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Public sector health analytics capacity before and after Covid-19: A case study of manager perspectives in New Brunswick, Canada

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Abstract

Background

Demand for health data and analytics to support research, policy, and practice continues to rise, accelerated by the Covid-19 pandemic. Despite the importance of the government analytics workforce in driving academic-based data sharing and linkage platforms, little is known about how public sector managers assess capacity in health analytics. This case study describes findings from consultations among middle managers of analytics services in a Canadian provincial health ministry.

Methods

Data collection involved a mixed-questions survey to gauge the functional perspective of managers on organisational and human resource analytics capacity within the New Brunswick Department of Health. The repeated cross-sectional survey was implemented in two rounds, with a baseline collected before the Covid-19 global outbreak (in 2016) and a follow-up after the pandemic emergency response (in 2022).

Results

The post-pandemic period was associated with perceptions of a growing role for public service personnel in handling analytics. Recruitment and retention of skilled analytics professionals emerged as the top priority for capacity building, including needs-based planning, competitive compensation packages to address skills shortages, professional development and promotion opportunities, and tracking key performance indicators for employee satisfaction.

Conclusions

Government health analytics professionals play a critical role in advancing administrative data use and re-use. Enhanced knowledge sharing is needed on best practices in supply-demand monitoring for analytics professionals and planning for human resources surge capacity in the public service, lest significant innovation potential for health system improvement be left untapped.

Keywords

data analytics; capacity building; public sector organisation; government employees

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Introduction

Administrative health data collected by governments and other service organisations are increasingly being used to inform policy, research, and practice [1, 2]. A number of administrative data research platforms have been established in countries and jurisdictions to facilitate their use in academic settings, such as across Canadian provinces (e.g. [3–7]). Many investigations have been conducted on the challenges and opportunities for using and re-using routine administrative data. These often focus on issues of data attributes, researcher requirements, ethics, sociopolitical sensitivities, data management infrastructure, and privacy and confidentiality [8–14]. Yet, despite the intensive processes and tasks surrounding the curation of administrative data for analytics, little is known about the personnel in public sector health systems dedicated to the underlying data and supporting information systems [15]. These personnel include managers and professionals in health data services, enterprise analytics, and information technology with a broad diversity of capacity and interdisciplinary knowledge on the intricacies of administrative data [11, 15].

Demand for health data and analytics has been amplified in recent years due to numerous convergences, exacerbated by the Covid-19 pandemic. Such drivers include new digital health and virtual care technologies, growing public health reporting requirements, greater emphasis on preventive and behavioural health measures, data quality needs for boosting clinical workforce capacity, advances in data mining techniques and interoperability across data systems, and public expectations for transparency and open data (e.g. data by gender, ethnicity, and other social determinants of health) [11, 13, 16–19]. Health ministries and healthcare organisations are increasingly expected to pivot from reporting lagging indicators to generating actionable insights from heterogeneous data with rapid turnaround [6, 20]. A robust government health analytics workforce is essential to ensure the information needs of diverse groups of stakeholders are met in a timely and effective manner. Compared with clinical practitioners, however, non-clinical professionals are often overlooked in discussions on health human resources capacity, including those at the centre of the data-to-decision making pipeline [15, 21].

Globally, skill shortages in data and analytics were reported before the pandemic, the result of important changes both in heightened demand from users and in limited supply of professionals with increasingly specialised qualifications [22]. In a 2010 international survey, the ‘information explosion’ and associated talent shortages and shorter time cycles for analytics were raised as significant issues facing public sector leaders [23]. In a 2014 Canadian survey on human resources needs in health informatics, over half of private companies (primarily focusing on e-health) expressed hiring difficulties in data analytics roles [22]. Despite such widespread identified shortages of analytics professionals, investigations on the capacity of health data and analytics from the perspective of public servants (as opposed to research or clinical settings) are scarce. The few that exist typically focus on larger jurisdictions, data types and access, or technological feasibility of new systems [24–26]. Concerted efforts are needed in regional and rural communities to assess organisational and human resource needs and to build analytics capacity, which

is often seen to be less mature than in large metropolitan areas [27]. This case study describes the results of a key informant survey on government-driven health analytics capacity in New Brunswick, one of Canada’s smaller eastern provinces. The survey was conducted among public service managers at points before and after the Covid-19 global outbreak (in 2016 and in 2022).

