Chapter 2

Department of Health – Electronic Medical Record Program

Contents

AUDITOR GENERAL OF NEW BRUNSWICK | VÉRIFICATEUR GÉNÉRAL DU NOUVEAU-BRUNSWICK

Electronic Medical Record (EMR) Program – Department of Health

Report of the Auditor General – Volume II, Chapter 2 – 2020

Why Is This Important?

- EMR is one important component of each New Brunswicker's health record and is meant to capture doctor visits and prescriptions, allow access to lab results and provide strategic information to assist in the planning and design of an efficient and effective health system.
- For the past eight years (2012 through 2019), an integrated EMR system has been under implementation by the Department of Health.
- The Province invested over $26 million to implement and operate the EMR program.
- Failure of the EMR program could negatively impact residents of New Brunswick and the future of healthcare delivery in the Province.

Overall Conclusions

- The provincial EMR program failed to achieve its intended outcomes. After eight years and over $26 million of investment, less than half of eligible physicians adopted the system.
- The Department proceeded with the single-vendor EMR knowing the business model was flawed from the outset.
- The complex delivery structure which involved Velante Inc. as a middleman, weakened the Department's governance and oversight of the program and was not in the best interest of New Brunswickers.
- The Department appeared to bear all the risk even though the program was operated by the New Brunswick Medical Society.

What We Found

Oversight Failure by Department and Weak Accountability

- Department had hands-off approach to EMR funding
- Department did not monitor program effectiveness
- Department did not review financial records of funding recipients to substantiate use of funding
- Department did not hold funding recipients accountable for use of funds and results achieved
- Department continued funding the program despite obvious signs of failure
- No program audit conducted to evaluate achievement of program outcomes and compliance with funding criteria
- Continued EMR usage not a criteria for funding

Single-Vendor Provincial EMR Model Failed

- Unsustainable business model from the outset
- Less than 50% of the 800 of eligible physicians adopted the provincial EMR system
- Physician implementations never met Canada Health Infoway target, after numerous extensions
- EMR still not fully integrated with the Electronic Health Record system
- Lab integration, a desired essential component, was significantly delayed
- The single-vendor EMR model was finally terminated in 2019
- New Brunswick has one of the lowest EMR adoption rates in Canada

Key Findings and Observations Table

Electronic Medical Record Program – Department of Health

Paragraph	Key Findings and Observations
	Oversight Failure by Department and Weak Accountability
2.36	*Inadequate oversight and monitoring of program implementation*
2.38	*No formal business case*
2.39	*Complex organization structure weakened Department oversight*
2.42	*Department chose not to review financial records of funding recipients or ensure compliance with funding agreements*
2.45	*In 2015, the Department failed to intervene even though there were clear signs of program failure*
2.47	*A further $9 million was spent on the single-vendor Electronic Medical Record (EMR) model before the project was terminated in 2019*
2.48	*In 2017, government requested a program review*
2.49	*Department had no plan to monitor achievement of program outcomes*
2.50	*No performance measures or progress reporting on program implementation*
2.52	*The scramble to meet physician enrolment targets resulted in many errors and discrepancies*
2.54	*Department did not monitor clinical value achievement*
2.56	*Inadequate validation of clinical value survey – only negative responses were validated*
2.59	*No EMR audit was conducted*
2.62	*Continued EMR usage not a criteria for funding*
2.63	*Physicians were able to discontinue EMR usage without having to pay back subsidies*
2.64	*Department paid multiple times for one EMR site*
2.67	*Department overpaid its subsidies for Fee for Service physician implementations*
2.68	*Funding match between the Department and physicians did not occur*
2.69	*Weak enforcement of funding agreement by the Department*
2.71	*Department provided financial assistance to Velante in 2017*

Key Findings and Observations Table (Continued)

