



PREPARED BY
Spindle Strategy

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Health System Capacity Assessment & Analysis

Prepared for:
University of Prince Edward Island and Health PEI

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Context



Background

In partnership with Memorial University of Newfoundland (MUN), the University of Prince Edward Island (UPEI) announced in October of 2021 its efforts to establish a Faculty of Medicine to deliver a medical education program to **20 undergraduate (UGME) and 21 postgraduate (PGME)** learners. The announcement indicated that the first cohort of the joint program would start in August of 2026 (when the joint program is expected to be accredited), though an earlier cohort would begin studies on PEI in **2025**, under MUN's CACMS accreditation as a regional campus.

The joint UPEI/MUN medical education program has a focus on training family physicians. By increasing the number of family physicians trained on PEI, the program **aims to increase the number of doctors who will go on to practice on the island, thereby reducing the number of islanders who are currently without a primary care physician.**

The medical school will feature an on-site patient medical home, which is expected to provide services to approximately 10,000 patients from the University and broader PEI community. However, for the program to successfully achieve its physician capacity building goals, it must **integrate and dovetail with the provincial healthcare system (Health PEI) from tip-to-tip.** This involves integration of medical learners into hospital and community-based healthcare settings across the island as well as the provision of necessary supports to incorporate medical graduates into the PEI healthcare workforce (including as future preceptors and faculty).

Purpose of Engagement

Spindle has been engaged by UPEI and Health PEI to understand and catalog the healthcare system's capacity to successfully integrate medical learners; to identify any gaps in infrastructure, human resources, policies and programs, systems and structures; and to devise an evidence-based roadmap including necessary investments and timelines to address those gaps.

Process and Deliverables

In **Phase 1** of the engagement, Spindle carried out over 45 consultations with PEI stakeholders, experts and comparator programs across the country to define and characterize **key factors** that will determine and influence the physician and infrastructure needs and potential capacity for the operationalization of the medical school. These findings were captured and delivered in the form of an Interim Current State Review in July of 2023 for validation, insight and feedback.

In **Phase 2** of the engagement, we developed and applied an algorithmic model, combining the factors outlined in the Current State Review in a logical and evidence-based manner to calculate the physician and infrastructure **need** and potential **capacity** for each year of medical school operations upto and including year 9 (when all UGME and PGME cohorts are expected to be active). We also identified resourcing **gaps** and explored **opportunities** by comparing the need with the potential capacity to support medical school operations over the course of the first 9 years.

In **Phase 3** of the work, we determined the implications of the need, potential capacity and gaps in terms of **targets, strategies and potential costs** for engagement of physicians in medical education by the university, recruitment of new talent and capital projects at key timepoints of the medical school's operations.

The final deliverable for this engagement, presented here, aims to demonstrate how key factors outlined in the Current State Review were combined to develop an overall understanding of the need, potential capacity and gaps for medical education on the island. It also captures a phased roadmap for building the required medical education workforce and infrastructure to achieve successful integration of the medical school into the PEI health system.

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Executive Summary





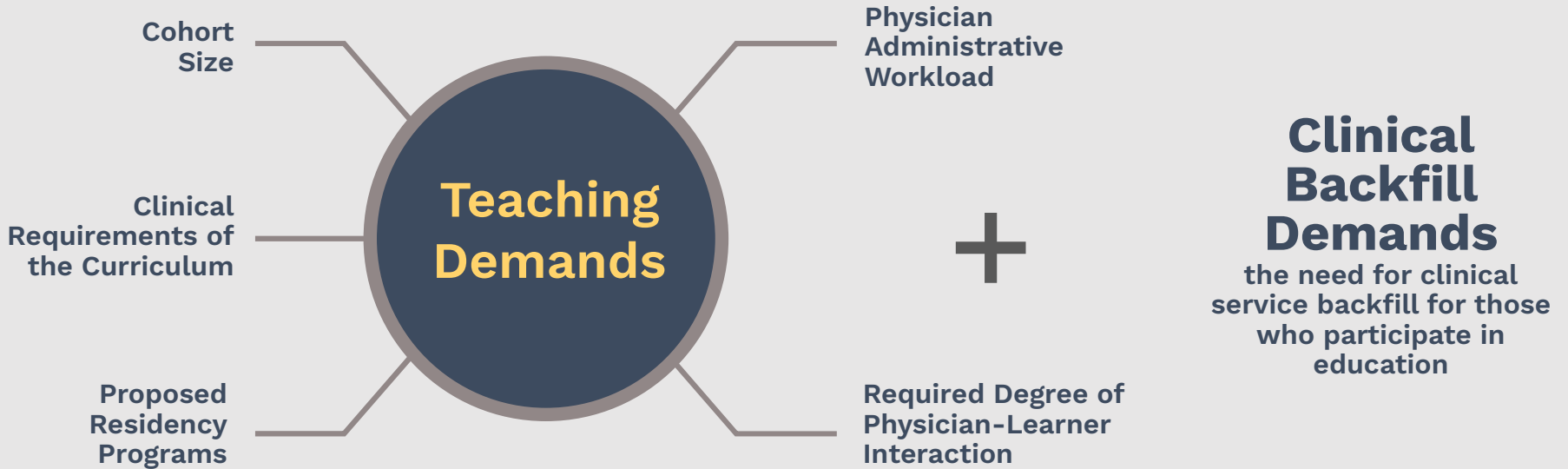
In The Context Of The Health System,
Resourcing Of The Medical School Relies On Two Key Capacities:
Physicians and Appropriate Infrastructure

Physicians will be a key resource for the medical school as teachers, providing on-campus learning activities such as lectures and clinical skills workshops as well as supervising or precepting students in the field.

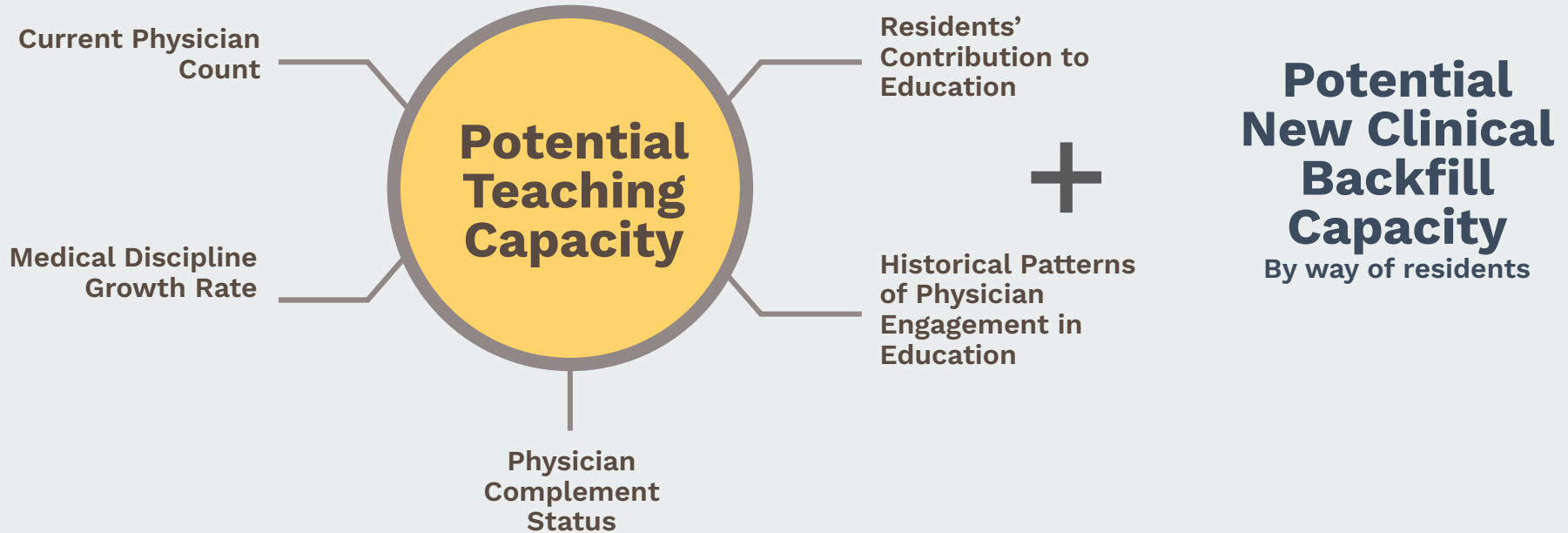


The available physician resourcing for the medical school can be calculated by subtracting the new **teaching and clinical backfill demands** on physicians from the **potential physician capacity** to address these demands.

Demands of the medical school on physicians



Potential physician capacity to meet demands of the medical school



By Year 9 of the medical school's operations, it is estimated that at least

92

Currently practicing physicians will have to be engaged by the university in medical education (spend 20% of their time teaching*)

43**

new physicians will have to be hired into the health system and engaged by the university in medical education

Physician Type	Number of Currently Practicing Physicians Who Should be Engaged in Medical Education by Year 9 of Medical School Operation (FTE)	Number of Physicians Who Should be Hired by Year 9 of Medical School Operation (FTE)
Anesthesiologists	2	0
Emergency Doctors	5	0
Family Physicians	20	0
General Surgeons	8	1.6
Geriatricians	0	1.2
Internal Medicine	13	19.8
<i>Cardiologists</i>	2	2.8
<i>Critical Care Specialists</i>	1	3.8
<i>Gastroenterologists</i>	0	4.8
<i>IM Generalists</i>	4	0
<i>Nephrologists</i>	4	0.8
<i>Respirologists</i>	2	2.8
<i>Rheumatologists</i>	0	4.8
Medical Oncologists	1	1.4
Neurologists	0	4.8
Obstetricians & Gynecologists	3	6.6
Orthopedic Surgeons	3	0.6
Palliative Care Specialists	0	1.2
Pediatricians	9	1.8
Plastic Surgeons	1	0.2
Psychiatrists	8	0
Any Physician Type	19	3.8
Total	92	43

* Time allocated for teaching is for the purposes of planning only and not intended to reflect the future reality of physician work patterns, which are anticipated to be varied and individualized. Additionally, physicians could spend some of their currently allocated teaching time on research, which would result in higher FTE demands

** Could be pooled with greater health system hiring needs identified in the Health Intelligence Report

Achieving Engagement and Hiring Targets

The following strategies are essential for **engaging currently practicing physicians in teaching**:

- A strong affiliation and sense of belonging with the university
 - Attractive medical appointment models
 - Robust faculty development offerings
- A favourable and reasonable university compensation model
- Strengthening the university's relationship with physician communities
- Increasing opportunities for physicians to participate in the development of the medical school as a historic opportunity

Increasing engagement of currently practicing physicians in teaching will decrease reliance on new hires. In addition, the following enablers can be employed **to increase historic recruitment rates and achieve hiring targets**:

- Remuneration models and amounts (including salary, administrative supports, on-call stipends and holiday billing rates)
- Work-life balance (anticipated call schedules, local community opportunities, island lifestyle)
- The opportunity to participate in teaching and scholarly work
- PEI's primary care renewal strategy

Partnerships

Partnerships with out-of-province institutions will likely need to be forged to enhance the medical education experience, in particular for delivery of the PGME program.

Win-win partnerships with health systems across the maritime region, for example with **NL Health Services**, the **NS Health Authority** and **Horizon Health** are key. To further maximize coordination of resources and assure successful delivery of medical education and optimal physician workforce distribution across the Atlantic provinces, we recommend the immediate establishment of a **Maritime Dean's Table** akin to the [Council of Ontario Faculties of Medicine](#).

Infrastructure and space provisions for medical learners within the health system must include:

- Teaching rooms
- Private touchdown spaces for learners and preceptors
- Desks, lounge, lockers & kitchen
- Call rooms, shower & bathroom facilities
- Parking

The breadth and extent of space and infrastructure needs for medical education at key medical education sites (acute care and major community health centres) can be determined based on the maximum projected number of learners who could be present at each site at a given time.

Acute Care Facilities

Acute Care or Community Hospital	Estimated Number of UGME Learners to be Accommodated by Year 9 of Medical School Operations (Headcount)	Estimated Number of PGME Learners to be Accommodated by Year 9 of Medical School Operations (Headcount)	Estimated Number of UGME or PGME Learners to be Accommodated by Year 9 of Medical School Operations (Headcount)
KCMH	1	1	2
PCH	19	20	38
QEH	49	83	126
Western Hospital	1	1	2

The actual number of learners on site at any one time is likely to be less than the estimated number, due to the interplay of various curricular, situational and personal factors in the real world setting.

Furthermore, a total of 30 distinct housing units should be secured across the island to accommodate medical students who are completing temporary rotations away from their home-base.

Region	Estimated Number of UGME Learners Who Will Require Housing by Year 9	Estimated Number of Rooms Required for UGME Learners by Year 9	Estimated Number of PGME Learners Who Will Require Housing by Year 9	Estimated Number of Rooms Required for PGME Learners by Year 9
East Prince	26	8	31	16
Kings	3	1	4	2
West Prince	3	1	4	2
Total	32	10	39	20

- The Queens region has not been included due to proximity to UPEI campus
- Housing requirements in East Prince are likely to be lower than presented in the table, as PCH in Summerside has the potential to serve as an educational home base for PGME residency programs



Addressing Physician and Infrastructure Needs
of the Medical School Will Require Concurrent Investments
on the Part of the Health System and the University

Physician Costs

As a snapshot, in year 9 of the medical school's operations, the baseline annual physician compensation* is estimated at ~\$29.6M. Baseline annual resident compensation is estimated at \$1.9M, for a total cost of ~\$31.5M. Considering an inflation factor of 3% a year from the start of the medical school's operations, these costs could be as high as ~\$40M at this time point.