Methods

Population setting

The Atlantic Canadian province of New Brunswick has a population of 775,610 based on 2021 census data, representing 2.1% of the national population [28]. It is more rural than the national average: 49.1% rural residents compared with 17.8% for the country as a whole [28]. New Brunswick is Canada’s only officially bilingual (English and French) province out of the ten. Similar to the other provinces and territories, all residents are covered by single-payer universal public insurance for essential medical services, which enables virtually complete centralised recording of physician and hospital services. The wealth of provincial data is captured and organised in several different information systems within the Department of Health, including a population registry of all eligible residents, physician and nurse practitioner service billings, hospitalisation and discharge data, emergency department visits, laboratory records, public health immunisations, among many others.

Analytics operations

Professionals and teams in the provincial health ministry are responsible for managing and analysing various data sources to inform health system assessments and improvements. Person- and service-level data may be collected within the Department of Health, a regional health authority or healthcare facility, a different government department, or an agency outside the province (e.g. federal statistical agency or other public organisation in the realm of health data). Analytics operations for leveraging administrative data include: internal reporting for performance management and continuous improvement [29]; applied research on impacts of government financing policy on patient-centred healthcare outcomes [30]; collaborating on multi-jurisdictional surveillance efforts such as the Canadian Chronic Disease Surveillance System [31]; and preparing pseudonymised linkable datasets and making them available for academic research use through a partnership with the New Brunswick Institute for Research, Data and Training [3].

In parallel with the lack of a standard for defining the credentials, work identity, or work tasks of population data scientists [15], enumerating the diversity of people with primary analytics responsibly within a health ministry can be challenging. In the context of this smaller jurisdiction, in 2023 the New Brunswick Department of Health tallied some 30 analytics human resources. They worked across different units and represented multiple disciplinary backgrounds, e.g. epidemiology, mathematics, biostatistics, business administration, health economics, computer science, social science. Teams responsible for hardware or software

support and security were not counted here, as IT functions were consolidated under a government shared services agency.

Data collection and analysis

The *New Brunswick Health Analytics Capacity Scoping Survey* was conducted among middle managers of analytics services in the Department of Health to capture first-line perceptions on analytics capacity. The questionnaire included both closed-ended questions (e.g. four-point scales) and open-ended questions in the areas of scope, current state of supply and demand, and priority setting for the future (see Supplementary Appendix 1). It was developed and validated under an initiative of the 2016-2017 Federal/Provincial/Territorial Health Information Working Group, established by the Conference of Deputy Ministers of Health, which had prioritised enhancing government analytics capacity as a common pan-Canadian challenge [32].

Data collection was administered internally among the managers of each analytics team (6-13 professionals per unit). A first round was implemented in September 2016 with the aim of establishing a baseline on focus areas for benchmarking analytics capabilities and identifying actions to improve analytical maturity. The questions were discussed during a management team roundtable and responses were recorded by consensus on one evaluation questionnaire (unpublished). A second round was administered remotely in December 2022, after the end of the province's state of emergency on Covid-19. An updated questionnaire was circulated to all team managers, who were invited to discuss the issues with their teams and submit the consensus results. The responses may thus reflect the views of a larger number of informants than the number of questionnaires completed. Because of organisational restructuring, the managers consulted were not the same people across the two rounds. Most questions remained the same to enable comparable time-trends, with additional items in the latest round related to health equity.