Paragraph	Key Findings and Observations
2.72	*Department paid an extra $2.8 million and did not receive a reconciliation of where it was spent*
2.75	*New EMR funding agreement signed in November 2019*
	Single-Vendor Provincial EMR Model Failed
2.79	*Overall the EMR program did not satisfy Department's expectations*
2.80	*EMR solution has never been fully integrated with the Electronic Health Record*
2.82	*Integration work neglected as efforts were focused on meeting enrolment targets*
2.83	*Responsibility for integration work was not clearly defined*
2.84	*Lab integration, a desired essential component, was significantly delayed*
2.87	*EMR Program failed to meet its intended outcomes*
2.88	*After eight years and over $26 million, less than half of 800 of eligible physicians implemented the Provincial EMR*
2.90	*Physician implementation never met Canada Health Infoway (Infoway) target*
2.91	*Infoway deadlines extended several times to avoid claw-back of funds*
2.95	*High initial cost of EMR was a deterrent to physician enrolment*
2.97	*Instances found where physicians were paid to implement the EMR system*
2.98	*Incomplete EMR clinical data does not benefit population health management*
2.100	*New Brunswick has one of the lowest EMR adoption rates in Canada*
2.101	*Provincial EMR business model was unsustainable from the outset*
2.102	*Velante had $8,000 shortfall in planned revenue per physician implementation*
2.104	*Project proceeded despite known funding deficit*
2.105	*Velante was making a loss on Monthly user fees*
2.108	*Unfavourable pricing model for monthly user fees*

Recommendations and Responses

Recommendation	Department's response	Target date for implementation
2.41 We recommend that the Department of Health: • **structure contracts to maintain oversight and hold parties receiving public funds accountable; and** • **if complex structures can not be avoided, the Department needs to build in adequate controls to manage the risks and protect public funds.**	*As the department moves forward with an open market Provincial EMR Program there will be two approaches to managing contracts.* *Salaried Physicians - the Department of Health will hold the contract for all salaried physicians. This will involve working very closely with the health authorities to ensure Service Level Agreements and Health Information Management processes and procedures are adhered to by the vendor.* *Fee for Service Physicians - will be signing and managing their individual contracts and relationship with their preferred vendor. Any financial incentives to vendors or physicians will be tied to specific measurable objectives (implementation of specific integrations, physician funding for adoption or specific meaningful use).* *The Department of Health will be implementing an Open Market EMR Certification process with the support of OntarioMD to ensure EMR vendors meet standard requirements in order to be eligible for both funding and integration with provincial assets.* *The first phase of the Open Market will include incentives to FFS physicians adopting a Certified EMR. Such incentives will only be available to physicians adopting EMRs that meet the criteria clearly outlined in the Provincial EMR Certification process. The incentives will be administered by NBMS and will be audited by DoH via annual reports.* *These contract structures are much less complex; however, adequate controls are being built in with corresponding governance between the health authorities, the medical society, and DH stakeholders.*	*December 2021*

Recommendation	Department's response	Target date for implementation
2.44 We recommend the Department of Health, as part of granting program funding: • **assess the financial health of third-party funding recipients and their ability to achieve the desired results within agreed funding levels; and** • **exercise periodic reviews of records as per the terms of funding agreements.**	*A governance model will be put in place for all third-party contracts related to the Provincial EMR Program to ensure the expected deliverables and services are being delivered.* *Periodic reviews of the funding agreement will be executed. The open market model will result in fewer contracts managed by GNB.*	*December 2021*
2.46 We recommend the Department of Health intervene and take timely corrective action when there are indicators of program failure such as: • **not achieving project deliverables;** • **missing key deadlines; and** • **incurring funding shortfalls.**	*The Department completely agrees with this. The complex nature of the previous model created unnecessary ambiguity resulting in a difficult governance structure.* *The new model going forward will make certain the department is in full control of the contracts and arrangements that will support the onboarding and certification of eligible vendors.* *The new model will also ensure that EMR vendors are accountable to their clients directly. This supports a competitive market and ensures that private sector physicians are in control of getting value for their investment.*	*December 2021*