~\$12.8M to be paid by the University in the form of physician educator remuneration

This amount would likely be halved if Physician Educators were being compensated on an hourly, as opposed to an annual basis. To engage physicians in medical education, various compensation models should be offered with flexibility to address individual needs.

~\$18.7M to be paid by the health system to physicians and residents as clinical remuneration

Physician Type	Estimated Physician Educator Remuneration Costs to the University in Year 9 (\$)	Estimated Clinical Remuneration Costs to the Health Authority in Year 9 (\$)	Estimated Total Salary Costs in Year 9 (\$)
Anesthesiologists	\$190,058.00	\$0.00	\$190,058.00
Emergency Doctors	\$475,145.00	\$0.00	\$475,145.00
Family Physicians	\$1,900,580.00	\$0.00	\$1,900,580.00
General Surgeons	\$912,278.40	\$844,168.00	\$1,756,446.40
Geriatricians	\$114,034.80	\$400,705.20	\$514,740.00
Internal Medicine	\$3,116,951.20	\$6,611,635.80	\$9,728,587.00
<i>Cardiologists</i>	\$456,139.20	\$934,978.80	\$1,391,118.00
<i>Critical Care Specialists</i>	\$456,139.20	\$1,268,899.80	\$1,725,039.00
<i>Gastroenterologists</i>	\$456,139.20	\$1,602,820.80	\$2,058,960.00
<i>IM Generalists</i>	\$380,116.00	\$0.00	\$380,116.00
<i>Nephrologists</i>	\$456,139.20	\$267,136.80	\$723,276.00
<i>Respirologists</i>	\$456,139.20	\$934,978.80	\$1,391,118.00
<i>Rheumatologists</i>	\$456,139.20	\$1,602,820.80	\$2,058,960.00
Medical Oncologists	\$228,069.60	\$467,489.40	\$695,559.00
Neurologists	\$456,139.20	\$1,602,820.80	\$2,058,960.00
Obstetricians & Gynecologists	\$912,278.40	\$3,482,193.00	\$4,394,471.40
Orthopedic Surgeons	\$342,104.40	\$316,563.00	\$658,667.40
Palliative Care Specialists	\$114,034.80	\$400,705.20	\$514,740.00
Pediatricians	\$1,026,313.20	\$601,057.80	\$1,627,371.00
Plastic Surgeons	\$114,034.80	\$105,521.00	\$219,555.80
Psychiatrists	\$760,232.00	\$0.00	\$760,232.00
Any Physician Type	\$2,166,661.20	\$1,974,263.09	\$4,140,924.29
Total	\$12,828,915.00	\$16,807,122.29	\$29,636,037.29

*Not including annual inflationary factor, benefits, continuing medical education, replacement costs, FFS billings, supplies, overhead and program support services

**Based on national average salary for entry-level medical professor and PEI-specific clinical remunerations retrieved from the Government of Canada's Labour Market Information database (2021-2022).

Infrastructure and Other Costs

Medical Education Sites

While cost projections for renovations or new build capital projects are outside the scope of work for this engagement, the table shows high-level estimates provided by UPEI in consultation with various stakeholders including Health PEI, based on the specifications outlined in this report.

Note that costs for continued operations and maintenance of these new or renovated spaces are not captured in the table and should also be considered in future infrastructure budgeting related to the medical school.

Site	Estimated Capital Project Costs
QEH	\$15,391,000
PCH	\$11,276,000
Western	\$1,632,000
KCMH	\$2,415,000
O'Leary	\$792,000
Souris	\$792,000
Health Centres	\$4,480,000
Total	\$36,778,000
2023 Fall Capital Budget	-\$10,800,000
Net Required Funding	\$25,978,000

Infrastructure and Other Costs

Housing
(Annual Estimated
Lease Pay-Outs)

MUN's Average Annual Cost of Learner Accommodation (\$)	Number of Rooms Required in Year 9	Total Accommodation Cost in Year 9 (\$)
\$9,576.63	30	\$287,298.99

*Does not include costs for construction of new housing

Travel
(For Learners)

Region	Estimated Number of Learners to be Accommodated in Each Region by Year 9 (Headcount)	Estimated Distance Travelled Per Learner (km)	Estimated Travel Cost per Region (\$)
East Prince	57	23547.6	\$62,427.29
Kings	7	2891.8	\$7,666.51
West Prince	7	2891.8	\$7,666.51
Total	227	93777.2	\$248,613.96

3

Resourcing Need & Potential Capacity





Physicians

Please note that throughout the report, physician contributions to service and education have been measured by the following units:

- One **physician FTE** is defined as a physician who is practicing full time (37.5 hours a week, 46 weeks a year)
- One **physician educator FTE** is defined as a physician who is practicing full time (37.5 hours a week, 46 weeks a year) but holds an appointment at the university whereby 20% of their time* (average 7.2 hours a week) is dedicated to teaching (on-campus learning activities such as lectures and clinical skills workshops as well as supervising or precepting students in the field)

*Time allocated for teaching is for the purposes of planning only and not intended to reflect the future reality of physician work patterns, which are anticipated to be varied and individualized

Need

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NEED Education

The first step in understanding PEI's ability to host a medical school within the context of the healthcare system is elucidating the degree of need for physician educators—aka the optimal number of physician educators that are needed to deliver medical education.

Several interacting elements depicted in the figure contribute to the determination of the need for physicians to deliver education on the island.



Cohort Size

**NEED
Education**

Year of Medical School Operations	Cohorts Active	Number of UGME Learners Active	Number of PGME Learners Active
Year 1 (2025)	UGME Cohort 1 Existing PGME Family Medicine Program	20	14
Year 2 (2026)	UGME Cohorts 1 & 2 Existing PGME Family Medicine Program	40	14
Year 3 (2027)	UGME Cohorts 1, 2 & 3 Existing PGME Family Medicine Program	60	14
Year 4 (2028)	UGME Cohort 1, 2, 3 & 4 Existing PGME Family Medicine Program	80	14
Year 5 (2029)	UGME Cohort 2, 3, 4 & 5 PGME Cohort 1	80	28
Year 6 (2030)	UGME Cohort 3, 4, 5 & 6 PGME Cohort 1 & 2	80	42
Year 7 (2031)	UGME Cohort 4, 5, 6 & 7 PGME Cohort 1, 2 & 3	80	52
Year 8 (2032)	UGME Cohort 5, 6, 7 & 8 PGME Cohort 1, 2, 3 & 4 Enhanced Skills (+1)	80	54
Year 9 (2033)	UGME Cohort 6, 7, 8 & 9 PGME Cohort 1, 2, 3, 4 & 5 Enhanced Skills (+1)	80	58

It is anticipated that **20 UGME** and **21 PGME** learners* will be enrolled in the UPEI-MUN joint program.

The table depicts cohorts and number of learners active over 9 years of medical school operations.

*While this initial proposed PGME roll-out is step-wise and minimalist, there is potential for a more accelerated deployment of residency programs in order to boost teaching and healthcare capacity in the early years of the medical school's operations, akin to the approach adopted by other start-up medical schools across Canada (namely TMU and Simon Fraser).

Clinical Requirements of the Curriculum

NEED Education

UGME:

Years 1 and 2 of the UGME program will be delivered primarily on-campus. Whole class lectures will be delivered virtually and in real time by MUN faculty. However PEI physicians will be required to facilitate small group learning (tutorials and integrated learning sessions) as well as clinical skills, simulation and anatomy lab teaching and evaluations on site at the UPEI campus.

Physicians (or preceptors) will also be required to supervise **3rd year clerks** during core clinical rotations which include: Family Medicine, Obstetrics, Internal Medicine, Pediatrics, Psychiatry, Surgery and Emergency Medicine.

In **Year 4**, preceptors will be required to supervise Elective and Selective rotations. Selectives consist of core rotations in family medicine as well as non-core rotations in a discipline of a learner's choice. Electives allow students to receive further training in any medical discipline of interest either locally, nationally or internationally depending on preceptor availability. Only certain Electives and core Selective rotations will presumably be delivered on the island. These include: Family Medicine, Obstetrics, Internal Medicine, Pediatrics, Psychiatry, Surgery and Emergency Medicine.

PGME:

Physician preceptors will be required to supervise and train residents to various degrees of intensity depending on their level of experience and competency. Need for physician preceptors for PGME learners will depend on the particular programs that will be offered on the island.

Proposed Residency Programs

NEED Education

Since the UPEI-MUN program has a focus on training family physicians, Family Medicine will be one of the PGME programs that will be offered. However, it is expected that overtime the residency program portfolio will expand beyond Family Medicine in collaboration and consultation with physicians and health system leaders to reflect system capacity and needs on PEI. For the purposes of planning, the table depicts a **first-place PGME design scheme that is deemed reasonable and feasible** based on continued consultations with UPEI, MUN and health system decision makers.

POTENTIAL PGME PROGRAM DESIGN

Residency Program	Cohort Size				
	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034
Family Medicine	22*	15	13	12	11
Internal Medicine	0	0	2	3	4
Psychiatry	2	2	2	2	2
Integrated FM-EM	4	4	4	4	4
Total	28	21	21	21	21
<i>Emergency Enhanced Skills (+1)</i>	0	0	2	2	2
<i>Anesthesia Enhanced Skills (+1)</i>	0	0	2	2	2
Total incl. Enhanced Skills	28	21	25	25	25

- *Currently, PEI hosts a cohort of 5 Dalhousie PGME Family Medicine residents each year. This number is slated to increase to 7 by 2025. In this current first-place scheme of the residency program portfolio, in the first year of PGME operations (2029), the Dalhousie program will be phased out to make room for 15 UPEI PGME Family Medicine residents.
- 4 residents are expected to be enrolled in a joint Family Medicine-Emergency Medicine program in 2029 and 2 are expected to train in Psychiatry.
- Two Family Medicine Enhanced Skills offerings (in Emergency Medicine and Anesthesia) will be rolled out by 2031, each intaking 2 additional resident trainees (beyond the 21 learner cohort).

Physician Administrative Workload

NEED Education

Besides teaching, physicians will be required to complete various administrative tasks as well as teaching-adjacent duties. Additional FTEs must also be considered as standby to accommodate unexpected absences and vacations.

The table depicts the additional physician capacity (% FTE increase) that might be required to carry out these activities.

Administrative and Miscellaneous Demands	Additional Physician Educator Capacity Requirement (% FTE Increase)
Extra administrative workload	5%*
Faculty development workload	5%*
Teaching backfill/standby	5%*

*The percentage increase is applied as a cushion to the total number of FTEs that are required for education (it does not represent the percentage of an individual's time that might be dedicated to these activities).

Required Degree of Physician-Learner Interaction

NEED Education

The degree of physician supervision required, and therefore the degree of need for physician educators will vary depending on learners' level of experience (i.e whether the learner is an undergraduate clerk or a junior or senior resident).

The following assumptions regarding physician-learner interaction time were incorporated into predictive modelling of physician educator need based on consultations with medical education experts and PEI stakeholders.

Stage of Learner	Percentage of Rotation Time that Requires Physician-Learner Interaction
UGME Year 3 & 4	20%
PGME Year 1 (Family Medicine)	15%
PGME Year 1 (Specialties)	15%
PGME Year 2 (Family Medicine)	10%
PGME Year 2 (Specialties)	10%
PGME Year 3 (Family Medicine)	5%
PGME Year 3 (Specialties)	5%
PGME Year 4	1%
PGME Year 5	1%

NEED Education

Considering all the elements described above, it is estimated that:

119 Physician Educator FTEs

(defined as physicians who are practicing 37.5 hours a week, 46 weeks a year and dedicating 20% of their time to teaching*)

are needed to deliver education over the course of the medical school's first 9 years of operation and going forward (barring any changes to cohort size or PGME design).