Quantitative data from each round were collated and analysed descriptively as sums (e.g. for counts) or averages (e.g. for four-point scales), and qualitative responses were clustered for triangulation and narrative synthesis. The case study data based on original government-defined questions and collected among government staff did not entail the need for additional institutional ethics review, in accordance with the requirements of the University of New Brunswick Research Ethics Board, and consistent with the Government of Canada's *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* [33].

Results

Scope of government-driven health analytics

Government health analytics managers consistently identified their core products and services to include: health information and analytics governance; data acquisition, management, and standards; measuring key performance indicators (KPIs) for ministerial reporting (i.e. based on user specifications); analytics methods development; and secondary data access (e.g. data sharing platforms). In 2022, leveraging artificial

intelligence and machine learning applications were newly recognised among the collective capabilities. Such expansion in work scope was associated with changes over time in the perceived relative role of in-house analytics. In 2016, managers had portrayed public sector health analytics as a distributed responsibility among other publicly-mandated partners (e.g. provincial health council, regional health authorities, academic institutions), with little envisioned change to the proportional breakdown of activities in the future (Figure 1). Six years later, manager perceptions reflected an increased current role for government personnel in handling analytics, which was envisioned to continue to grow over time.

Organisational capacity

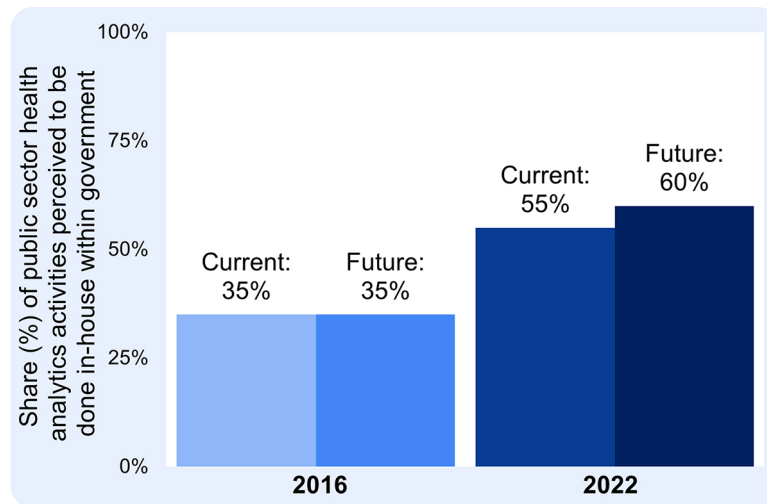
The post-Covid period was marked by the lack of a documented strategic plan for health analytics (Figure 2). In 2016, managers had identified that a strategic plan was under development but with some implementation gaps, including regarding "recruitment of the right skills and how they are leveraged for optimal results." By 2022, a foremost concern was no longer restrained organisational capacity for predictive modelling to inform health services planning, for which capacity was now perceived as highly adequate. An area of imperceptible progress over the six-year period was in centralised approaches to health indicator mapping. It was noted many core health and social indicators and GIS tools were developed for purposes of cross-jurisdictional comparability by federal agencies (e.g. Statistics Canada, Canadian Institute for Health Information). One key informant noted, however, these were not necessarily seen at the level of granularity to add value to the provincial geographic-based data catalogue.

Human resources capacity

Inadequate organisational strategic planning was seen as exacerbated by human resources constraints: "we are already short on staff, no positions are available for covering skills and responsibilities, and several people are approaching retirement with no additional allocation for attrition planning." Managers rated the current staffing level as only partially adequate, with little change over time (Figure 2). Alongside the approximately 30 current analytics human resources, 11 positions were vacant at the end of 2022 (actively advertised or not). Many of these vacancies were labelled as 'hard-to-recruit', notably for in-demand data science skills against competition from the private sector. The latter was seen to be able offer more lucrative salary and benefits packages for those with higher levels of expertise.