Recommendation	Department's response	Target date for implementation
2.51 We recommend the Department of Health, for future programs: • **develop measurable performance criteria to monitor program outcomes; and** • **use regular progress reports to monitor program implementations.**	*The department agrees with this recommendation. There is a significant amount of work underway across jurisdictions to better understand meaningful integration.* *The expectations highlight in the initial program plan will require evaluation and adjustment, however, in the spirit of integration and seamless flow of information what had been identified is still valid.* *Regular progress reports will be considered as we move forward, cross-referencing this exercise with what other jurisdictions have accomplished will be important.*	*December 2021*
2.61 We recommend the Department of Health ensure regular audits are carried out on future programs to evaluate achievement of program outcomes and funding recipients' compliance with funding terms.	*The Department of Health strategic plan highlights the importance of reporting on performance of program outcomes which would include third-party or managed service contracts in place to provide goods or services that contribute to health system goals.* *The Provincial EMR Program will clearly articulate program goals for increased adoption of Certified EMR and increased adoption of existing data integrations (MCE Billing, Client Registry, EHR Clinical Viewer, Labs).*	*Ongoing*
2.77 We recommend the Department of Health stipulate, in future funding agreements, withholding of final payment until all agreement terms are satisfied.	*The Department will consider this in conjunction with governance structures and regular auditing of performance. Several of the deliverable based contracts the department currently has in place stipulates withholding roughly 10% of the deliverable/unit price until all activities are identified and approved as being complete. We will continue to consider such measures where appropriate.*	*Ongoing*

Recommendation	Department's response	Target date for implementation
2.109 For all future EMR solutions, we recommend the Department of Health: • **identify and prioritize all data integration requirements;** • **clearly define responsibilities of all parties involved in integration; and** • **ensure implementation timelines are met.**	*As part of the move to the Open Market, the department is reviewing and reprioritizing the EMR Program goals and all data integrations. The reprioritization will take into consideration:* - *Cross-jurisdictional EMR learnings from the last 10 years pertaining to feasibility of data integrations* - *Value of data integrations to all stakeholders given the current adoption rates* - *Value to of data integrations to the health system and the clinician.* *Given the low adoption rates the initial Open Market phase will focus on increasing adoption of Certified EMRs, including restructuring and adoption of existing integrations (MCE Billing, Client Registry, Labs, EHR Clinical Viewer).* *Implementation of future integrations (Immunizations, Encounters, ePrescribing, etc.) will be prioritized and undertaken once proper analysis is completed, including identifying sufficient funding and resourcing from the department, clarifying responsibilities for all parties, and defining a business case and clear value to stakeholders given the levels of adoption at the time of implementation.* *Based on cross-Jurisdictional analysis it is evident that implementation of data integrations by vendors requires provincial financial support. The Department of Health is aligning its Provincial EMR Program strategy with other major jurisdictions, such as OntarioMD, to ensure that integrations align with other jurisdictions making more feasible for vendors and financially viable for the province. Funding of such integrations will follow the AG recommendations of clearly defining responsibilities, including penalties for missing timelines, and withholding final payments until all agreement terms are satisfied.*	*December 2021*

Audit Introduction

2.1 The Government of New Brunswick has identified dependable public healthcare as a top priority. As stated in the Provincial Health Plan 2013 - 2018, one of the Province's key objectives is to build a safe, sustainable health-care system.

2.2 The Department of Health (the Department) stated it is committed to providing New Brunswickers with accessible and dependable public healthcare. Its mandate is "*to continuously improve the delivery of health-care services by planning, funding and monitoring the delivery of health-care services in New Brunswick.*"[1]

2.3 In July 2012, the Department contracted the delivery of the Electronic Medical Record (EMR) program to the New Brunswick Medical Society (NBMS). NBMS partnered with the consulting firm, Accreon, and formed a private company (Velante) to handle the implementation and operation of a single EMR solution.

Why we chose this topic

2.4 We chose to audit the Provincial Electronic Medical Record (EMR) program for the following reasons:

- Over $26 million of provincial and federal funds have been invested in the implementation and operation of the single EMR solution. Full implementation is not yet achieved and there are known implementation issues; and

- Our risk analysis identified digitization and integration of patient records held in the doctors' offices are key components for effective and efficient healthcare management. For example, records of vaccinations and allergies would not be readily available to a doctor treating a patient in the ER if it is kept on paper in a medical office.

[1] Government of NB, Department of *Health Annual Report 2018-2019*.