*Time allocated for teaching is for the purposes of planning only and not intended to reflect the future reality of physician work patterns, which are anticipated to be varied and individualized

NEED Education

The table shows the estimated number of physicians required to deliver medical education in every year of the medical school's operations, going out to year 9 (when all cohorts across all UGME and PGME years are presumed to be active)

Physician Type	Estimated Number of Physician Educators Required to Deliver Medical Education Each Year of Medical School Operations (FTE)									Maximum Physician Need Across All Years (FTE)
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	
Anesthesiologists	0	0	1	1	1	1	2	2	2	2
Emergency Doctors	2	2	4	4	4	5	5	5	5	5
Family Physicians	5	5	10	11	15	20	20	19	19	20
General Surgeons	2	2	5	7	8	8	8	8	8	8
Geriatricians	1	1	1	1	1	1	1	1	1	1
Internal Medicine	14	14	28	28	28	28	28	28	28	28
<i>Cardiologists</i>	2	2	4	4	4	4	4	4	4	4
<i>Critical Care Specialists</i>	2	2	4	4	4	4	4	4	4	4
<i>Gastroenterologists</i>	2	2	4	4	4	4	4	4	4	4
<i>IM Generalists</i>	2	2	4	4	4	4	4	4	4	4
<i>Nephrologists</i>	2	2	4	4	4	4	4	4	4	4
<i>Respirologists</i>	2	2	4	4	4	4	4	4	4	4
<i>Rheumatologists</i>	2	2	4	4	4	4	4	4	4	4
Medical Oncologists	1	1	1	1	1	2	2	1	1	2
Neurologists	2	2	4	4	4	4	4	4	4	4
Obstetricians & Gynecologists	3	3	7	7	8	8	8	8	8	8
Orthopedic Surgeons	2	2	3	3	3	3	3	3	3	3
Palliative Care Specialists	1	1	1	1	1	1	1	1	1	1
Pediatricians	3	3	8	8	9	9	9	9	8	9
Plastic Surgeons	0	0	0	0	0	0	1	1	1	1
Psychiatrists	1	1	7	7	7	8	8	8	8	8
Any Physician Type Not Otherwise Engaged in Medical Education	7	14	14	19	19	19	19	19	19	19
Total	44	51	94	102	109	117	119	117	116	119

Importantly, the total need for physicians in each discipline across 9 years of medical school operations is the **maximum, not the sum** of FTEs across the 9 years.

NEED

Clinical Backfill

The overall need for physicians in the context of the medical school must also account for the need for clinical service backfill for those who participate in education.

Considering that each physician educator FTE would contribute 20% of their time to teaching*, the table shows a snapshot of the estimated new physician FTE requirements to provide clinical backfill in every year of the medical school's operations, going out to year 9.

Year of Medical School Operations	Estimated Number of Physician Educators Required to Deliver Medical Education Each Year of Medical School Operations (FTE)	Estimated Number of Physicians Required to Provide Clinical Backfill (FTE)
Year 1 (2025)	44	8.8
Year 2 (2026)	51	10.2
Year 3 (2027)	94	18.8
Year 4 (2028)	102	20.4
Year 5 (2029)	109	21.8
Year 6 (2030)	117	23.4
Year 7 (2031)	119	23.8
Year 8 (2032)	117	23.4
Year 9 (2033)	116	23.2

*Time allocated for teaching is for the purposes of planning only and not intended to reflect the future reality of physician work patterns, which are anticipated to be varied and individualized

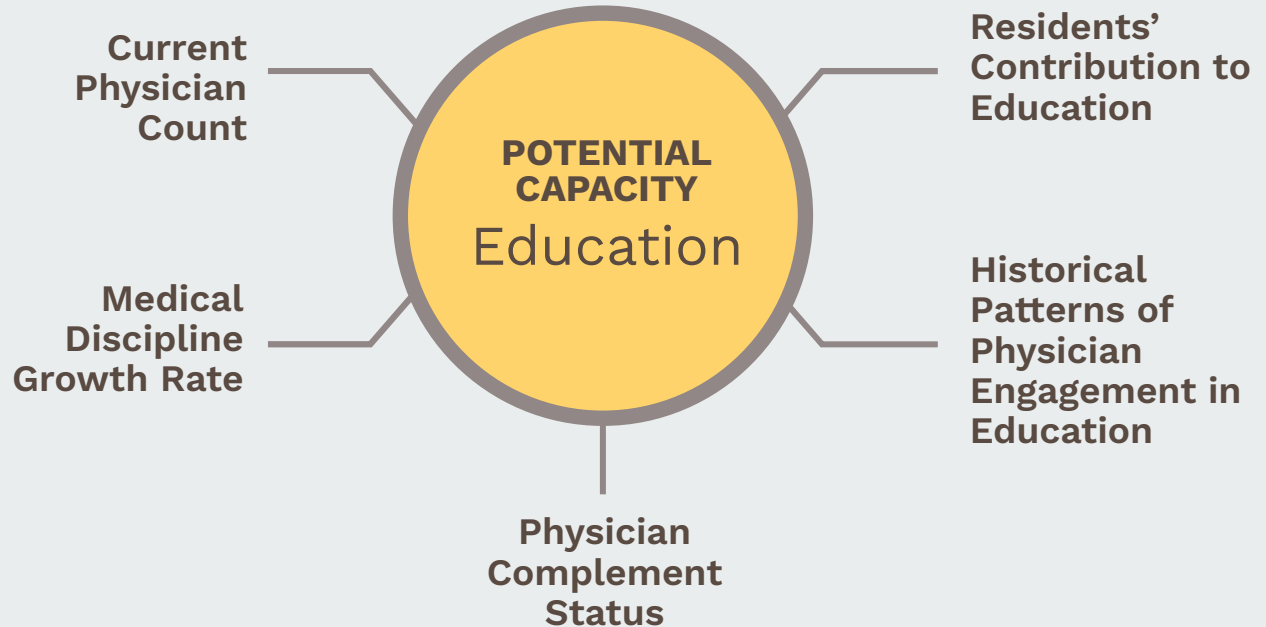
Potential Capacity

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Potential Capacity Education

After delineating the extent of the need for physicians to deliver medical education on the island, we next worked to understand PEI's physician capacity to address this need.

Several interacting elements depicted in the figure contribute to the determination of the potential physician capacity to deliver education on the island.



Current Physician Count

POTENTIAL
CAPACITY
Education

The number of physicians currently practicing on PEI is a key determinant of the degree of resourcing available for medical education on the island.

In January 2024, the total physician headcount on the island stood at 293.

PEI'S PHYSICIAN HEADCOUNT IN SELECT DISCIPLINES
(SEE APPENDIX FOR COMPREHENSIVE LIST)

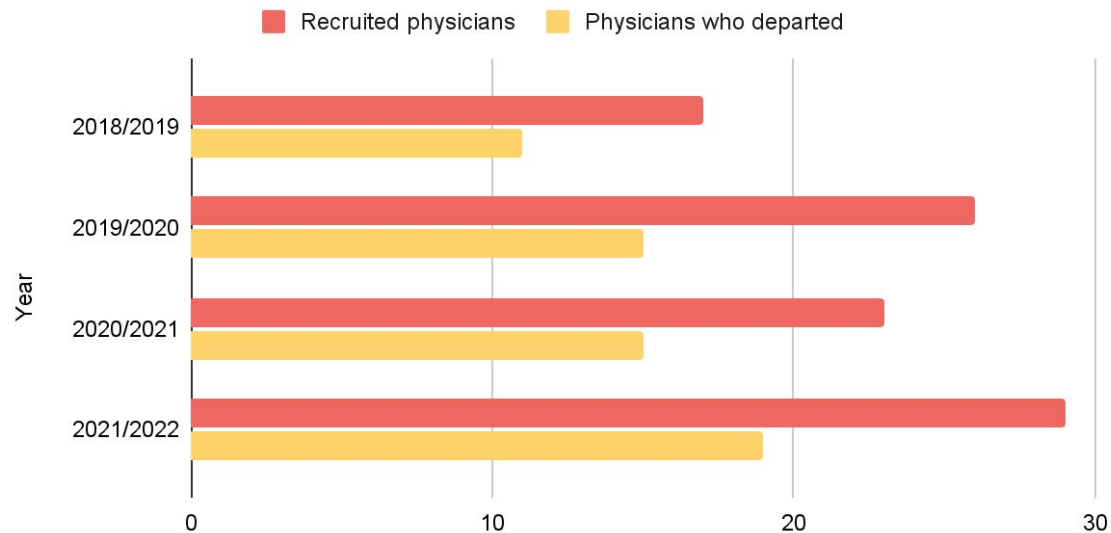
Physician Type	Headcount
Anesthesiologists	9
Emergency Doctors	34
Family Physicians	96
General Surgeons	9
Hospitalists	20
Internal Medicine (incl. Cardiology, Critical Care, Gastroenterology, General Medicine, Nephrology, Respiriology, Rheumatology)	17
Neurologists	3
Obstetricians & Gynecologists	11
Orthopedic Surgeons	6
Pediatricians	11
Psychiatrists	18
All Disciplines	293

Medical Discipline Growth Rates

POTENTIAL
CAPACITY
Education

Doctor recruitment and retention

Additions and departures of doctors in PEI, fiscal years 2019-2022



The number of physicians across various disciplines is expected to fluctuate over the coming years, impacting the size of the potential pool of physician educators.

Over the last few years, number of new physician recruits* to PEI has exceeded the number who have departed or retired.

*may include locums

Medical Discipline Growth Rates

POTENTIAL
CAPACITY
Education

The table depicts historic growth rates in select disciplines over the last 5 years.

- The highest number of **Anesthesiologists** on PEI was recorded as 13 (in 2021), while the current headcount is currently down to 9.
- **Internal Medicine and General Surgery** physician populations have demonstrated a strong growth rate of 7.5% and 9.3% respectively
- **Family Medicine** has seen a negligible growth rate of 0.7%

HISTORIC PHYSICIAN GROWTH RATES IN SELECT DISCIPLINES
(SEE APPENDIX FOR COMPREHENSIVE LIST)

Physician Type	Population Growth Rate (2018-2022)
Anesthesiologists	-2.20%
Emergency Doctors	3.10%
Family Physicians	0.7%
General Surgeons	9.3%
Hospitalists	8.8%
Internal Medicine (incl. Cardiology, Critical Care, Gastroenterology, General Medicine, Nephrology, Respiriology, Rheumatology)	7.5%
Obstetricians & Gynecologists	5.1%
Pediatricians	4.3%
Psychiatrists	8.2%
All Disciplines	3.4%

Medical Discipline Growth Rates

POTENTIAL CAPACITY Education

PROJECTED NUMBER OF PRACTICING PHYSICIANS IN SELECT DISCIPLINES
(SEE APPENDIX FOR COMPREHENSIVE LIST)

The table depicts the projected number of practicing physicians at key timepoints over the first 9 years of the medical school's operations based on historic growth rates.

Note that projected physician counts might be underestimated considering that the rate of growth in most disciplines is likely to exceed historic patterns, as a result of the establishment of the medical school.

Physician Type	Projected Number of Practicing Physicians by <u>Year 1</u> of Medical School Operations (FTE)	Projected Number of Practicing Physicians by <u>Year 3</u> of Medical School Operations (FTE)	Projected Number of Practicing Physicians by <u>Year 6</u> of Medical School Operations (FTE)	Projected Number of Practicing Physicians by <u>Year 9</u> of Medical School Operations (FTE)
Anesthesiologists	7.3	7.3	7.3	7.3
Emergency Doctors	24.3	25.8	28.3	31
Family Physicians	83.9	85.1	86.9	88.8
General Surgeons	9.6	11.4	14.9	19.5
Hospitalists	13	15.4	19.8	25.5
Internal Medicine (incl. Cardiology, Critical Care, Gastroenterology, General Medicine, Nephrology, Respirology, Rheumatology)	19.8	23	28.9	36.2
Obstetricians & Gynecologists	12.2	13.4	15.6	18.2
Pediatricians	11.1	12.1	13.7	15.5
Psychiatrists	18.5	21.6	27.4	34.6
All Disciplines	258.2	275.4	303.2	333.9

Physician Complement Status



**POTENTIAL
CAPACITY
Education**

The complement system, which is unique to PEI, stipulates a limit on number of funded positions in each region of PEI for family doctors and specialists.

PEI is experiencing significant physician shortages in key medical disciplines. One way of illustrating and measuring these deficits is through the complement gap (the actual number of practicing physicians compared to the predetermined complement number). As of January 2024, physician shortages are most apparent in the following disciplines:

- Internal Medicine:**
 Only 17/24 positions are filled (70% of complement)
- Anesthesiology:**
 QEH has a 2.2 FTE vacancy; PCH’s complement accounts for 4 FTEs, which are currently vacant with backfill provided by locums; emergency anesthesia diverting services to QEH
- Family Practice:**
 There are 17.8 FTE vacancies, of which 6.9 are in East Prince (~26% of the region’s Family Practice complement)

CURRENT PHYSICIAN COMPLEMENT GAP IN SELECT DISCIPLINES
(SEE APPENDIX FOR COMPREHENSIVE LIST)

Physician Type	Current Number of Practicing Physicians (FTE)	Full Complement (FTE)	Complement Gap (FTE)
Anesthesiologists	7.30	13.50	6.20
Emergency Doctors	23.85	21.00	-2.85
Family Physicians	82.68	100.50	17.82
Hospitalists	11.00	11.00	0.00
General Surgeons	8.00	7.00	-1.00
Internal Medicine (incl. Cardiology, Critical Care, Gastroenterology, General Medicine, Nephrology, Respiriology, Rheumatology)	17.00	24.00	7.00
Obstetricians & Gynecologists	11.00	11.00	0.00
Pediatricians	10.20	11.00	0.80
Psychiatrists	15.80	19.00	3.20
All Disciplines	242.13	292.55	50.42

Physician Complement Status

POTENTIAL CAPACITY Education

Considering that physicians in disciplines with large complement gaps (high vacancy rates) are under increased pressure to fulfil their care delivery mandates, disciplines with larger complement gaps have been assumed to have a smaller pool of potential educators who could provide teaching capacity for the medical school.