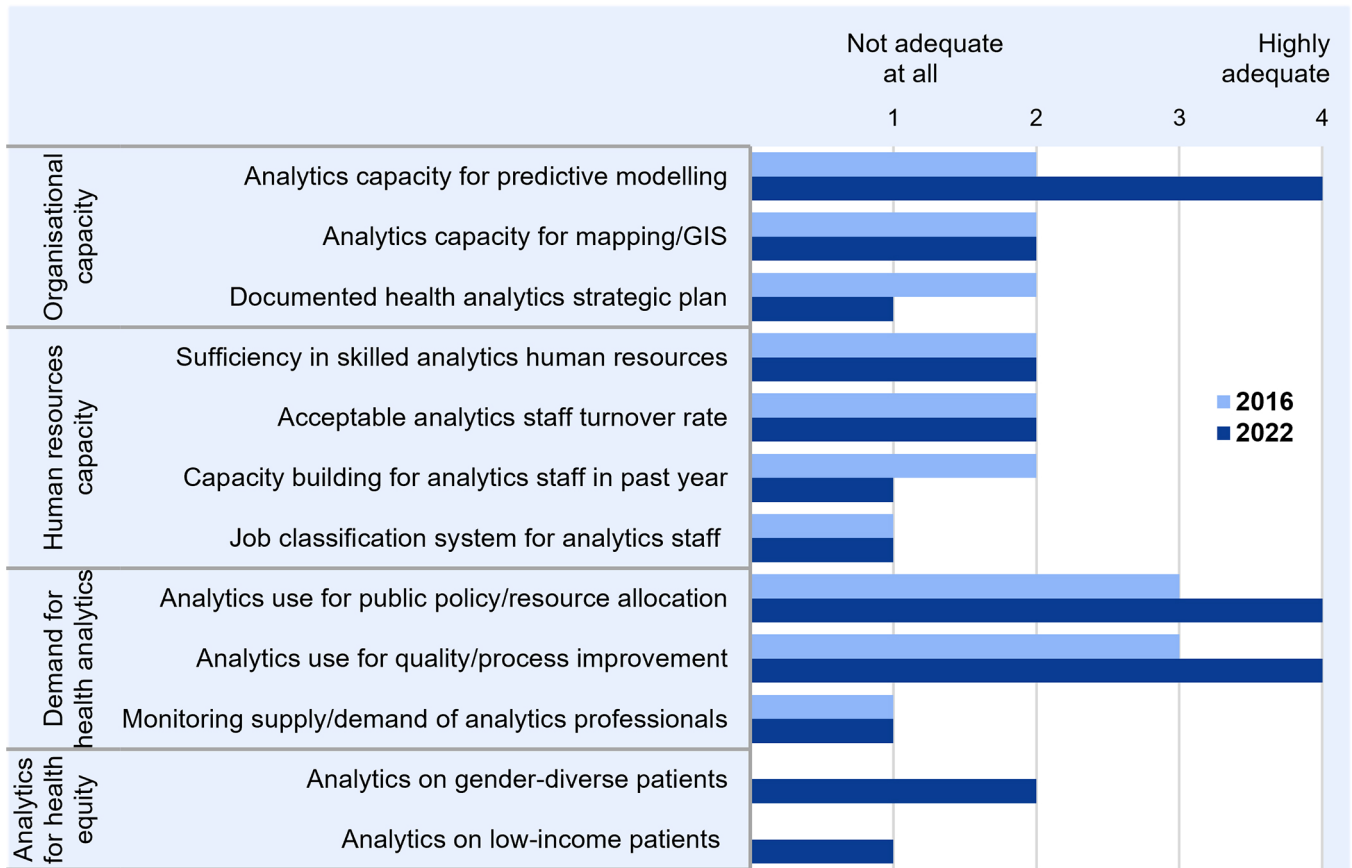
A problematic staff turnover rate was another ongoing challenge. In 2022, one manager highlighted recruitment turnover as an emerging issue: "the threat of turnover is quite high due to long process between budgeting preapproval for a position and an offer letter being finalised, all the while being 30-50% below market on salary." This was perceived to have been accompanied by a precipitous drop in capacity-building activities for analytics staff since the pandemic. As reported by one manager, "we are too busy catching up with healthcare delivery priorities on hold from Covid-19, which are all critical, but means we are just reacting and cannot allocate

Figure 1: Manager perceptions of the proportion of health analytics activities done in-house within government, compared to other public sector health system partners within New Brunswick - current and future envisioned breakdowns



Source: New Brunswick Health Analytics Capacity Scoping Survey, 2016 & 2022.