Audit Objective

2.5 The objectives of this audit were to determine if:

- The Provincial Electronic Medical Record (EMR) program was implemented as intended and has achieved its planned outcomes.
- The Department of Health monitored Electronic Medical Record (EMR) funding to mitigate risk to the taxpayer and to ensure compliance with funding agreements.

Audit Scope

2.6 Our audit scope covered the EMR program and the related Department funding. Our audit period spanned fiscal years 2012 through 2019 with additional analysis extending to December 2020.

2.7 We examined agreements between the Department and Canada Health Infoway Inc (Infoway), an independent not-for-profit organization funded by the Federal government. We also reviewed the agreements between the Department and NBMS. We interviewed Department staff as well as individuals from NBMS, Velante and physicians. To trace the flow of funds we:

- examined audited financial statements and other financial information of NBMS and Velante
- inspected program documentation, payments and invoices; and
- examined claims for Federal and provincial subsidies and reconciled them to invoices and payments.

2.8 More details on the audit objectives, criteria, scope and approach can be found in Appendix I and Appendix II.

Conclusions

2.9 We concluded that after $26 million invested and over eight years of effort:

- The provincial Electronic Medical Record program was not implemented as intended and failed to achieve its planned outcomes.
- The Department did not effectively monitor the Electronic Medical Record funding to mitigate risk to the taxpayer and ensure compliance with funding agreements.

- The Department appeared to bear all the risk even though the program was operated by New Brunswick Medical Society.

- The complex delivery structure, which involved Velante as a middleman, weakened the Department's governance and oversight of the program and was not in the best interest of New Brunswickers.

- The Department proceeded with the single-vendor EMR knowing the business model implemented was flawed from the outset.

2.10 If weaknesses identified in this report are not addressed for similar initiatives in the future:

- New Brunswickers will not have an integrated real-time health information system and health outcomes could be impacted;

- healthcare practitioners may not have the necessary information to provide optimal service to patients in a timely manner; and

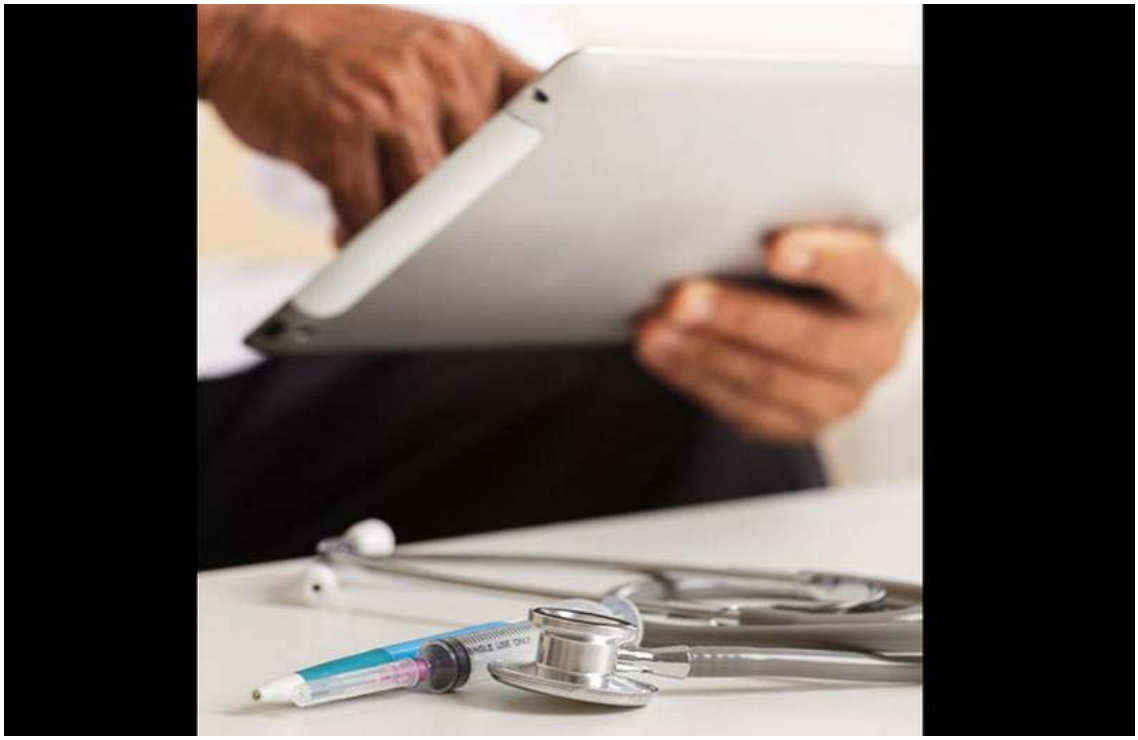
- the Department is unlikely to realize value for money from future investments in electronic Health (eHealth) technology.