Future investments in the health system to address these deficits (including enhancing recruitment and retention efforts) are critical to increasing the number of physicians who would be available to contribute to education.

PROJECTED NUMBER OF PHYSICIANS IN SELECT DISCIPLINES POTENTIALLY AVAILABLE FOR TEACHING CONSIDERING COMPLEMENT STATUS (SEE APPENDIX FOR COMPREHENSIVE LIST)

Physician Type	Projected Number of Practicing Physicians by Year 1 of Medical School Operations (FTE)	Projected Number of Potential Physician Educators Considering Complement Status (FTE)
Anesthesiologists	7.3	3.9
Emergency Doctors	24.3	24.3
Family Physicians	83.9	70.0
General Surgeons	9.6	9.6
Hospitalists	13.0	13.0
Internal Medicine (incl. Cardiology, Critical Care, Gastroenterology, General Medicine, Nephrology, Respiriology, Rheumatology)	16.7	13.1
Obstetricians & Gynecologists	12.2	12.2
Pediatricians	11.1	11.1
Psychiatrists	18.5	18.0
All Disciplines	258.2	231.3

To determine the number of physicians who are potentially available for teaching in Year 1 of the medical school's operations considering complement status, the vacancy rate in each discipline has been applied to the projected number of practicing physicians in that discipline.

Historical Patterns of Physician Engagement in Education



POTENTIAL CAPACITY Education

Physicians on PEI have a history of precepting UGME and PGME learners from other institutions:

- Five PEI family medicine learners enrolled in Dalhousie's medical school currently complete their residency on the island
- In the last 5 years, on average, as many as 100 MUN and Dalhousie UGME students/yr have completed clerkships on PEI

The table shows the 3-year historic rate of engagement in education among family doctors and specialists on PEI*.

*These rates may be underestimated, considering that they do not capture rotations that occur more informally through direct transactions between learners and physicians.

HISTORIC RATE OF ENGAGEMENT IN EDUCATION (2020-2022) IN SELECT DISCIPLINES
(SEE APPENDIX FOR COMPREHENSIVE LIST)

Physician Type	Percentage of Physician Population Who Have Historically Engaged in Medical Education
Anesthesiologists	26%
Emergency Doctors	18%
Family Physicians	18%
General Surgeons	50%
Hospitalists	2%
Internal Medicine <i>(average across Cardiology, Critical Care, Gastroenterology, General Medicine, Nephrology, Respirology, Rheumatology)</i>	39%
Obstetricians & Gynecologists	19%
Pediatricians	64%
Psychiatrists	27%
All Disciplines	24%

Historical Patterns of Physician Engagement in Education

POTENTIAL CAPACITY Education

PROJECTED NUMBER OF PHYSICIANS FROM AVAILABLE POOL WHO MIGHT BE INTERESTED IN TEACHING IN SELECT DISCIPLINES (SEE APPENDIX FOR COMPREHENSIVE LIST)

The table shows the size of the potential pool of physician educators by year 1 of the medical school's operations by applying the historic rates of engagement in education to the number of physicians potentially available for teaching considering the complement status.

Physician Type	Projected Number of Physicians Potentially Available for Teaching Considering Complement Status (FTE)	Projected Number of Potential Physician Educators Considering Complement Status and Historic Rates of Engagement in Education (FTE)
Anesthesiologists	3.9	1
Emergency Doctors	24.3	4.4
Family Physicians	70	12.6
General Surgeons	9.6	4.8
Hospitalists	13	0.3
Internal Medicine	15.5	7
Obstetricians & Gynecologists	12.2	2.3
Pediatricians	11.1	7.1
Psychiatrists	18	4.8
All Disciplines	231.3	56.1

Residents' Contribution to Education



**POTENTIAL
CAPACITY**
Education

Depending on their level of seniority and experience, residents will be able to and expected to contribute to teaching. Resident contribution to teaching is a fundamental cornerstone of medical education. As part of this 'layered learning practice model', residents are trained to precept students and other residents with the oversight of a seasoned physician educator. The following assumptions regarding the degree of resident contributions to teaching (measured as a percentage of a Physician Educator FTE) were incorporated into predictive modelling of physician capacity.

Stage of Learner	Resident Contribution to Teaching (Percentage of a Physician Educator FTE)
PGME Y1 (Family Medicine)	25%
PGME Y1	20%
PGME Y2 (Family Medicine)	75%
PGME Y2	35%
PGME Y3	50%
PGME Y4	75%
PGME Y5	90%

Potential Capacity Education

Considering all the elements described above, it is estimated that:

98 Physician Educator FTEs

(defined as physicians who are practicing 37.5 hours a week, 46 weeks a year and dedicating 20% of their time to teaching*)

can be considered as potential capacity to deliver education over the course of the medical school's first 9 years of operation.

It is important to consider that in the real-world roll-out of the medical school, additional potential educational capacities that have not been considered in our quantitative analysis, beyond practicing physicians (e.g. retired physicians, other healthcare professionals etc.) are likely to contribute to teaching.

*Time allocated for teaching is for the purposes of planning only and not intended to reflect the future reality of physician work patterns, which are anticipated to be varied and individualized

Potential Capacity Education

The table shows the estimated number of Physician Educators required to deliver medical education in every year of the medical school's operations, going out to year 9 (when all cohorts across all UGME and PGME years are presumed to be active).

Physician Type	Potential Physician Educator Capacity to Deliver Medical Education Each Year of Medical School Operation (FTE)									Maximum Potential Physician Educator Capacity Across All Years (FTE)
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	
Anesthesiologists	1	1	1	1	1	1	2	2	2	2
Emergency Doctors	4	4	4	4	5	6	7	7	8	8
Family Physicians	22	22	22	22	25	32	34	32	31	34
General Surgeons	4	5	5	6	6	7	8	8	9	9
Geriatricians	0	0	0	0	0	0	0	0	0	0
Internal Medicine	7	8	8	8	8	9	9	12	16	16
<i>Cardiologists</i>	1	1	1	1	1	1	1	1	2	2
<i>Critical Care Specialists</i>	0	0	0	0	0	0	0	1	1	1
<i>Gastroenterologists</i>	0	0	0	0	0	0	0	0	0	0
<i>IM Generalists</i>	4	4	4	4	4	4	4	5	7	7
<i>Nephrologists</i>	1	2	2	2	2	3	3	3	4	4
<i>Respirologists</i>	1	1	1	1	1	1	1	2	2	2
<i>Rheumatologists</i>	0	0	0	0	0	0	0	0	0	0
Medical Oncologists	0	0	0	1	1	1	1	1	1	1
Neurologists	0	0	0	0	0	0	0	0	0	0
Obstetricians & Gynecologists	2	2	2	2	2	2	3	3	3	3
Orthopedic Surgeons	3	3	3	3	3	3	3	3	3	3
Palliative Care Specialists	0	0	0	0	0	0	0	0	0	0
Pediatricians	7	7	7	7	8	8	9	9	9	9
Plastic Surgeons	1	1	1	1	1	1	1	1	1	1
Psychiatrists	4	5	5	6	7	8	10	12	14	14
Any Physician Type Not Otherwise Engaged in Medical Education	27	29	0	0	0	0	0	0	1	29
Total	82	87	58	61	67	78	87	90	98	98

Importantly, the total capacity for Physician Educators in each discipline across 9 years of medical school operations is the **maximum**, **not the sum** of FTEs across the 9 years.

Potential Capacity Clinical Backfill

The existence of PGME programs on the island is anticipated to increase service delivery capacity by way of residents.

The table shows the anticipated contribution of family medicine and specialty residents to patient care as a percentage of one physician FTE.

Stage of Learner	Resident Contribution to Clinical Service (Percentage of a Physician FTE)
PGME Y1 (Family Medicine)	25%
PGME Y1	20%
PGME Y2 (Family Medicine)	75%
PGME Y2	35%
PGME Y3	50%
PGME Y4	75%
PGME Y5	90%

Potential Capacity Clinical Backfill

Anticipated rates of resident contribution to service delivery can be applied to project potential new capacity for clinical backfill by way of residents.

The table shows the anticipated physician capacity for clinical backfill by way of residents.

Year of Medical School Operations	Estimated Number of Physician Educators Required to Deliver Medical Education Each Year of Medical School Operations (FTE)	Estimated Number of Physicians Required to Provide Clinical Backfill (FTE)	Potential Physician Capacity to Provide Clinical Backfill by Way of Residents (FTE)
Year 1 (2025)	44	8.8	7
Year 2 (2026)	51	10.2	7
Year 3 (2027)	94	18.8	7
Year 4 (2028)	102	20.4	10.3
Year 5 (2029)	109	21.8	19.2
Year 6 (2030)	117	23.4	23.7
Year 7 (2031)	119	23.8	24.4
Year 8 (2032)	117	23.4	26.7
Year 9 (2033)	116	23.2	29.5

Net Available Resourcing

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The net available physician resourcing for the medical school can be calculated by subtracting the need from the potential capacity.



The following table demonstrates the net physician resourcing for delivering medical education and providing clinical backfill for the first 9 years of the medical school's operations.

Net Physician Resourcing

Physician Type	CAPACITY		NEED		NET RESOURCING (+ Indicates Surplus; - Indicates Deficit)	
	Potential Physician Educator Capacity (FTE)	Potential Clinical Backfill Capacity by Way of Residents (FTE)	Number of Physician Educators Needed to Deliver Medical Education (FTE)	Number of Physicians Needed to Provide Clinical Backfill (FTE)	Net Physician Educator Resourcing (FTE)	Net Physician Clinical Backfill Resourcing (FTE)
Anesthesiologists	2	0.4	2	0.4	0	0
Emergency Doctors	8	2.5	5	1	+3	+1.5
Family Physicians	34	18.3	20	4	+14	+14.3
General Surgeons	9	0	8	1.6	+1	-1.6
Geriatricians	0	0	1	0.2	-1	-0.2
Internal Medicine	16	3	28	6	-15	-3.3
<i>Cardiologists</i>	2	0	4	0.8	-2	-0.8
<i>Critical Care Specialists</i>	1	0	4	0.8	-3	-0.8
<i>Gastroenterologists</i>	0	0	4	0.8	-4	-0.8
<i>IM Generalists</i>	7	2.9	4	0.8	0	+1.5
<i>Nephrologists</i>	4	0	4	0.8	0	-0.8
<i>Respirologists</i>	2	0	4	0.8	-2	-0.8
<i>Rheumatologists</i>	0	0	4	0.8	-4	-0.8
Medical Oncologists	1	0	2	0.4	-1	-0.4
Neurologists	0	0	4	0.8	-4	-0.8
Obstetricians & Gynecologists	3	0	8	1.6	-5	-1.6
Orthopedic Surgeons	3	0	3	0.6	0	-0.6
Palliative Care Specialists	0	0	1	0.2	-1	-0.2
Pediatricians	9	0	9	1.8	0	-1.8
Plastic Surgeons	1	0	1	0.2	0	-0.2
Psychiatrists	14	5.4	8	1.6	+6	+3.8
Any Physician Type Not Otherwise Engaged in Medical Education	29	0	19	3.8	+10	-3.8

Implications for Medical School Operations



By Year 9 of the medical school's operations, it is estimated that at least

92

Currently practicing physicians will have to be engaged by the university in medical education (spend 20% of their time teaching*)

43**

new physicians will have to be hired into the health system and engaged by the university in medical education

Physician Type	Number of Currently Practicing Physicians Who Should be Engaged in Medical Education by Year 9 of Medical School Operation (FTE)	Number of Physicians Who Should be Hired by Year 9 of Medical School Operation (FTE)
Anesthesiologists	2	0
Emergency Doctors	5	0
Family Physicians	20	0
General Surgeons	8	1.6
Geriatricians	0	1.2
Internal Medicine	13	19.8
<i>Cardiologists</i>	2	2.8
<i>Critical Care Specialists</i>	1	3.8
<i>Gastroenterologists</i>	0	4.8
<i>IM Generalists</i>	4	0
<i>Nephrologists</i>	4	0.8
<i>Respirologists</i>	2	2.8
<i>Rheumatologists</i>	0	4.8
Medical Oncologists	1	1.4
Neurologists	0	4.8
Obstetricians & Gynecologists	3	6.6
Orthopedic Surgeons	3	0.6
Palliative Care Specialists	0	1.2
Pediatricians	9	1.8
Plastic Surgeons	1	0.2
Psychiatrists	8	0
Any Physician Type	19	3.8
Total	92	43

* Time allocated for teaching is for the purposes of planning only and not intended to reflect the future reality of physician work patterns, which are anticipated to be varied and individualized. Additionally, physicians could spend some of their currently allocated teaching time on research, which would result in higher FTE demands

** Could be pooled with greater health system hiring needs identified in the Health Intelligence Report



The Impact of Dedicated Academic Time on Physician FTE Requirements

- For the purposes of planning, the FTE projections in this report assume that each physician educator will spend 20% of their time or 0.2 FTE on teaching activities.
- In the real world roll-out of the medical school, physician time dedicated to teaching will vary between individuals and depend on various appointment structures.

If a significant portion of physicians come to engage in teaching at a lower intensity than 0.2 FTE, this would drive up the number of practicing physicians who will need to be engaged in medical education as well as the number of new hires. Alternatively, if a significant portion of physicians come to engage in teaching at a higher intensity than 0.2 FTE, this would result in lower than projected physician FTE requirements.