Figure 2: Manager perceptions of the state of government health analytics capacity



Source: New Brunswick Health Analytics Capacity Scoping Survey, 2016 & 2022 (perceived states based on four-point scales).

time for planning and looking at other workflows and analytics opportunities to support long-term success.”

Limited room for human resources capacity building was linked to the public service job classification system, which was not seen as up-to-date in distinguishing health analytics from other job families to guide skills inventories and career progression. As one manager raised, “there is no consistent

progression option, such as junior versus senior analytics positions with commensurate increases in pay band.”

Demand for health analytics

Although managers had identified increasing expectations over time for analytics to be handled in-house, this was not

seen as accompanied by systematic monitoring of supply–demand dynamics for analytics professionals (Figure 2). The apparent gap was contrasted with ongoing activities in human resources monitoring for clinical professional groups. At the same time, use of analytics products and services by health system stakeholders was perceived to be escalating over time, notably to inform public policy, resource allocation, and quality improvement of healthcare programs.

Analytics for health equity

In 2022, managers reported limited analytics capacity for identifying low-income patients and families in administrative health data to support poverty reduction strategies and reduce health inequalities (Figure 2). Some capacity was distinguished for identifying gender-diverse patients to monitor inclusive access to healthcare programs and services. While the need for better integration of a range of non-medical determinants of health was broadly recognised, one manager pointed out: “new systems for preference management such as language, ethnicity, gender identity, and First Nations identity have been discussed, but the team has not had time to conduct a comprehensive investigation in risk assessment versus informational value.”

Priority setting

In 2022, managers ranked recruitment and retention of human resources as the top short-term priority for analytics maturity (Table 1). The development of a strategic plan, which had been rated as the highest short-term priority before the Covid-19 pandemic, was now prioritised when looking ahead in the longer term. Some data-related priorities were raised, e.g. automating manual systems, resolving inconsistencies in data and metadata standards, accessing additional external datasets such as digital vital records. However, the focus remained on analytics human resources: “We do not want people to lose confidence in the work and go elsewhere; we already have highest vacancy rates in the department.” Proposed inputs to achieve this included:

- intentional employee recognition and appreciation;
- competitive pay and benefits;
- in-house learning and cross-training opportunities;
- enhanced feedback mechanisms to analytics teams from users along the data–to–decisions pipeline; and
- clear pathways for growth and promotion.

Overall, accelerating demand for government analytics was perceived to reflect enhanced value in a learning health system. In 2016, one manager had indicated, “when we see

increased demand for data, positive changes through the data, and feedback on how the data are being used to inform decisions, this is how we see value.” Unchanged six years later was an identified need to track the value of analytics capacity quantitatively. One manager specified in 2022 there remained a “need to determine KPIs for our own success, and in turn improve employee satisfaction. Health analytics has always been viewed as important but during Covid the world discovered the real value of data across all areas of business. It is not only a commodity that can be influenced in the private sector for financial gains, but an important resource within government for which we must plan, fund, monitor, and continuously improve.”

Discussion

The importance of health information and analytics to inform decision-making in the public sector has risen substantially in recent years in Canada, as in many countries [34]. In some ways, findings from the *New Brunswick Health Analytics Capacity Scoping Survey* of persistent supply–demand misalignments in analytics human resources were not surprising. Government analytics managers raised the necessity of innovation in attracting and retaining staff with in-demand skills in a meaningful career, while maintaining competitiveness against private sector data-intensive companies. The need for public sector health agencies to develop and maintain career paths for interdisciplinary teams and plan for human resources surge capacity had been foreshadowed among the lessons learned from the 2003 SARS global outbreak [35].

