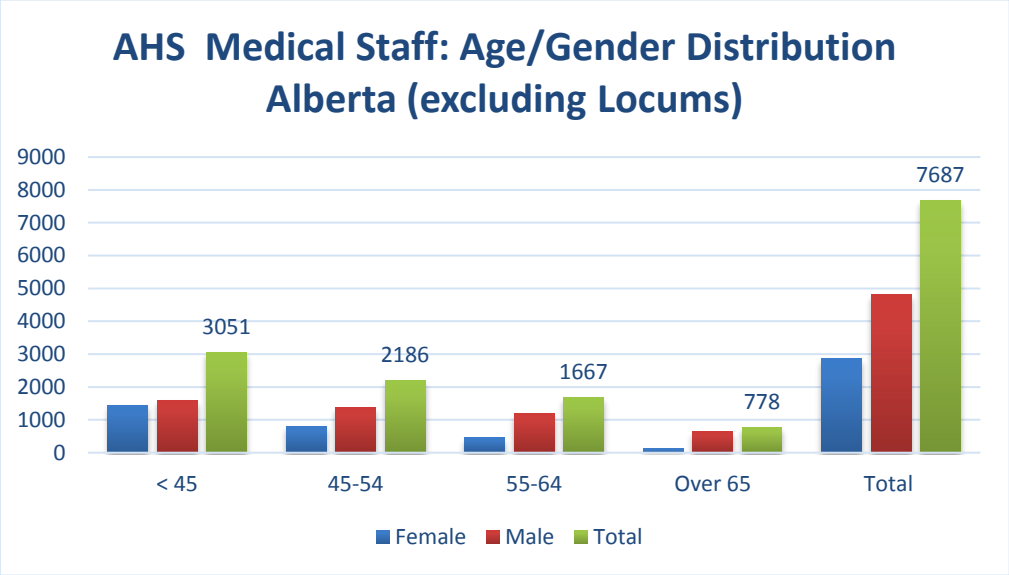


Figure 11: **AHS Medical Staff Age andGender Distribution, 2018 (excl. locums)**

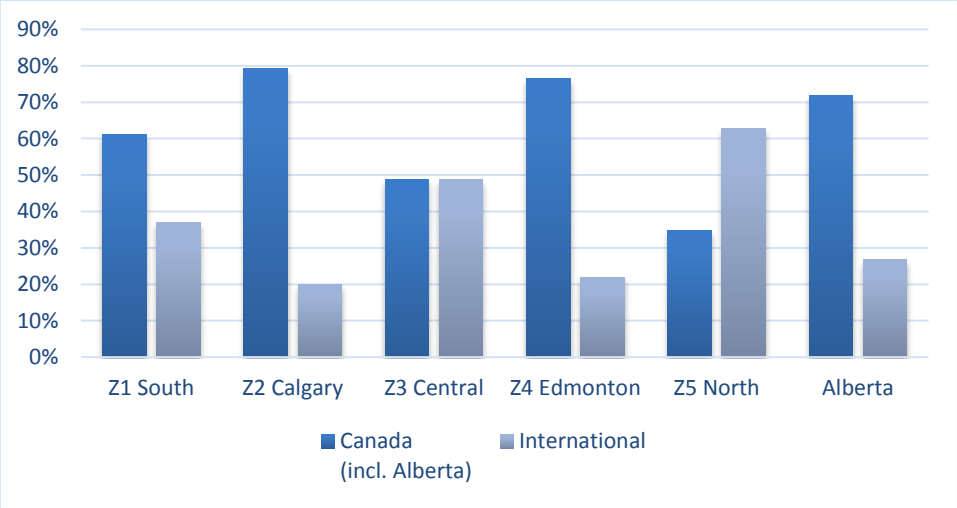


Source: Appointment & Privileging Database, data extracted on March 31 2018

Notes:

1. Includes active, probationary active and community medical staff.
2. Excludes locum tenens medical staff and those in the probationary locum stream.
3. There is a small proportion of medical staff whose age is unknown and who have are included in the calculation, but not shown in the table.

Figure 12: **Proportion AHS physicians' postgraduate training (Canada, International), 2018 (excl. locums)**



Source: Appointment & Privileging Database, data extracted on March 31 2018
Notes:

1. Includes family medicine and specialist physicians who have a primary appointment in the specified zone.
2. Includes the following medical staff categories: active, probationary (active stream) and community.
3. Excludes the medical staff categories: locum tenens, probationary locums.

Rural and remote locations recruitment challenges

Rural and remote areas in Alberta have challenges in recruiting physicians who did their postgraduate training in Canada. The proportion of international medical graduates is the highest in the North Zone (just over 60%) followed by Central Zone (around 50%); See Appendix C for more information. These proportions reflect the challenges these zones have in recruiting Canadian graduates.