The Impact of Research on Physician FTE Requirements

Research is a foundational pillar in all medical schools. It is a key driver of innovation in medical education as well as healthcare delivery, and a required competency for medical learners as per accreditation standards.

- As the UPEI-MUN medical school matures, more and more academic physicians are anticipated to spend some portion of their 0.2 academic FTE conducting research, and those being recruited to the island will also expect to spend at least a portion of their time engaged in scholarly work other than teaching and precepting.
- The FTE projections in this report assume that a physician's non-clinical scholarly time will be spent solely on teaching.

Depending on the number of academic physicians who will wish to participate in research as part of their non-clinical time and the time point at which this transition occurs, the number of FTEs who would need to be hired and/or engaged in medical education could increase. At the same time, research can be a revenue driver, with some grants-based funding programs providing faculty salary supports and most programs subsidizing research infrastructure operations and maintenance.

The following tables delineate targets for engagement of practicing physicians in medical education by the university and hiring of new physicians at **the 1-, 3- and 6-year timepoints** of the medical school's operations

Medical Education Engagement and Hiring Targets

By Year 1

Due to fluctuations in need and capacity (most importantly resident contributions to teaching and care), the university affiliation and hiring targets vary at each timepoint in the medical school's operations and may be higher than the Year 9 scenario

Physician Type	Number of Currently Practicing Physicians Who Should be Engaged in Medical Education by Year 1 of Medical School Operation (FTE)	Number of Physicians Who Should be Hired by Year 1 of Medical School Operation (FTE)
Anesthesiologists	0	0
Emergency Doctors	2	0.4
Family Physicians	5	0
General Surgeons	2	0.4
Geriatricians	0	1.2
Internal Medicine	5	11.8
<i>Cardiologists</i>	<i>1</i>	<i>1.4</i>
<i>Critical Care Specialists</i>	<i>0</i>	<i>2.4</i>
<i>Gastroenterologists</i>	<i>0</i>	<i>2.4</i>
<i>IM Generalists</i>	<i>2</i>	<i>0.4</i>
<i>Nephrologists</i>	<i>1</i>	<i>1.4</i>
<i>Respirologists</i>	<i>1</i>	<i>1.4</i>
<i>Rheumatologists</i>	<i>0</i>	<i>2.4</i>
Medical Oncologists	0	1.2
Neurologists	0	2.4
Obstetricians & Gynecologists	2	1.6
Orthopedic Surgeons	2	0.4
Palliative Care Specialists	0	1.2
Pediatricians	3	0.6
Plastic Surgeons	0	0
Psychiatrists	1	0.2
Any Physician Type	7	1.4
Total	29	22.8

Medical Education Engagement and Hiring Targets

By Year 3

Due to fluctuations in need and capacity (most importantly resident contributions to teaching and care), the university affiliation and hiring targets vary at each timepoint in the medical school's operations and may be higher than the Year 9 scenario

Physician Type	Number of Currently Practicing Physicians Who Should be Engaged in Medical Education by Year 3 of Medical School Operation (FTE)	Number of Physicians Who Should be Hired by Year 3 of Medical School Operation (FTE)
Anesthesiologists	1	0.2
Emergency Doctors	4	0.8
Family Physicians	10	0
General Surgeons	5	1
Geriatricians	0	1.2
Internal Medicine	8	25.6
Cardiologists	1	3.8
Critical Care Specialists	0	4.8
Gastroenterologists	0	4.8
IM Generalists	4	0.8
Nephrologists	2	2.8
Respirologists	1	3.8
Rheumatologists	0	4.8
Medical Oncologists	0	1.2
Neurologists	0	4.8
Obstetricians & Gynecologists	2	6.4
Orthopedic Surgeons	3	0.6
Palliative Care Specialists	0	1.2
Pediatricians	7	2.6
Plastic Surgeons	0	0
Psychiatrists	5	3.4
Any Physician Type	14	2.8
Total	59	51.8

Medical Education Engagement and Hiring Targets

By Year 6

Due to fluctuations in need and capacity (most importantly resident contributions to teaching and care), the university affiliation and hiring targets vary at each timepoint in the medical school's operations and may be higher than the Year 9 scenario

Physician Type	Number of Currently Practicing Physicians Who Should be Engaged in Medical Education by Year 6 of Medical School Operation (FTE)	Number of Physicians Who Should be Hired by Year 6 of Medical School Operation (FTE)
Anesthesiologists	1	0.2
Emergency Doctors	5	0
Family Physicians	20	0
General Surgeons	7	2.6
Geriatricians	0	1.2
Internal Medicine	9	24.6
<i>Cardiologists</i>	<i>1</i>	<i>3.8</i>
<i>Critical Care Specialists</i>	<i>0</i>	<i>4.8</i>
<i>Gastroenterologists</i>	<i>0</i>	<i>4.8</i>
<i>IM Generalists</i>	<i>4</i>	<i>0.8</i>
<i>Nephrologists</i>	<i>3</i>	<i>1.8</i>
<i>Respirologists</i>	<i>1</i>	<i>3.8</i>
<i>Rheumatologists</i>	<i>0</i>	<i>4.8</i>
Medical Oncologists	1	1.4
Neurologists	0	4.8
Obstetricians & Gynecologists	2	7.6
Orthopedic Surgeons	3	0.6
Palliative Care Specialists	0	1.2
Pediatricians	8	2.8
Plastic Surgeons	0	0
Psychiatrists	8	0.5
Any Physician Type	19	3.8
Total	83	51.3

*Recommendations
and Strategies to
Address Targets*

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Achieving Engagement Targets

It is estimated that by year 9 of the medical school's operations, at least 92 currently practicing physician FTEs will need to be engaged in medical education by the university. This means, each of these 92 physicians will have to sign onto an arrangement with the university, agreeing to devote 20%* of their time to teaching. To achieve this, two critical factors must be put in place:

- 1. A strong affiliation and sense of belonging with the university including:**
 - **Medical appointment models** that are attractive to physicians whilst also providing UPEI with more influence in requesting physician accountability in education activities. This includes career progression parameters that take into consideration the merits of scholarly work.
 - Providing tip-to-tip access to or delivering high quality **faculty development** programs that bring physician educators together as a community

*Time allocated for teaching is for the purposes of planning only and not intended to reflect the future reality of physician work patterns, which are anticipated to be varied and individualized

Achieving Engagement Targets

2. A favourable and reasonable university compensation model:

- Currently, physician preceptors delivering medical education on PEI are paid ~\$250/week to take on a student. This level of compensation is unlikely to draw in the number of physicians or elicit the per-physician intensity of academic activity that is required to successfully deliver the medical education program on the island.
- The MSPEI, Government of PEI and HPEI **Master Agreement**—which establishes the systems of payment for health services—is currently under negotiation and presents a timely opportunity for the creation of new physician compensation models, including annual and hourly remuneration schemes that are likely to engage more physicians in medical education in the context of a new academic health system on PEI.

Achieving Hiring Targets

Historic physician recruitment and retention rates across all disciplines will have to be increased in order to attract and deploy new physician hires that are needed to run the medical school in the first 9 years of its operations.

This is particularly important in disciplines with low historic growth rates and high education demands such as internal medicine and obstetrics and gynecology. In **Internal Medicine** for instance, the recruitment and retention rate (also referred to as the discipline growth rate) would have to be increased from a historic **7.8% to 80%** in order to fulfill the hiring demands.

Historically, PEI has used two primary levers to compete for talent:

- Remuneration models and amounts (including salary, administrative supports, on-call stipends and holiday billing rates)
- Work-life balance (anticipated call schedules, local community opportunities, island lifestyle)

Achieving Hiring Targets

Going forward,

- The **establishment of the medical school** and the opportunity to participate in teaching and scholarly work is anticipated to be a major new attractant for incoming physicians, allowing PEI to more successfully compete for talent on the national stage.
- The province of PEI is undertaking an innovative and **comprehensive primary care renewal strategy**, including major investments in infrastructure (14 new community health centres) as well as a re-envisioning of primary care delivery in the form of team-based integrated care units known as patient medical homes (17 are in development). Currently, a dozen patient medical homes are up and running or in the developing stages on PEI. It is expected that down the line this collaborative approach to primary care practice will make it more attractive for family physicians as well as specialists and other healthcare workers to set up practice in PEI.

Achieving Hiring Targets

Enhancing the rate of engagement of the current physician population in medical education is another important strategy for reducing the hiring need.

This is particularly important in disciplines with low vacancy rates, low historic rates of engagement in medical education but high education demands such as **obstetrics and gynecology**.

For example, increasing the proportion of existing physicians in this discipline who are willing to participate in education **from 19% to 45%, will alleviate the need for new hires entirely.**

Achieving Hiring Targets

Increasing participation of physicians in medical education will require a multi-pronged approach on the part of the university including:

- Strengthening relationships with physician communities through one-on-one discussions between the newly-appointed Dean and physicians, as well as the development and deployment of trusted champions within each medical discipline
- Robust faculty development offerings and efforts on the part of the university
- Continued collaboration between the university and HPEI to encourage the physician community to participate in the development of the medical school as a historic opportunity for the island (with the establishment of the medical school, PEI will be one of three jurisdictions across Canada* at the cutting edge of innovation in medical education).

*Only two other universities in Canada are in the midst of creating *de novo* medical programs: Toronto Metropolitan University and Simon Fraser University

Integration of Physician Educators into the Health System



Specific resourcing strategies must be put in place to facilitate the integration of physician educators and learners into the health system, due in part to how healthcare and medical education are currently organized in PEI.

- Unlike most acute care centres, in PEI, hospitalists (not internists) oversee inpatient wards which consist of a mix of adult complications. The curriculum must be adapted to leverage the physician capacities and healthcare delivery arrangements that are currently in place on the island. For example, a mix of internists and hospitalists will need to receive faculty development supports from the university to serve as undergraduate preceptors. Moreover, core internal medicine rotations could take place in outpatient clinics, in the intensive care unit, emergency department, and through in-patient consults and code blues (as opposed to inpatient wards).
- PEI will need to put in place dedicated administrative capacity for coordination of medical education, including personnel embedded within key sites to support student placements.

Partnerships

Partnerships with out-of-province institutions will likely need to be forged to enhance the medical education experience, in particular for delivery of the PGME program.

- PEI's population of 176,000 and the intensity and breadth of medical services offered on the island (400+ beds) are sufficient to fulfill undergraduate medical education standards for the envisioned cohort of 20 students.
- However, fewer complex care patients may mean insufficient exposure of PGME learners to less common medical complications, posing a potential challenge in UPEI's ability to meet educational standards for speciality residency training on the island.

In anticipation of these challenges, UPEI should aim to establish off-island partnerships with larger medical centres within the maritimes or in other Canadian jurisdictions to guarantee a seamless and high-quality PGME learning experience that consistently falls within accreditation standards.

Partnerships in the Atlantic region



While early conversations with Horizon Health in NB indicate the potential for medical education partnerships, and NL Health Services and the NS Health Authority are obvious potential sites for UPEI-MUN students to complete rotations, historically, coordination of resources and medical education experiences amongst atlantic institutions has been less than optimal.

With the establishment of this new medical school in the Atlantic region, it is more pertinent now than ever, for Atlantic post-secondary institutions to open up lines of communication and hold frank and continued conversations aimed at diffusing competitive positioning and creating mutually beneficial agreements that allow for sharing of resources and assets, while safeguarding and strengthening each institution's brand, identity and success. **The Atlantic Physician Registry**—which allows physicians who have their primary practice in an Atlantic province and hold a full license issued by one of the four Atlantic Colleges of Physicians and Surgeons to practice in any of the maritime provinces—is an important first step on this path.

To further maximize coordination of resources and assure successful delivery of medical education and optimal physician workforce distribution across the Atlantic provinces, we recommend the immediate establishment of a **Maritime Dean's Table** akin to the [Council of Ontario Faculties of Medicine](#).

Partnerships across Canada

Potential partnership opportunities outside of the maritime region (e.g. with Ontario) also exist and can be explored but are more likely to be one-way transactions to facilitate large-centre learning in specific disciplines for UPEI students.



Infrastructure

Requirements

=

The Committee on Accreditation of Canadian Medical Schools (CACMS) enacts several standards related to the provision of adequate infrastructure and space for medical education within the clinical setting. These include:

Sufficiency of Buildings & Equipment:

Assure the use of, buildings and equipment sufficient to achieve educational, clinical, and research missions

Resources for Clinical Instruction:

Appropriate resources for the clinical instruction of medical students in ambulatory and inpatient settings and has adequate numbers and types of patients (e.g., acuity, case mix, age, gender)

Clinical Instructional Facilities:

Each affiliated clinical site should have sufficient information resources and instructional facilities

Security, Safety & Disaster Preparedness:

Adequate security systems in place at all locations, with published policies and procedures to ensure student safety and address emergency and disaster preparedness

Library & Information Technology (IT) Resources:

Access to well-maintained library and IT resources sufficient in breadth of holdings and technology to support educational and other missions, supervised by appropriate professional staff with sufficient expertise required to support a medical school

Resources for Transfer or Visiting Students:

Additional resources to accommodate transfer or visiting medical students should not significantly diminish the resources available to already enrolled medical students

Study, Lounge, Storage Space & Call Rooms:

Ensures medical students have, at each campus and affiliated clinical site, adequate study space, lounge areas, personal lockers or other secure storage facilities, and secure call rooms if students are required to participate in late night or overnight clinical learning experiences

Housing

UPEI will be obliged to provide housing for medical learners who are completing temporary core rotations at distributed sites that are a long distance away from their education home base. Typically housing standards for learners include:

- Fully furnished private bedrooms
- Access to wireless internet
- Laundry facilities
- Proximity to amenities
- Separate accommodations for UGME and PGME learners to uphold professional boundaries

At MUN, UGME housing is provided for those engaged in mandatory clinical placements, situated approximately **an hour or more away from the St. John's main campus**. Similarly, **MUN PGME learners** are granted housing arrangements when their placement is over **one hour away from their home base**.