Public sector health analytics is a distinct specialty within health systems and within the data analytics field, and thus requires holistic workforce planning to meet increasing demand. Similar to the present results for New Brunswick, defining and implementing an analytics talent strategy was recommended in a 2016 Manitoba provincial government situation analysis [36]. Perceptions of a growing role for public service personnel in handling analytics were not unique to post-pandemic New Brunswick; an earlier 2009 study of the Ontario provincial health ministry recognised enhanced data competence and stewardship roles among public servants [24].

As an emerging issue, managers acknowledged undermet demand for integrating social data in health analytics. Demand for analytics on social correlates of health disparities is only expected to grow [37]. In New Brunswick and elsewhere, common constraints for data collection on patient social identities include privacy protocols, uncertain data minimum requirements for program designs, and inadequate dissemination of best practices [38, 39]. A profile on state government practices in Australia, for example, identified

Table 1: Manager priorities for government health analytics capacity building

Top ranked priority	2016	2022
Short-term	Documented health analytics strategic plan	Retention of skilled human resources
Long-term	Analytics use for predictive modelling	Documented health analytics strategic plan

Source: New Brunswick Health Analytics Capacity Scoping Survey, 2016 and 2022.

similar concerns by those collating data on Indigenous status, including the need for understanding why such questions were being asked and how the data would be used [12].

This case study contributes to the literature by highlighting manager perspectives to better attract, retain, and support health analytics professionals in government service. A strength was the availability of data collected before and after the Covid-19 state of emergency. Limitations of the study included a lack of information on: whether trends associated with accelerated demand for analytics would have occurred regardless of the pandemic; objectively measured elements of analytics capacity distinctly from manager perceptions; impacts of changes in analytics capacity on healthcare services and population health; and perceptions of other public sector health system partners.

Conclusions

Targeted planning and resourcing are needed to enhance recruitment and retention of government health analytics professionals, who play a crucial role in the use and re-use of administrative data to inform decisions. Increasing demand for and complexity of health analytics have spurred needs assessments and significant investments in Canadian academic institutions; however, less attention has been paid to government departments, which must compete for a shared talent pool for technical and bilingual capacity [14]. Some government-housed research data centres have been profiled as a potentially fulfilling work environment for emerging population data scientists – e.g. South Africa's Western Cape Provincial Health Data Centre [40] – but oftentimes 'research' is considered the traditional domain of academic institutions. It is hoped this report will inspire further profiling from jurisdictions around the world on how government analytics capacity is valued and developed for advancing population health science for positive impact.

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Ethics statement

This case study did not entail the need for institutional ethics review in accordance with the requirements of the University of New Brunswick Research Ethics Board.

Statement on conflicts of interest

The authors declare no competing interests.

Data availability

All quantitative data generated for this case study are available within the article contents.

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Supplementary Appendix

Consortium on Analytics for Data-Driven Decision-Making & New Brunswick Department of Health Health Analytics Capacity Scoping Survey 2022

The following questions are intended to help monitor and evaluate our health analytics capacity and needs.

These questions are a follow-up to a national 2016 baseline survey. They are intended to help us prioritize where to focus our efforts for better leveraging opportunities and addressing challenges facing producers and users of health information.

Submitted by: Name: [Click here to enter text.](#)
Title/Unit: [Manager, Click here to enter text.](#)
Date: [Date December 2022](#)

I. DEFINITION AND SCOPE

There are many ways to define the scope of “health analytics capacity” in each jurisdiction. One way to look at capacity is to consider all human resources in the public service responsible for the analytics processes used to drive evidence-informed decisions to improve health system performance and outcomes (e.g., planning, managing or implementing the health information system; statistical and econometric analyses; disease surveillance; drug information system; health workforce information system). Please answer **all** the following questions to help provide focus areas for benchmarking analytics capabilities and identifying specific actions that might be undertaken to improve analytical maturity.