The Minister of Health's Physician Resource Planning Advisory Committee (PRPAC) is considering a number of mechanisms to improve distribution of physicians in the province, including rural electives and residency programs in collaboration with Faculties of Medicine. The impact of this group's work may not be felt immediately, but work is underway to address physician population distribution challenges.

Physician Migration

Alberta's net physician in-migration is very low. According to the Canadian Institute of Health Information (CIHI)[3], Alberta had a net decline in 2016 of 14 physicians from interprovincial migration (13 family physicians

[3] CIHI (2016). *Supply, Distribution and Migration of Physicians in Canada: Data Tables*. Available at: http://www.cihi.ca/hhr.

and 1 specialist physician). Primary provincial sources of physicians moving to Alberta were Ontario and BC for specialist physicians and Ontario, Saskatchewan and Manitoba for family medicine physicians. Primary destinations for those leaving the province were BC and Ontario for both specialist and family physicians (Appendix C).

2.4 Environmental Scan/Population Profile: Trends and Issues

Alberta's population is growing and aging

- By 2027, Alberta's population is expected to grow to approximately 5 million people, with an expected average annual growth rate of 1.6%.
- Calgary and Edmonton Zones had the highest projected annual population growth rates, at 2.0% and 1.6% respectively over that period.
- Between 2017 and 2027, the number of Albertans over 65 is anticipated to increase by 55%, with the highest growth occurring in Calgary Zone, followed in order by the North-, Edmonton-, Central-, and South Zones.

See Appendix B for more information.

Alberta has diverse community needs

The 2017-20 AHS Health Plan & Business Plan[4] notes that the province has an increasingly diverse population, with large rural and some remote populations. Certain geographical areas within Alberta have higher proportions of different ethnicities, different population structures and, therefore, unique health service needs requiring tailored approaches to health care delivery. Examples include indigenous health services, addictions treatment, services for new Canadians.

[4] Alberta Health Services (2017). *AHS Health Plan & Business Plan 2017-20*.

Chapter 3. Concluding Comments

Serving Alberta's aging and growing population will require a sustainable physician workforce. In the next 10 years, the number of Albertans over 65 is anticipated to increase by 55% and Alberta's expected average annual growth rate of 1.6% will increase the population to approximately 5 million people in 2027. Therefore, it is projected that health consumption will increase and this will impact the physician workforce need.

In order to create a realistic AHS physician workforce plan and forecast report, input from medical leaders is crucial. The specialist Physician Workforce Planning (sPWP) software application provides standardized forecast reports derived through mathematical modelling that considers parameters such as past health system utilization and trends in the physician workforce. Currently, however, the application does not include family medicine data, resulting in a lack of comparability in the two forecasting models, and the possibility for not fully understanding the interplay between the two groups. To ensure that the report also reflects the service delivery requirements, current health facility, capital and business plans at the zone and provincial level for specialist physicians as well as family medicine, the context and knowledge from medical leaders is essential. In addition, AHS is mindful of the guiding principles from the Minister of Health's Physician Resource Planning Advisory Committee (PRPAC), by developing a population needs based plan and working to improve physician distribution while maintaining appropriate service delivery.

As AHS works with medical leaders and other stakeholder organizations to determine the type and mix of physicians needed to provide the services Albertans need, it considers this need in terms of short-, medium- and long-term timeframes. In this context, short term needs are most certain and easily understood. They are defined by immediate needs of the patient population as well as changes in service delivery and population, and adjusted where required to meet specialist physician requirements and system capacity. For family physicians, this is the current extent of our planning capacity as there is no data-driven mechanism for projecting further. Because of this, the family medicine plan is much more a recruitment plan than workforce plan as it is not possible to estimate need more than three years into the future.

Based on the information available, the following areas have urgent need for work to address physician resource needs:

Specialist Physicians

Within the next 3 years, medicine, surgery and anesthesiology see large recruitment needs, primarily driven by increased population need. This need is forecast based on past experience and projected increases in population, and supported by medical leaders who have reviewed the forecast. In the case of anesthesiology, one zone (Calgary) has adjusted the forecast to account for the fact that there is no planned increase in infrastructure capacity. Edmonton Zone has not adjusted the anesthesia forecast in order to reflect their current shortfall in anesthesiology resources.