Considering that PEI spans approximately 280 km from tip to tip (about a 3 to 4-hour drive), that a significant portion of UPEI UGME and PGME learners will be local to PEI, and that there may be multiple anchoring sites for learners beyond Charlottetown, such as in Summerside, we anticipate the following housing requirements*:

- For UGME learners, a 0.3 room to 1 person ratio
- For PGME learners, a 0.5 room to 1 person ratio

*Refer to [Slide 75](#) for an estimated number of housing options that are required for medical learners.

Existing or Planned Capacities



Medical Education Sites

Acute Care Facilities

Facility	Healthcare Capacity	Current Provisions For Medical Education	Upcoming Capital Projects
Queen Elizabeth Hospital	243 Beds 900+ Staff	<p>2 call rooms, lounge with kitchen and work stations</p> <p><i>Emergency & Neonatology:</i> under used space available for potential medical education use</p> <p><i>Pediatrics:</i> residents share an office</p> <p><i>OR, Gynecology, Medical Lab & Specialist working spaces:</i> at capacity</p>	<p>Master planning for new tower and 24hr Mental Health & Addictions Emergency Short-stay within current ER</p>
Prince County Hospital	110 Bed 800+ Staff	<p>Large IT equipped teaching rooms, meeting spaces throughout units, residents lounge and student lodging</p> <p>ER space limited and not meeting current workflow needs</p> <p>Under-used ICU exam rooms due to physician shortages</p>	<p>PCH Outpatient Mental Health & Addictions Unit is moving to the closeby upcoming Summerside Community Health Centre.</p> <p>PCH master planning is scheduled for Spring of 2024</p>

DATA GATHERED BY UPEI OVER THE COURSE OF MULTIPLE SITE VISITS AND CONSULTATIONS

Community Hospitals

Facility	Healthcare Capacity	Current Provisions For Medical Education	Upcoming Capital Projects
Kings County Memorial Hospital	30 Beds	<i>No assigned medical education spaces</i>	Master Redevelopment Plan currently underway, potential for including medical education
O’Leary Community Hospital	13 extended care beds	2 exam rooms, various meeting rooms and swing offices	None
Western Hospital	23 medical beds 2 palliative care beds	<i>No assigned medical education spaces</i>	Master planning scheduled for Spring of 2024
Souris Hospital	17 beds	<i>No assigned medical education spaces</i>	None

DATA GATHERED BY UPEI OVER THE COURSE OF MULTIPLE SITE VISITS AND CONSULTATIONS

Primary Care Centres

Primary Care Health Centres are organized into five primary care networks across PEI (Kings, Queen’s East, Queen’s West, East Prince & West Prince). Some of these centres have potential provisions for medical education, including:

- **Polyclinic:** 5-6 offices, boardroom, staff areas and open floor space available for rent
- **Harbourside Health Centre:** 1 exam room, centre to be replaced by Summerside Community Health Centre
- **Gulf Shore Health Centre:** expansion to be completed in 2024
- **O’Leary Health Centre:** adjacent to O’Leary Community Hospital

However, many other centres have limited capacity to accommodate medical education:

- Eastern Kings Health Centre
- Cornwall Medical Centre
- Montague Health Centre
- Kensington Health Centre
- Four Neighborhoods Health Centre
- Evangeline Health Centre
- Central Queens Health Centre
- Tyne Valley Health Centre
- Alberton Health Services

PEI is investing in the development of a number of new Health Centres, where provisions around medical education should optimally be considered

Site	Anticipated Date of Completion	Clinical Staffing Targets*
University of PEI Community Health Centre	Summer 2025	5 Physicians
Alberton	Fall 2023	5 Physicians
Summerside	2025	5-8 Physicians
The Mount (Charlottetown)	Early 2026	7-8 Physicians (shared with Hillsborough)
Hillsborough (Charlottetown)	Early 2026	7-8 Physicians (shared with The Mount)
Montague	2026	TBD

* Evolving targets; this snapshot was gathered through consultations with HPEI in summer of 2023

Other Small Health Centres and Small Practices

PEI also houses a number of other healthcare facilities and smaller (solo physician) practices which deliver primary care or specialize in specific services, such as psychiatry and palliative care. Those with provisions for medical learners include:

Sherwood Medical Centre: 3 physician suites (1 with an available room; 2 with learner space)

Parkdale Medical Centre: Multiple non-contiguous spaces which can be used for learners and empty area in waiting room that can be converted into an office or exam room

Boardwalk Professional Centre: Building contains 3 floors, consisting of 5 physician suites that currently house 15 physicians

A number of “**Patient Medical Homes**” are being formed across the island to shift primary health care delivery from solo and small family practices to collaborative healthcare.

Patient Medical Homes deliver team-based care through a model that has been developed and endorsed by the College of Family Physicians of Canada (CFPC).

The first five Patient Medical Homes have launched at the following locations and additional medical homes are in development.

- Polyclinic and Parkdale Medical Centre, Charlottetown
- Sherwood Medical Centre, Charlottetown
- Kinlock Medical Centre, Stratford
- Kensington Health Centre, Kensington
- Cornwall/Crapaud Health Centres, Cornwall and Crapaud

It is imperative that new spaces, including any planned renovations, new leases and net new buildings take into consideration the needs of interprofessional medical learners

Learner Housing

In the last few years and especially in the wake of COVID, PEI, like many other jurisdictions in Canada has experienced some challenges regarding housing:


- PEI is currently experiencing a housing crisis, with the largest homeless encampment the province has ever experienced and rapid population growth due to immigration
- In 2023, UPEI asked its students not to come to campus in person, due to a housing crunch
- In August 2022, there were 400 UPEI students on the waiting list for residence however the athlete's village for the 2023 Canada Winter Games on the UPEI campus has provided an additional 376 residence spaces bringing the total number to 810

There is an opportunity for UPEI and the government of PEI to work collaboratively and creatively and engage proactive community partners like the City of Summerside and the PCH Foundation to develop high quality housing options for medical learners. This includes evaluating development options on vacant lands surrounding PCH.

Implications for Medical School Operations



Medical Education Sites



In order to determine the breadth and extent of space and infrastructure needs for medical education within the health system, we determined the likely number of learners who need to be accommodated (as per CACMS standards) within all acute care and major community health sites on PEI

It is estimated that a total of 217 learners need to be accommodated within the health system by year 9 of the medical school's operations

Acute Care or Community Hospital	Estimated Number of UGME Learners to be Accommodated by Year 9 of Medical School Operations (Headcount)	Estimated Number of PGME Learners to be Accommodated by Year 9 of Medical School Operations (Headcount)	Estimated Number of UGME or PGME Learners to be Accommodated by Year 9 of Medical School Operations (Headcount)
KCMH	1	1	2
PCH	19	20	38
QEH	49	83	126
Western Hospital	1	1	2

Patient Medical Home or Health Centre	Estimated Number of Learners to be Accommodated by Year 9 of Medical School Operations (Headcount)
Kensington Health Centre	4
Harbourside Health Centre	4
Willmot Medical Centre	4
Sea Isle Medical Centre	4
Souris Health Centre	2
Seaside Medical Centre	2
Montague Health Centre	2
Kinlock Medical Centre	3
Polyclinic Medical Centre	3
Sherwood Medical Centre	3
Cornwall Health Centre	3
Crapaud Health Centre	3
Central Queens Health Centre	3
Gulf Shore Health Centre	3
Alberton Health Centre	2
O'Leary Health Centre	2
Tyne Valley Health Centre	2

The actual number of learners on site at any one time is likely to be less than the estimated number, due to the interplay of various curricular, situational and personal factors in the real world setting.

Estimated number of learners who need to be accommodated in the health system by 3rd, 6th and 9th year of medical school operations



Region

Region	Estimated Number of Learners to be Accommodated per Region by Year 3 (Headcount)	Estimated Number of Learners to be Accommodated per Region by Year 6 (Headcount)	Estimated Number of Learners to be Accommodated per Region by Year 9 (Headcount)
East Prince	23	44	54
Kings	4	7	7
Queens	43	102	148
West Prince	3	7	6

The actual number of learners on site at any one time is likely to be less than the estimated number, due to the interplay of various curricular, situational and personal factors in the real world setting.

Estimated number of learners who need to be accommodated in the health system by 3rd, 6th and 9th year of medical school operations



Acute Care Facilities & Community Hospitals

Site	Unit/Discipline	Estimated Number of Learners to be Accommodated by Year 3 (Headcount)	Estimated Number of Learners to be Accommodated by Year 6 (Headcount)	Estimated Number of Learners to be Accommodated by Year 9 (Headcount)
QEH	Anesthesia	1	3	5
	Dermatology	0	0	0
	Emergency	2	6	7
	ICU/CCU/Progressive Care	5	14	40
	Inpatient Units	0	0	0
	Internal Medicine	2	5	11
	Laboratory Medicine	0	0	0
	Neurology	4	8	20
	Obstetrics & Gynaecology	4	9	9
	Otolaryngology	0	0	0
	Pediatrics	5	10	9
	PEI Cancer Treatment Centre	0	0	0
	PEI Palliative Care Centre	1	3	2
	Psychiatry	3	6	7
	Surgery	4	15	16
		TOTAL	31	79

The actual number of learners on site at any one time is likely to be less than the estimated number, due to the interplay of various curricular, situational and personal factors in the real world setting.

Estimated number of learners who need to be accommodated in the health system by 3rd, 6th and 9th year of medical school operations

Acute Care Facilities & Community Hospitals

Site	Unit/Discipline	Estimated Number of Learners to be Accommodated by Year 3 (Headcount)	Estimated Number of Learners to be Accommodated by Year 6 (Headcount)	Estimated Number of Learners to be Accommodated by Year 9 (Headcount)
PCH	Anesthesia	1	1	3
	Emergency	2	5	6
	Inpatient Units	0	0	0
	Internal Medicine	2	5	11
	Otolaryngology	0	0	0
	Palliative Care	1	1	1
	Pediatrics	3	6	6
	Psychiatry	1	1	2
	Surgery	2	4	4
	Women's Wellness Centre	3	6	5
	TOTAL	15	29	38
KCMH	Emergency	1	2	2
	TOTAL	1	2	2
Western Hospital	Emergency	1	2	2
	TOTAL	1	2	2

The actual number of learners on site at any one time is likely to be less than the estimated number, due to the interplay of various curricular, situational and personal factors in the real world setting.

Estimated number of learners who need to be accommodated in the health system by 3rd, 6th and 9th year of medical school operations

Primary Care Health Centres, Other Health Centres and Small Practices by Region

Region	Patient Medical Homes & Other Health Centres	Estimated Number of Learners to be Accommodated per Patient Medical Home or Health Centre by Year 3 (Headcount)	Estimated Number of Learners to be Accommodated per Patient Medical Home or Health Centre by Year 6 (Headcount)	Estimated Number of Learners to be Accommodated per Patient Medical Home or Health Centre by Year 9 (Headcount)
East Prince	Kensington Health Centre Harbourside Health Centre Willmot Medical Centre Sea Isle Medical Centre	2	4	4
Kings	Souris Health Centre Seaside Medical Centre Montague Health Centre	1	2	2
Queens	Kinlock Medical Centre Polyclinic Medical Centre Sherwood Medical Centre Cornwall Health Centre Crapaud Health Centre Central Queens Health Centre Gulf Shore Health Centre	2	4	4
West Prince	Alberton Health Centre O'Leary Health Centre Tyne Valley Health Centre	1	2	2

The actual number of learners on site at any one time is likely to be less than the estimated number, due to the interplay of various curricular, situational and personal factors in the real world setting.

While space and infrastructure provisions across the health system are currently not sufficient to house medical learners, the following guideline can be applied to determine the extent of capital improvement projects required to accommodate medical learners.