	Response
1. With the goal of coming to a common understanding of the scope of health analytics capacity, how do you define the current range of health analytics products and services (key responsibility areas) undertaken within the NB Department of Health? <i>Please check all that apply.</i>	☐ Health information and analytics governance ☐ Data acquisition, management and standards ☐ Performance measures / indicators reporting ☐ Methods development / analytics ☐ Secondary data access / Open Data ☐ IT enablers / infrastructure ☐ Other key activities – describe: Click here to enter text.
2. What do you define as the current approximate breakdown of health analytics activities in New Brunswick? <i>Please ensure percentages sum to 100%.</i>	% of analytics work done in-house within the Department of Health % of analytics work done by other public agencies mandated by the gov't % of analytics work done at the health regional/facility level % of analytics work contracted to academic or other consultants
3. Number of health analytics positions (FTEs) within your unit as of today:	health analytics positions filled health analytics vacancies hard-to-recruit vacancies – describe: Click here to enter text.

II. CURRENT STATE

Please **rate** the following statements by placing a check mark in the most appropriate box as you define them to apply to New Brunswick. Note any additional information, specific initiatives or lessons learned in the space provided.

	(1) Highly adequate	(2) Adequate	(3) Present but not adequate	(4) Not adequate at all
1. There is a written strategic plan in active use providing oversight and direction for health analytics objectives and functions linked to overall health system goals.	☐ Yes, comprehensive strategic plan exists and is implemented	☐ Comprehensive strategic plan exists, but the resources to implement it are not available	☐ Strategic plan exists or under development, but is not yet in use or does not emphasize integration	☐ There is no strategic plan for health analytics
Notes: Click here to enter text.				

	(1) Highly adequate	(2) Adequate	(3) Present but not adequate	(4) Not adequate at all
2. The Department of Health has adequate numbers and skilled human resources in core health analytics and data sciences (e.g. epidemiology, demography, biostatistics, information management, machine learning).	☐ Highly sufficient and skilled human resources	☐ Adequate	☐ Partially adequate	☐ Not adequate
Notes: Click here to enter text.				
3. There is an acceptable rate of turnover among health analytics staff within the Department of Health.	☐ Low turnover, not a problem	☐ Moderate turnover rate but manageable	☐ Turnover rate is problematic	☐ Turnover rate is unacceptably high
Notes: Click here to enter text.				
4. The public service systematically monitors trends in the supply and demand for professionals in health analytics.	☐ Yes, post-secondary analytics graduation trends and altering skill requirements are systematically tracked	☐ Estimates for hiring requirements for health analytics staff are updated regularly, identifying where there are risks of skills shortages	☐ Supply of analytics skills is assessed only when jobs are posted on a public agency website as a position becomes available	☐ No
Notes: Click here to enter text.				
5. Capacity-building activities have taken place over the past year for health analytics staff in the Department of Health (e.g. data management, analysis and presentation).	☐ Sufficient capacity-building has taken place as part of a long-term government-driven human resources development plan	☐ Adequate capacity-building has taken place, but occasional in nature	☐ Limited capacity-building	☐ No
Notes: Click here to enter text.				
6. Job classification system for health analytics staff identifies distinct skills and career path progression.	☐ Yes, job classification system identifies distinct skills and evolution of promotion, and is used for personnel management	☐ Job classification system identifies distinct skills, but is only used for approving recruitment and transfer	☐ Guidelines for human resources recruitment, promotion and transfer exist only for families of jobs across the public sector	☐ No clearly documented, up-to-date job descriptions
Notes: Click here to enter text.				
7. The Department of Health has adequate capacity to conduct predictive modelling for the estimation of future healthcare needs and planning of health services delivery.	☐ Yes, predictive analyses are conducted regularly for most health program/service areas	☐ Predictive analyses conducted for some priority areas	☐ Predictive analyses conducted on a limited/ad-hoc basis or not updated within the last 5 years	☐ Predictive analyses not used for health
Notes: Click here to enter text.				
8. The Department of Health has adequate capacity for mapping of health indicators and related factors to address various types of health analytics requests (e.g. centralized approach to GIS methods and software).	☐ Yes, maps are up-to-date and comprehensive, and there is capacity to promptly add new features	☐ Maps are up-to-date and reasonably comprehensive	☐ Mapping of only a few health indicators	☐ No mapping
Notes: Click here to enter text.				