Medicine's increase in FTEs is primarily driven by expected changes in population and adjustments to the forecast to account for new programs and service delivery models, including expansion of cardiac care to include cardiac catheterization in Central Zone, and decreases in geriatric care wait times, as well as new

service delivery models such as teledermatology in Calgary Zone and opening of new services with the new Grande Prairie Hospital. Pediatrics and psychiatry are seeing similar population increases and program expansion driven requirements for increased resources. Among the program increases for pediatrics are changes in service delivery models such as NICU care in Central Zone. Psychiatry services are facing challenges with the opioid dependency crisis and in North Zone to support patients following the Fort McMurray wildfire of 2016.

Public Health is forecasting a short term recruitment of additional FTEs to improve population health needs and ensure that indigenous health programs have sufficient support.

The following categories show a high replacement need within 7 to 10 years, as their physician population moves toward age 65:

- Cancer
- Lab Medicine & Pathology
- Medicine
- Psychiatry
- Surgery

Family Medicine

This year, the provincial family medicine core workforce (excluding locums) shows a moderate increase compared with 2017; only North Zone's workforce decreased slightly. This increase is in line with the projected increase from 2017 and reflects improvements in recruitment and retention across the province, particularly in rural areas. North Zone's decrease could be due to greater accuracy in appointment and privileging data since the 2017 amalgamation of the data pools in the supporting application.

Central Zone's comparatively older family physician workforce (30% are over 55 and 10% are 65 and over) means they need to consider replacement strategies for their rural and urban Red Deer family medicine groups in the short term as these physicians move toward retirement. As in other rural zones, Central has depended on international graduates to fill some positions in the past; this continued dependence on international graduates can lead to challenges because of length of recruitment time and requirement for assessments which can delay start dates.

Compared with their estimated recruitment need in fiscal year 2016-17, South Zone doubled their estimated need for recruitment for the next 3 years, reflecting their need to begin recruiting again after a period where they had a sufficient supply. Despite this increase in recruitment need, they expect to be able to fill these vacancies.

Edmonton Zone shows a slightly higher recruitment need compared with 2017. This may reflect Edmonton Zone's older family physician population. New positions forecast in the next 3 years are related to changes in their service delivery models such as Fort Saskatchewan Community Hospital's inpatient care moving to a Hospitalist Care Team Model. Future plans not included in this forecast include the Virtual Hospital Project and the Indigenous Wellness Program as well as Kaye Edmonton Clinic's expansion of services and programs.

North Zone: Family Medicine (includes enhanced skills) will see an increase in 11 positions primarily due to Hospitalist programs being established in GP and Bonnyville.

Chapter 4. Strategic Priorities and Initiatives: Next Steps

Strategic Priority	Key Initiatives
Emergent priority areas of need for physicians	
Investing in and supporting (specialist) physician workforces which are in or at risk:	Building sustainable capacity for: • **Anesthesiology** Zone with highest risk: Edmonton • **Cancer:** *Medical Oncology, Radiation Oncology* • **Emergency Medicine** • **Medicine** *Critical Care Medicine, Dermatology, Internal Medicine, Respirology, Cardiology, Neurology, Rheumatology*, and *Gastroenterology* • **Pediatrics** Zone at risk: Central • **Psychiatry** *Child Health & Adolescent, Geriatric* • **Public Health** • **Surgery** Especially at risk: *Neurosurgery* Edmonton Zone • **Family medicine**: Zones with highest risk: Calgary and Central Zone

Developing a sustainable physician workforce	
Providing the right care in the right place, at the right time, with the right provider and team:	• Strengthening linkages between the work by the provincial PRPAC, AHS physician workforce planning and forecasting, and AHS recruitment planning • Alignment with clinical and non-clinical AHS human resource planning • Foster greater collaboration and sharing of information within AHS and with external partners , including Alberta Health, the Faculties of Medicine, CPSA, AMA • For family medicine, continue to work with Alberta Health regarding support for a robust, data-driven, family physician workforce planning software application • AHS is working with CPSA and AH to develop a more appropriate provincial approach for capturing the clinical work done by community-based physicians
Supporting a sustainable and patient/family focused Alberta Health Care System	
Meet the changing needs of Albertans and maintain a financially sustainable, flexible, adaptable system that is responsive to the patient/family needs. **Developing provincial approaches:** **Shift focus from:** • Hospital based care to preventing illness → Promoting wellness and community-based care:	• Diagnostic Imaging/Diagnostic services • Integrated laboratory services system • Supporting: ○ A sustainable workforce in Public Health: Health promotion, disease and injury prevention support the health needs of Indigenous People, and improving access to

	care for all Albertans can contribute to prevent illness and to increase the wellness of the population ○ Community-based care by creating opportunities to redeploying staff (only through voluntary attrition) out of acute-care facilities to community care facilities. • Opioid crisis: continue to support harm reduction and substitution programs (e.g. Take Home Naloxone program)
• Single provider → Team-based care; new and different approaches to delivering healthcare:	• Supporting the implementation of the Primary Healthcare Integration Network: to improve transitions of care between primary care providers and acute care, emergency departments, specialized services and other community-based services
Shared data collection and analysis	
Effective physician workforce planning requires ongoing and enhanced collaboration of the key stakeholders to identify and understand challenges and to come to shared solutions:	• Continue to strengthen the collaboration between zone and provincial leaders, such as PPEC's Workforce Planning Subcommittee, Zone medical leaders, Zone and Provincial Medical Affairs leaders. • Continue to support zones to build capacity in workforce planning and forecasting, and recruitment planning principles and concepts.