Background Information

2.11 The EMR program is more than just a system located in doctors' offices to record patient visits. This program was meant to allow all New Brunswickers to have easily accessible health records, including doctor's office visits, lab results and prescription details. The EMR system would allow any authorized healthcare practitioner to access patient data when needed, like in an emergency situation when the patient is unable to provide the information required. The success or failure of this program will affect all residents of New Brunswick and the healthcare system which relies on the data provided.

2.12 The future of healthcare is in electronic delivery of records and files that can be easily obtained by any attending physician, regardless of where a patient presents in the province, to make informed decisions on a patient's health care.[2] EMR programs started in Canada in 2003 in Alberta. New Brunswick was one of the last provinces to start an EMR program and is the only province to approve a single-vendor solution. A jurisdictional scan of provincial EMR data can be found in Appendix III.

[2] Canadian Institute for Health Information. *Better Information for Improved Health: A Vision for Health System Use of Data in Canada.* Ottawa, ON: CIHI; 2013



Department developed One Patient One Record vision in 2005

2.13 In New Brunswick, the Department started working on eHealth and a One Patient One Record (OPOR) vision in 2005. The intent of this vision was to provide healthcare professionals with current, relevant health information in a standardized manner while protecting the privacy, confidentiality and security of patient information. This was to be accomplished through a single point of access which is available anytime, anywhere.

2.14 The Innovation and eHealth branch within the Department had been tasked with the realization of the OPOR vision which was later rebranded as eHealthNB in June 2017. For the eight years that we examined, the Innovation and eHealth branch had a budget of over $144 million.

EHR is a network of systems to facilitate the OPOR vision

2.15 The OPOR vision in New Brunswick was to be facilitated through the Electronic Health Record (EHR), a network of systems that connect information from the various points of patient care such as public health, primary care offices, hospitals, community health centres, labs, pharmacies, and diagnostic imaging clinics. The Innovation and eHealth branch, in collaboration with a variety of stakeholders, is responsible for the operation and continuing development of the EHR system. The EHR started going live in 2010 with the Client Registry and EHR Viewer. Other components were added as they became functional. These components include:

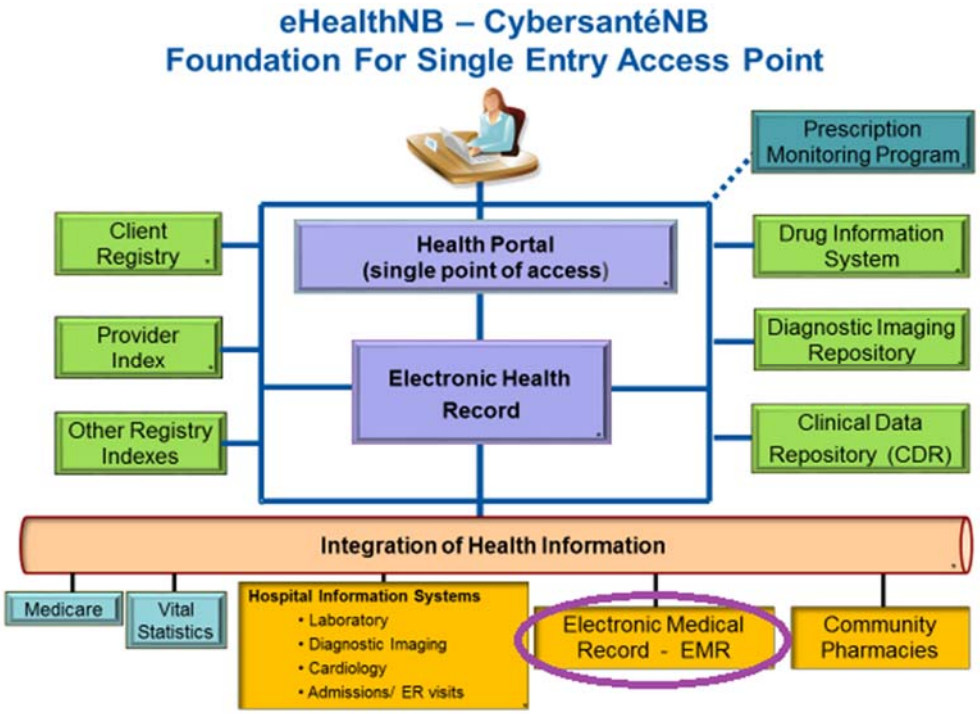
- Diagnostic Imaging (eg x-rays, CAT scan, Magnetic Resonance Images (MRI) etc.);
- Clinical Data Repository (contains laboratory, diagnostic imaging and cardiology reports, and patient visits); and
- eConsult (specialist support for primary care physicians)