Space/Resource	Description	Capacity (Number or Size)	Implications for capital planning at QEH
Teaching Rooms	Integrated Audio Visual (AV) with chairs	Big enough to host all UGME students anticipated at site	<i>Large classroom to accommodate ~50 learners</i>
Lounge & Kitchens	Lounge & kitchen space with sofas, chairs, TV and wifi access with work stations	One large lounge to accommodate ~25% of total learners on site Additional smaller lounge for ~25% of residents anticipated at site	<i>One large lounge for ~35 learners Additional smaller lounge for ~20 PGME learners</i>
Call Rooms	Private bed, desk, chair, wifi access, sink & mirror	Rooms to accommodate ~10% of residents anticipated at site	<i>~15 call rooms</i>
Shower & Bathroom Facilities	Gender neutral, adjacent to call rooms	$\frac{1}{3}$ the number of call rooms	<i>~5 private shower and bathroom facilities</i>

Space/Resource	Description	Capacity (Number or Size)	<i>Implications for capital planning at QEH</i>
Lockers	Individual secure storage facilities	Enough to accommodate ~75% of learners anticipated at site	<i>~100 lockers</i>
Private Touchdown Spaces	Private/confidential conversation spaces and workstations	Number of spaces in a unit to match ~25% of anticipated learners at site	<i>~30 touchdown spaces across all units</i>
Parking	Safe and accessible spaces within close proximity to visitor parking	Number of parking spots to match ~25% of anticipated learners at site	<i>~30 parking spaces</i>

Learner Housing

Estimated Number of Housing Options To be Established in Each Region

Using the UGME and PGME housing ratios previously outlined (0.3 and 0.5 rooms per learner respectively), the table below shows the estimated number of housing options (rooms) that will need to be secured by year 9 of the medical school's operations.

Region	Estimated Number of UGME Learners Who Will Require Housing by Year 9	Estimated Number of Rooms Required for UGME Learners by Year 9	Estimated Number of PGME Learners Who Will Require Housing by Year 9	Estimated Number of Rooms Required for PGME Learners by Year 9
East Prince	26	8	31	16
Kings	3	1	4	2
West Prince	3	1	4	2
Total	32	10	39	20

- The Queens region has not been included due to proximity to UPEI campus
- Housing requirements in East Prince are likely to be lower than presented in the table, as PCH in Summerside has the potential to serve as an educational home base for PGME residency programs

4

Investment Requirements





PHYSICIANS

Physician Remuneration Costs

To understand and calculate the potential physician compensation costs brought on by the medical school, we have used the national average salary for a Faculty of Medicine Professor as well as PEI's average clinical salaries for family physicians and specialists.

The table shows:

- Average faculty salaries across Canada (according to Salary Expert*) as well as entry, medium and senior level salary ranges for a Faculty of Medicine Professor at MUN and the University of Toronto (UofT)
- The Government of Canada's Labour Market Information salary ranges for PEI General Practitioners and Specialists (reference period 2021-2022)
- The compensation rates **do not include benefits, continuing medical education, replacement costs, FFS billings, supplies, overhead and program support services**

Role	Cost Incurred By	Salary Range		
		Entry	Medium	Senior
Faculty of Medicine Professor - Canada (data from Salary Expert)	UPEI	\$95,029.00	\$136,766.00	\$170,162.00
Faculty of Medicine Professor - MUN	UPEI	(no data)	\$128,292.46	(no data)
Faculty of Medicine Professor - UofT	UPEI	\$117,007.00	(no data)	(no data)
General Practitioner - PEI (data from Government of Canada's Labour Market Information Database)	HPEI	\$91,521.00	\$232,863.00	\$364,333.00
Specialist - PEI (data from Government of Canada's Labour Market Information Database)	HPEI	\$80,605.00	\$287,313.00	\$527,506.25

The highlighted cells have been used to calculate the total annual physician remuneration costs in Year 9

*

<https://www.salaryexpert.com/salary/job/medicine-professor-university/canada>
<https://www.jobbank.gc.ca/trend-analysis>

As a snapshot, in year 9 of the medical school's operations, the baseline annual physician compensation* is estimated at ~\$29.6M. Baseline annual resident compensation is estimated at \$1.9M (see [slide 99](#)), for a total cost of ~\$31.5M. Considering an inflation factor of 3% a year from the start of the medical school's operations, these costs could be as high as ~\$40M at this time point.

~\$12.8M to be paid by the University in the form of physician educator remuneration

This amount would likely be halved if Physician Educators were being compensated on an hourly, as opposed to an annual basis. To engage physicians in medical education, various compensation models should be offered with flexibility to address individual needs.

~\$18.7M to be paid by the health system to physicians and residents as clinical remuneration

*Not including annual inflationary factor, benefits, continuing medical education, replacement costs, FFS billings, supplies, overhead and program support services

Physician Type	Estimated Physician Educator Remuneration Costs to the University in Year 9 (\$)	Estimated Clinical Remuneration Costs to the Health Authority in Year 9 (\$)	Estimated Total Salary Costs in Year 9 (\$)
Anesthesiologists	\$190,058.00	\$0.00	\$190,058.00
Emergency Doctors	\$475,145.00	\$0.00	\$475,145.00
Family Physicians	\$1,900,580.00	\$0.00	\$1,900,580.00
General Surgeons	\$912,278.40	\$844,168.00	\$1,756,446.40
Geriatricians	\$114,034.80	\$400,705.20	\$514,740.00
Internal Medicine	\$3,116,951.20	\$6,611,635.80	\$9,728,587.00
<i>Cardiologists</i>	\$456,139.20	\$934,978.80	\$1,391,118.00
<i>Critical Care Specialists</i>	\$456,139.20	\$1,268,899.80	\$1,725,039.00
<i>Gastroenterologists</i>	\$456,139.20	\$1,602,820.80	\$2,058,960.00
<i>IM Generalists</i>	\$380,116.00	\$0.00	\$380,116.00
<i>Nephrologists</i>	\$456,139.20	\$267,136.80	\$723,276.00
<i>Respirologists</i>	\$456,139.20	\$934,978.80	\$1,391,118.00
<i>Rheumatologists</i>	\$456,139.20	\$1,602,820.80	\$2,058,960.00
Medical Oncologists	\$228,069.60	\$467,489.40	\$695,559.00
Neurologists	\$456,139.20	\$1,602,820.80	\$2,058,960.00
Obstetricians & Gynecologists	\$912,278.40	\$3,482,193.00	\$4,394,471.40
Orthopedic Surgeons	\$342,104.40	\$316,563.00	\$658,667.40
Palliative Care Specialists	\$114,034.80	\$400,705.20	\$514,740.00
Pediatricians	\$1,026,313.20	\$601,057.80	\$1,627,371.00
Plastic Surgeons	\$114,034.80	\$105,521.00	\$219,555.80
Psychiatrists	\$760,232.00	\$0.00	\$760,232.00
Any Physician Type	\$2,166,661.20	\$1,974,263.09	\$4,140,924.29
Total	\$12,828,915.00	\$16,807,122.29	\$29,636,037.29

**Based on national average salary for entry-level medical professor and PEI-specific clinical remunerations retrieved from the Government of Canada's Labour Market Information database (2021-2022).

Physician Remuneration Considerations and Caveats

Physician remuneration costs are calculated for **Year 9 of medical school operations only** and are **not cumulative** across all 9 years.

At different timepoints in the operations of the medical school, where different need and capacity parameters are at play, the annual cost associated with physician compensation is expected to vary.

The costs do not include an inflationary factor.

Also, additional tangential costs associated with physician hiring, which can be extensive, have not been factored into our salary costs. These include:

- Benefits
- Clinical support staff (Nursing or other allied health professionals)
- Administrative and operational supports/staff
- Office and clinical space
- Operating Room (OR) space and time
- ACC space and time
- Endoscopy space and time
etc...

Resident Remuneration Costs

In year 9 of the medical school’s operations, it is anticipated that 25 residents will be contributing to teaching and clinical service. Health PEI’s costs related to resident salaries in year 9 is estimated at ~\$1.9M.

	Role				
	PGM Y1	PGM Y2	PGM Y3	PGM Y4	PGM Y5
Salary	\$69,867	\$75,527	\$80,646	\$85,988	\$91,777
# active in year 9	2	15	8	-	-
Anticipated Total Salary Costs	\$1,917,807				

The table depicts resident compensation amounts for PEI, Nova Scotia and New Brunswick retrieved from CARMS (updated Feb 7, 2024), as well as the anticipated # of residents in each year of post graduate training in year 9 of the medical school’s operations.



INFRASTRUCTURE

Infrastructure Costs

Medical Education Sites

While cost projections for renovations or new build capital projects are outside the scope of work for this engagement, the table shows high-level estimates provided by UPEI in consultation with various stakeholders including Health PEI, based on the specifications outlined in this report.

Note that costs for continued operations and maintenance of these new or renovated spaces are not captured in the table and should also be considered in future infrastructure budgeting related to the medical school.

Site	Estimated Capital Project Costs
QEH	\$15,391,000
PCH	\$11,276,000
Western	\$1,632,000
KCMH	\$2,415,000
O'Leary	\$792,000
Souris	\$792,000
Health Centres	\$4,480,000
Total	\$36,778,000
2023 Fall Capital Budget	-\$10,800,000
Net Required Funding	\$25,978,000

Infrastructure Costs

Housing

Assuming similar costs for housing in NL and PEI, using 2020-2021 data provided by MUN, the average annual cost for learner accommodations can be calculated at **\$9,500 a year (largely for lease pay-outs)**. Using this standard, the table below shows the estimated accommodation costs for learners in the 9th year of the medical school's operations.

MUN's Average Annual Cost of Learner Accommodation (\$)	Number of Rooms Required in Year 9	Total Accomodation Cost in Year 9 (\$)
\$9,576.63	30	\$287,298.99

*Note that this amount does not include costs for construction of new housing.



OTHER

Travel Costs

Investment projections for the medical school will have to take into consideration several forms of reimbursable travel including:

- **On island travel**
 - *Learners:* to complete clinical rotations (high volume of travel anticipated assuming local students will be commuting)
 - *Physician Educators:* to deliver on-campus teaching (lectures, small group learning, assessments etc.)
- **Off island travel*:**
 - *Learners:* to complete core rotations or electives/selectives that cannot be hosted on PEI
 - *Physicians:* Out of province locums required to provide teaching or clinical backfill

**Off-island travel costs could be significant and depend on the range of rotations that PEI is able to offer on-island. For context, in Newfoundland, MUN reimburses UGME learners completing core rotations out of province at an average rate of \$2,000 per learner. Out of province travel for electives/selectives as well as PGME rotations are covered by NL Health Services.*

To calculate potential costs related to on-island travel, we used 2020-2021 data from MUN to generate an average distance travelled and average cost of travel per learner (with the assumption that distance from a learner's home base to their medical education site will be roughly the same on PEI and in NL).

- Average Annual Distance Travelled Per Learner: 413.1km
- Average Annual Cost of Travel Per Learner: \$1,095.22 (\$0.3772/km)

Using these standards, the table below provides insight into anticipated on-island travel-related costs for medical learners:

Region	Estimated Number of Learners to be Accommodated in Each Region by Year 9 (Headcount)	Estimated Distance Travelled Per Learner (km)	Estimated Travel Cost per Region (\$)
East Prince	57	23547.6	\$62,427.29
Kings	7	2891.8	\$7,666.51
West Prince	7	2891.8	\$7,666.51
Total	227	93777.2	\$248,613.96

Travel costs within the Queen's region have not been included due to proximity to the UPEI campus, in line with MUN's guidelines for travel reimbursement.

Medical Education Support Staff

By year 9 of its operations, with almost 140 learners active, it is anticipated that the medical school will need approximately **7 Education Coordinators** who are embedded within key clinical education sites to maintain calendars, manage databases, coordinate learner rotations and act as liaisons between the University and the Health Authority.

The national average salary for this role is ~\$65,000 per annum.