	(1) Highly adequate	(2) Adequate	(3) Present but not adequate	(4) Not adequate at all
9. Managers of provincial health programs/services commonly use findings from analytics as basis for policy formulation and resource allocation.	☐ Yes, analytics always used in planning and budgeting	☐ At least some findings from analytics have been used in planning and budgeting	☐ Managers are aware of the value of analytics but there is no evidence that these findings have shaped policy and planning	☐ No evidence managers are aware of analytics findings
Notes: Click here to enter text.				
10. Managers of provincial health programs/services commonly use findings from analytics as basis for improvement of existing programs/services.	☐ Yes, analytics always used in process improvement	☐ At least some findings from analytics have been used in process improvement	☐ Managers are aware of the value of analytics but there is no evidence that these findings have shaped improvements	☐ No evidence managers are aware of analytics findings
Notes: Click here to enter text.				
11. The Department of Health has adequate capacity for identifying low-income patients in administrative health data to support poverty-reduction strategies and reduce health inequalities.	☐ Yes, data on patients in low-income households are routinely collected and used in equity-oriented processes	☐ At least some data on low-income patients are available in administrative sources and used in equity-oriented processes	☐ Limited/ad-hoc availability and/or use of administrative data on low-income populations	☐ No availability or use of administrative health data on low-income populations
Notes: Click here to enter text.				
12. The Department of Health has adequate capacity for identifying gender-diverse patients (trans/non-binary) in administrative health data to support inclusive access to health programs/services.	☐ Yes, data on patients identifying as a gender minority are routinely collected and used in inclusive-oriented processes	☐ At least some data on patients identifying as a gender minority are available in administrative sources and used in inclusive-oriented processes	☐ Limited/ad-hoc availability and use of administrative health data on gender-diverse populations	☐ No availability or use of administrative health data on gender-diverse populations
Notes: Click here to enter text.				

III. PRIORITY SETTING

Please **rank** what you consider should be the province's short-term priorities for capacity building in health analytics to achieve success.

	Item	Details on your selection: specification, pressure points, benchmarks, etc.
1 st priority	Choose an item.	
2 nd priority	Choose an item.	
3 rd priority	Choose an item.	

Please **rank** what you consider should be the province's long-term priorities for capacity building in health analytics to achieve success.

	Item	Details on your selection: specification, pressure points, benchmarks, etc.
1 st priority	Choose an item.	
2 nd priority	Choose an item.	
3 rd priority	Choose an item.	



IV. LOOKING AHEAD

	Description
1. How do you envision the future breakdown of health analytics activities in New Brunswick? <i>Please ensure percentages sum to 100%.</i>	% of analytics work done in-house within the Department of Health % of analytics work done by other public agencies mandated by the gov't % of analytics work done at the health regional/facility level % of analytics work contracted to academic or other consultants
2. What are the types of health analytics positions/skills that the Department of Health would need to develop to achieve this future breakdown?	
3. What are the types of partnerships/collaborations that need to be developed to build health analytics capacity and achieve this future state?	
4. What are the key challenges or barriers for capacity building in health analytics?	
5. How do you measure the value of health analytics in NB, now and in the future?	
6. Any other information, comments, or lessons learned on building health analytics capacity that you would like to share:	

Thank you for completing this survey.