Acronyms

AH	Alberta Health
AHS	Alberta Health Services
AMA	Alberta Medical Association
CCA	Cancer Control Alberta
CIHI	Canadian Institute of Health Information
CMO	Chief Medical Officer
CPSA	College of Physicians and Surgeons of Alberta
CRG	Clinical Risk Group
EM	Emergency Medicine
FTE	Fulltime-Equivalent
IHDA	Interactive Health Data Application
LOA	Leave of Absence
MA	Medical Affairs
NIPM	Net Inter-Provincial Migration
PARA	Professional Association of Resident Physicians of Alberta
PCN	Primary Care Network
PPEC	Provincial Practitioner Executive Committee
PPEC WFP Subcommittee	Provincial Practitioner Executive Committee Workforce Planning Subcommittee
PRPAC	Physician Resource Planning Advisory Committee
PWP	Physician Workforce Plan(ning)
RCPSC	Royal College of Physicians and Surgeons of Canada
RFA	Return From Abroad
sPWP	Specialist Physician Workforce Planning software application
U of A	University of Alberta
U of C	University of Calgary
ZMA	Zone Medical Affairs

Key Terminology/Definitions

Active medical staff category:	A category of appointment to the AHS Medical Staff. As defined in the Medical Staff Bylaws: a physician who has satisfied the requirements of the probationary period and have received an appointment in the active staff category, or have been appointed directly to this category.
Clinical Risk Groups (CRG):	A clinical model in which each individual patient is placed into a health risk group based on their history of health services consumption. Their health service utilization is then used to develop profile of an individual's anticipated future health service consumption can be applied. For more information about CRGs, see Appendix G.
Community medical staff Category:	Physician who does not provide specified clinical services for patients in facilities, and who does not require access to AHS services and programs, may apply for a medical staff appointment in the community staff category in order to benefit from participating in the activities of AHS and membership in the relevant zone clinical department.
Current or Base Year (F0):	Is fiscal year 2017/2018.
Forecast Period:	Is the ten year period - Forecast Year 1 (F1) to Forecast Year 10 (F10) - beginning 2017-18 and ending 2027-28.
Locum Tenens:	In this report: a physician temporarily placed into an existing practice and/or facility in order to facilitate the short term absence of another physician, or to address a temporary shortfall in physician workforce.
Long-term locum	Physician who is working in the same locum tenens position for 12 months or longer.
Physician:	A person licensed in independent practice as a physician pursuant to the Health Professions Act (Alberta). In this report, it is also used when referring to family medicine and specialist physicians as one group.
Planning Variables:	Planning Variables are used for making corrections in the Forecast Report to get a more realist forecast. Examples are: correcting the workforce (clinical FTEs) for: • Introducing a new policy, technology, service delivery. • Facility capacity.

Probationary medical staff Category:	All initial medical staff appointments shall be to the probationary staff, other than those in the temporary and community staff category, or where, in the opinion of the CMO or designate, after consultation with the applicable Zone Clinical Department Head(s) and Zone Application Review Committee, a direct appointment to the active staff category is appropriate.
Quality:	AHS has described six dimensions of quality: acceptability, accessibility, appropriateness, effectiveness, efficiency and safety. For more information, see AHS Health Plan & Business Plan 2016-17.
Recruitment Plan:	A recruitment plan looks at a shorter time horizon and known changes in physician workforce to understand risk and plan for needed recruiting activities. Recruitment planning focuses on meeting known need for physician resources to either replace or increase the complement of physicians in a particular community or department.
Short-term locum	Physician who is working in the same locum tenens position for less than 12 months.
Workforce Planning and Forecasting:	A forward-looking projection based on assumptions regarding key determinants of population health need, patient service models and workforce supply. It shapes a forecast of workforce needs according to organizational strategy (e.g. patient-centred, economically sustainable, quality, meets policy and objectives).
Zone:	A geographically defined organizational and operational sub-unit of AHS.

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We hope this report will provide information to support physician resource-, human resource-, capital-, and service delivery planning on a provincial and zone level to improve sustainability, delivery of care and services leading to better population health outcomes for Albertans

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