Role	Cost Incurred By	Salary Range		
		Entry	Medium	Senior
Education Coordinator - Canada	HPEI	\$49,642.00	\$65,240.00	\$87,722.00

While the annual cost for medical education support staff in Year 9 of the medical school’s operations is estimated at **\$456,680.00***, **these funds are already accounted for in the University’s current working capital for the medical school.**

*Does not include cost of recruitment or other incidental costs
Source: <https://ca.talent.com/salary?job=education+coordinator>

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Appendix



PEI's Current Physician Headcount Across Medical Disciplines

Physician Type	Headcount
Allergy & Immunologists	1.00
Anesthesiologists	9.00
Dermatologists	1.00
Emergency Doctors	34.00
Family Physicians	96.00
General Surgeons	9.00
Geriatricians	4.00
Geriatric Specialists	1.00
Hematopathologists	1.00
Hospitalists	20.00
Internal Medicine	17.00
<i>Cardiologists</i>	<i>2.00</i>
<i>Critical Care Specialists</i>	<i>1.00</i>
<i>Gastroenterologists</i>	<i>2.00</i>
<i>IM Generalists</i>	<i>6.00</i>
<i>Nephrologists</i>	<i>3.00</i>
<i>Respirologists</i>	<i>2.00</i>
<i>Rheumatologists</i>	<i>1.00</i>
Medical Oncologists	4.00
Medical Oncology - Clinical Associates	3.00

Mental Health & Addiction Services	4.00
Microbiologists	1.00
Neurologists	3.00
Obstetricians & Gynecologists	11.00
Ophthalmologists	5.00
Orthopedic Surgeons	6.00
Otolaryngologists	3.00
Pathologists	6.00
Pain Clinicians	0.00
Pain Management Specialists	2.00
Palliative Care Specialists	5.00
Pediatricians	11.00
Physical Medicine	1.00
Plastic Surgeons	2.00
Psychiatrists	18.00
Radiation Oncology - Clinical Associates	2.00
Radiologists	9.00
Reproductive Endocrinology & Fertility	0.00
Sports Specialists	0.00
Urologists	3.00
Vascular Surgeons	0.00
Women's Wellness Specialists	1.00
All Disciplines	293.00

Source: Health PEI, updated January 18, 2024

PEI's Historic Medical Discipline Growth Rates

Physician Type	Population Growth Rate (2018-2022)
Anesthesiologists	-2.2%
Dermatologists	0.0%
Emergency Doctors	3.1%
Family Physicians	0.7%
General Surgeons	9.3%
Geriatricians	10.7%
Hematopathologists	0.0%
Hospitalists	8.8%
Internal Medicine	7.8%
<i>Cardiologists</i>	7.8%
<i>Critical Care Specialists</i>	7.8%
<i>Gastroenterologists</i>	7.8%
<i>IM Generalists</i>	0.0%
<i>Nephrologists</i>	10.7%
<i>Respirologists</i>	7.8%
<i>Rheumatologists</i>	7.8%
Mental Health & Addiction Services	0.0%
Medical Oncologists	7.5%

Microbiologists	18.9%
Neurologists	-12.0%
Obstetricians & Gynecologists	5.1%
Ophthalmologists	0.0%
Orthopedic Surgeons	0.0%
Otolaryngologists	-6.9%
Pain Management Specialists	-24.0%
Palliative Care Specialists	0.0%
Pathologists	0.0%
Pediatricians	4.3%
Physical Medicine	18.9%
Plastic Surgeons	0.0%
Psychiatrists	8.2%
Radiation Oncology - Clinical Associates	0.0%
Radiologists	3.0%
Urologists	0.0%
Vascular Surgeons	0.0%
Women's Wellness Specialists	5.1%
All Disciplines	3.4%

Projected Number of Practicing Physicians Across Medical Disciplines at Different Timepoints in the Medical School's Operations

Physician Type	Projected Number of Practicing Physicians by Year 1 of Medical School Operations (FTE)	Projected Number of Practicing Physicians by Year 3 of Medical School Operations (FTE)	Projected Number of Practicing Physicians by Year 6 of Medical School Operations (FTE)	Projected Number of Practicing Physicians by Year 9 of Medical School Operations (FTE)
Anesthesiologists	7.3	7.3	7.3	7.3
Emergency Doctors	24.3	25.8	28.3	31.0
Family Physicians	83.9	85.1	86.9	88.8
Geriatricians	4.0	5.0	6.7	9.1
General Surgeons	9.6	11.4	14.9	19.5
Hospitalists	13.0	15.4	19.8	25.5
Internal Medicine	19.8	23.0	28.9	36.2
<i>Cardiologists</i>	2.3	2.7	3.4	4.3
<i>Critical Care Specialists</i>	1.2	1.4	1.7	2.1
<i>Gastroenterologists</i>	2.3	2.7	3.4	4.3
<i>IM Generalists</i>	6.0	6.0	6.0	6.0
<i>Nephrologists</i>	3.7	4.5	6.1	8.3
<i>Respirologists</i>	2.3	2.7	3.4	4.3
<i>Rheumatologists</i>	1.2	1.4	1.7	2.1
Medical Oncologists	4.6	5.3	6.6	8.2
Neurologists	3.0	3.0	3.0	3.0
Obstetricians & Gynecologists	12.2	13.4	15.6	18.2
Orthopedic Surgeons	6.0	6.0	6.0	6.0
Otolaryngologists	3.0	3.0	3.0	3.0
Palliative Care Specialists	2.3	2.3	2.3	2.3
Pediatricians	11.1	12.1	13.7	15.5
Plastic Surgeons	2.0	2.0	2.0	2.0
Psychiatrists	18.5	21.6	27.4	34.6
Vascular Surgeons	0.0	0.0	0.0	0.0
All Disciplines	258.2	275.4	303.2	333.9

Current Physician Complement Gap on PEI Across Medical Disciplines

Physician Type	Number of Practising Physicians (FTE)	Full Complement (FTE)	Complement Gap (FTE)
Allergy & Immunologists	0.60	1.00	0.40
Anesthesiologists	7.30	13.50	6.20
Dermatologists	1.00	3.00	2.00
Emergency Doctors	22.85	23.85	1.00
Family Physicians	82.68	100.50	17.82
General Surgeons	8.00	7.00	-1.00
Geriatricians	3.30	3.50	0.20
Geriatric Specialists	1.00	1.00	0.00
Hematopathologists	1.00	1.00	0.00
Hospitalists	11.00	11.00	0.00
Internal Medicine	17.00	24.00	7.00
<i>Cardiologists</i>	<i>2.00</i>	<i>2.00</i>	<i>0.00</i>
<i>Critical Care Specialists</i>	<i>1.00</i>	<i>1.00</i>	<i>0.00</i>
<i>Gastroenterologists</i>	<i>2.00</i>	<i>3.00</i>	<i>1.00</i>
<i>IM Generalists</i>	<i>6.00</i>	<i>12.00</i>	<i>6.00</i>
<i>Nephrologists</i>	<i>2.00</i>	<i>2.00</i>	<i>0.00</i>
<i>Respirologists</i>	<i>1.00</i>	<i>1.00</i>	<i>0.00</i>
<i>Rheumatologists</i>	<i>3.00</i>	<i>3.00</i>	<i>0.00</i>
Medical Oncologists	4.00	4.00	0.00
Medical Oncology - Clinical Associates	1.80	1.00	-0.80

Mental Health & Addiction Services	1.00	3.15	2.15
Microbiologists	1.00	2.00	1.00
Neurologists	3.00	3.00	0.00
Obstetricians & Gynecologists	11.00	11.00	0.00
Ophthalmologists	4.00	5.00	1.00
Orthopedic Surgeons	6.00	6.00	0.00
Otolaryngologists	3.00	3.00	0.00
Pathologists	5.00	6.00	1.00
Pain Clinicians	0.00	1.00	1.00
Pain Management Specialists	1.10	1.00	-0.10
Palliative Care Specialists	2.30	2.30	0.00
Pediatricians	10.20	11.00	0.80
Physical Medicine	1.00	3.00	2.00
Plastic Surgeons	2.00	2.00	0.00
Psychiatrists	15.80	19.00	3.20
Radiation Oncology - Clinical Associates	2.00	0.80	-1.20
Radiologists	8.60	8.60	0.00
Reproductive Endocrinology & Fertility	0.00	0.20	0.20
Sports Specialists	0.00	1.20	1.20
Urologists	3.00	3.00	0.00
Vascular Surgeons	0.00	1.00	1.00
Women's Wellness Specialists	0.60	0.60	0.00
All Disciplines	242.13	288.20	46.07

Source: Health PEI, updated January 18, 2024

Projected Number of Physicians Across Medical Disciplines Potentially Available for Teaching Considering Complement Status

Physician Type	Projected Number of Practicing Physicians by Year 1 of Medical School Operations (FTE)	Projected Number of Potential Physician Educators Considering Complement Status (FTE)
Anesthesiologists	7.3	3.9
Emergency Doctors	24.3	24.3
Family Physicians	83.9	70.0
General Surgeons	9.6	9.6
Geriatricians	4.0	4.0
Hospitalists	13.0	13.0
Internal Medicine	16.7	13.1
<i>Cardiologists</i>	2.3	2.3
<i>Critical Care Specialists</i>	1.2	1.2
<i>Gastroenterologists</i>	2.3	1.8
<i>IM Generalists</i>	6.0	3.0
<i>Nephrologists</i>	3.7	3.7
<i>Respirologists</i>	2.3	2.3
<i>Rheumatologists</i>	1.2	1.2
Medical Oncologists	4.6	4.6
Neurologists	3.0	3.0
Obstetricians & Gynecologists	12.2	12.2
Orthopedic Surgeons	6.0	6.0
Otolaryngologists	3.0	3.0
Palliative Care Specialists	2.3	2.3
Pediatricians	11.1	11.1
Plastic Surgeons	2.0	2.0
Psychiatrists	18.5	18.0
Vascular Surgeons	0.0	0.0
All Disciplines	258.2	231.3

Historic Rate of Engagement in Teaching (2020-2022) Across Medical Disciplines

Physician Type	Percentage of Physician Population Who Have Historically Engaged in Medical Education
Anesthesiologists	26%
Emergency Doctors	18%
Family Physicians	18%
General Surgeons	50%
Geriatricians	0%
Hospitalists	2%
Internal Medicine	51%
<i>Cardiologists</i>	50%
<i>Critical Care Specialists</i>	51%
<i>Gastroenterologists</i>	0%
<i>IM Generalists</i>	71%
<i>Nephrologists</i>	51%
<i>Respirologists</i>	51%
<i>Rheumatologists</i>	0%
Medical Oncologists	18%
Neurologists	0%
Obstetricians & Gynecologists	19%
Ophthalmologists	43%
Orthopedic Surgeons	53%
Otolaryngologists	0%
Palliative Care Specialists	0%
Pediatricians	64%
Physical Medicine	90%
Plastic Surgeons	86%
Psychiatrists	27%
Radiation Oncology - Clinical Associates	33%
Vascular Surgeons	0%
All Disciplines	24%

Source: Health PEI, updated January 18, 2024

Projected Number of Physicians from Available Pool Who Might Be Interested In Teaching Across Medical Disciplines

Physician Type	Projected Number of Physicians Potentially Available for Teaching Considering Complement Status (FTE)	Projected Number of Potential Physician Educators Considering Complement Status and Historic Rates of Engagement in Education (FTE)
Anesthesiologists	3.9	1
Emergency Doctors	24.3	4.4
Family Physicians	70	12.6
General Surgeons	9.6	4.8
Geriatricians	4	0
Hospitalists	13	0.3
Internal Medicine	15.5	7
<i>Cardiologists</i>	2.3	1.2
<i>Critical Care Specialists</i>	1.2	0.6
<i>Gastroenterologists</i>	1.8	0
<i>IM Generalists</i>	3	2.1
<i>Nephrologists</i>	3.7	1.9
<i>Respirologists</i>	2.3	1.2
<i>Rheumatologists</i>	1.2	0
Medical Oncologists	4.6	0.8
Neurologists	3	0
Obstetricians & Gynecologists	12.2	2.3
Orthopedic Surgeons	6	3.2
Otolaryngologists	3	0
Palliative Care Specialists	2.3	0
Pediatricians	11.1	7.1
Plastic Surgeons	2	1.7
Psychiatrists	18	4.8
Vascular Surgeons	0	0
All Disciplines	231.3	56.1

Estimations made using Health PEI data

List of People Consulted



UPEI Leadership

Dr. Catherine Callbeck, Chancellor

Mr. Darren Chaisson, Capital Projects Lead

Dr. Trevor Jain, Director of Clinical Programs/Physician Engagement

Ms. Myrtle Jenkins-Smith, Executive Director of Development and Alumni Engagement

Dr. Gregory Keefe, Interim President

Dr. Laurie McDuffee, Director of Human and Animal Health Collaborations

Dr. Aleisha Murnaghan, Medical Program Development Consultant, Faculty of Medicine

Dr. Christina Murray, Dean of Medicine

Ms. Jackie Podger, Vice-President Administration and Finance

Dr. Preston Smith, Dean, Faculty of Medicine

Mr. Paul Young, Chief Operating Officer, Faculty of Medicine

Memorial University Faculty Of Medicine

Dr. Sohaib Al-Asaaed, Associate Dean, Postgraduate Medical Education

Dr. Norah Duggan, Phase 4 Lead

Dr. Taryn Hearn, Associate Dean, Undergraduate Medical Education

Dr. Andrew Hunt, Assistant Dean, Distributed Medical Education

Dr. Todd Lambert, Assistant Dean, New Brunswick

Dr. Dolores McKeen, Interim Dean

Dr. Margaret Steele, Former Dean

Mr. Paul Tucker, Chief Operating Officer

Dr. Cathy Vardy, Former Executive Director, Medical Program Development

List of People Consulted - Cont'd



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Mr. Phillip Jefferson, Director, Facility & Capital Planning

Dr. Katherine McNally, Chief Medical Officer

Mr. Lane Pineau, Director, Fiscal Planning and Audit

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Mr. Neil Stewart, Senior Advisor, Medical Affairs

Ms. Lauren Kelley Weyman, Executive Director, Medical Affairs Administration

Ms. Belinda White, Chief Administration Officer

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Dr. George Carruthers, Registrar, College of Physicians and Surgeons PEI

Dr. Pdraig Casey, Director, Medical Education Program, Medical Society of PEI

Dr. Krista Cassell, President, Medical Society of PEI

Dr. Steven Scales, President of the PEI chapter of the College of Family Physicians

Comparator Programs

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Dr. Sarah McCorquodale, Regional Associate Dean, Interior, UBC

Dr. Sarita Verma, President, Vice Chancellor, Dean, CEO, NOSM University

PEI Provincial Government

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Ms. Nadine MacLean, Director, Health Workforce, Recruitment and Pharmacy

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Dr. Steven Liss, VP Research and Innovation, Toronto Metropolitan University; Chair of Medical School Development Steering Committee