Focus of the report is the Electronic Medical Record (EMR) – one component of the Electronic Health Record (EHR)

2.16 EMR program is a key component of the EHR system and is the focus of this report. The EMR was meant to send patient information from the physician practices into the EHR data repository. This information can then be used to improve patient care as well as overall health system planning.

2.17 Exhibit 2.1 shows the different components of the EHR system. These components work together to achieve a single health record for each patient in the healthcare system. This record is meant to give a full picture of a patient's healthcare history, including clinic and hospital visits and diagnostics tests performed, that is accessible to all authorized healthcare providers.

Exhibit 2.1 - eHealthNB – CybersanteNB foundation for single entry access point



Source: Department of Health

2.18 According to the Department, information currently available on the EHR system includes:

- demographic information (name, date of birth, address, etc.);
- laboratory test results;
- diagnostic imaging reports;
- cardiology reports; and
- medication summary from the Drug Information System (DIS) used by community pharmacies.

The EHR system also enables clinicians to display the visit history for each patient and view patients currently admitted to any hospital in the province. Access to the EHR is restricted to clinicians who qualify based on their role and limited to need-to-know functions that are required to deliver care.

2.19 According to the EMR Program Plan – Phase 1, drafted by the Department of Health and NBMS in 2011, the goal of the program *"is to improve health and health system performance through the exchange of relevant information."*

The EMR is an important component of the EHR

2.20 The Department's program plan stated that EMRs will provide essential information to be captured in the EHR. Once fully integrated with the EHR, the EMR will draw information from the EHR and contribute important information back into the central data warehouse. Together these systems will contribute to a comprehensive data source for a patient that can be used by all relevant healthcare providers when and where it matters most.

Expected EMR Outcomes

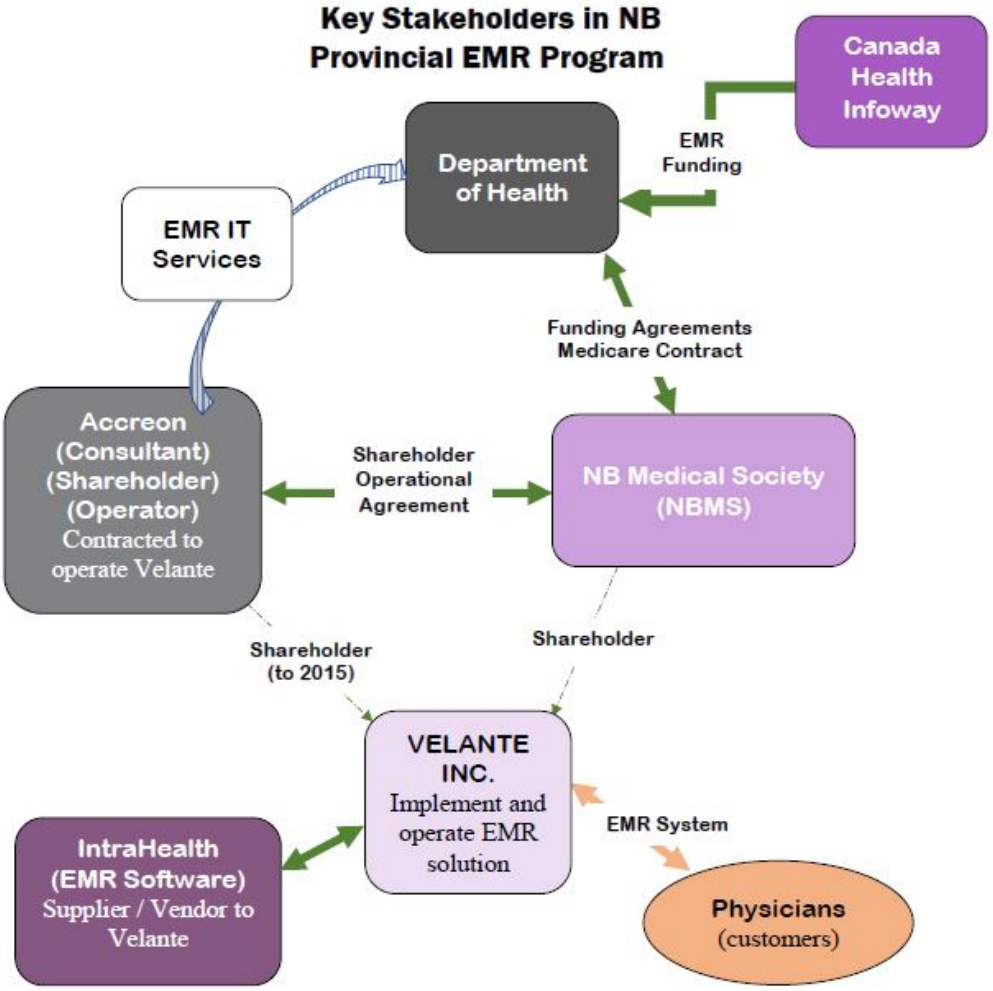
2.21 A fully integrated and widely used EMR software would benefit the patient, the provider and the health system. The importance of an EMR is in the data collected and improved clinical workflow. This data can be used to assist in the planning, design and operation of an efficient and effective healthcare system while supporting patient care. Expected outcomes of the EMR program are shown in Exhibit 2.2.

Exhibit 2.2 – Electronic Medical Record expected outcomes

Source: AGNB from Department information

EMR Key Stakeholders **2.22** Exhibit 2.3 depicts the various stakeholders of the EMR program and their inter-relationships and responsibility.

Exhibit 2.3 - Key stakeholders in NB Provincial EMR program



Canada Health Infoway	Provided funding to the Department based on physicians meeting targeted milestones
Department	Responsible for defining the EMR solution and joint Governance with NBMS
NBMS	Responsible for managing the implementation and operation of the EMR
Accreon	Provided implementation and project management services on behalf of Velante
Velante	Responsible for providing the implementation, technology and infrastructure services that would bring EMRs to the physicians.

Source: Prepared by AGNB from Department information

Canada Health Infoway agreed to pay up to $12,000 per physician

2.23 Canada Health Infoway (Infoway) is an independent federally funded not for profit organization. Its purpose is to help improve the health of Canadians by promoting digital health solutions, such as EMRs throughout Canada. Beginning in 2010, Infoway focused on accelerating the adoption of EMRs. Their objective at that time was to "co-*invest with the provinces and territories to support their efforts to significantly increase the number of clinicians adopting and using an EMR system.*" [3] According to the agreement between the Department and Infoway, Infoway agreed to pay up to $12,000 per physician (50% of implementation cost), based on implementation milestones achieved.

Department received government approval to pursue an EMR in 2012

2.24 The Department was given government approval to pursue creation of an integrated provincial EMR in 2012. This was followed by a funding agreement between the Department of Health and Infoway for Federal Government funding.

NBMS tasked with the implementation and operation of an integrated EMR

2.25 The Department signed a separate Electronic Medical Record Funding Agreement with NBMS in September 2012. In it, the Department agreed to provide funding to subsidize physicians' EMR implementation costs and NBMS would in turn be responsible for the implementation and operation of an integrated EMR solution. The agreement laid out the terms of funding the EMR implementation for both Fee for Service (FFS) and salaried physicians. FFS physicians are self employed and bill Medicare for services performed, Salaried physicians receive a regular salary but track the services they provide. The Department agreed to match the funding of participating FFS physicians up to a maximum of $8,000 and pay the full $16,000 implementation price for each salaried physician.

[3] Canada Health Infoway (2012). EMR Deploy Program Overview, July 18 2012 [PowerPoint Presentation].

Velante was created by NBMS and Accreon to implement and operate the EMR

2.26 NBMS had partnered with Accreon, an IT consulting firm, to establish a private corporation, Velante, in 2012. Velante's role was to implement and operate the integrated EMR software solution for all physicians in New Brunswick, acting as the middleman between the software provider and the doctors. The corporation was 51% owned by NBMS through NBMS Holdings Inc. and 49% by Accreon.

Intrahealth Canada Ltd was selected to be the single supplier of EMR software

2.27 Velante was responsible for providing the implementation, technology and infrastructure services that would bring EMRs to the physicians. In June 2013, Velante selected Intrahealth Canada Ltd to supply EMR software and related services in New Brunswick. This was done following a Request for Proposal (RFP) process, in line with public sector procurement practices. Intrahealth was primarily chosen because they could offer a French version quicker than competitors. As a result, Intrahealth's EMR software (Profile) became the only EMR software sanctioned to be integrated with the EHR system.

Accreon was a co-owner of Velante and a major service provider receiving over $9 million over the life of the program

2.28 Accreon provided professional and project management services to Velante. This included the technical aspects of setting up the Profile software, training physicians as well as providing staff to run Velante's day to day operations. This arrangement with Accreon accounted for over $9 million (35%) of the total cost of the EMR program.

2.29 In 2015, Accreon relinquished their ownership share in Velante to NBMS. Accreon originally thought Velante would be a profitable venture, expanding its operations to serve clients outside of New Brunswick. We were told Accreon was acquired by Mansa Capital, a US private equity firm, who had no interest in electronic medical records and wasn't interested in retaining Velante. After 2015, they no longer managed Velante's operations but continued to provide professional and project management services to Velante.

EMR Program Cost

2.30 Over its eight year life the provincial EMR program cost taxpayers more than $26 million, including $4 million in Federal government funds. The net cost to the Province through the Department of Health was $22 million, $14 million of which was from Medicare and the balance ($8 million) was funded from the Innovation and eHealth branch's budget. $24 million of the program cost went to the NBMS. Exhibit 2.4 below shows the breakdown of the EMR program cost.

Exhibit 2.4 – Department of Health's EMR program cost (2012-2019)

	EMR Program Cost (2012-2019) ($ millions)								
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**Total**
Paid to NBMS:									
Medicare	$0.0	$0.0	$2.3	$5.8	$1.5	$1.5	$1.5	$1.5	$14.1
Implementations	0.0	1.8	2.2	0.5	0.2	0.8	0.2	0.0	5.7
Financial Assistance	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	2.8
Transitional Funding	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
Maintenance Fees	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.0	0.8
NBMS Total	0.0	1.8	4.5	6.3	1.8	2.6	4.9	2.0	23.9
Paid to Accreon	0.0	0.5	0.6	0.3	0.0	0.0	0.0	0.0	1.4
Paid to Velante	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	1.1
Total EMR Funds	$0.0	$2.3	$5.1	$6.6	$1.8	$2.6	$5.1	$2.9	$26.4

Source: Prepared by AGNB with Department of Health information

2.31 As shown in Exhibit 2.4 above, most of the funds were paid to NBMS for EMR implementations, monthly EMR maintenance fees and financial assistance to keep Velante operating. Transitional funding of $460,000 was part of a $3 million funding agreement to cover the costs of transitioning to open market solutions, following the termination of the single EMR model in 2019. The maintenance fees covered licensing and system upgrades.

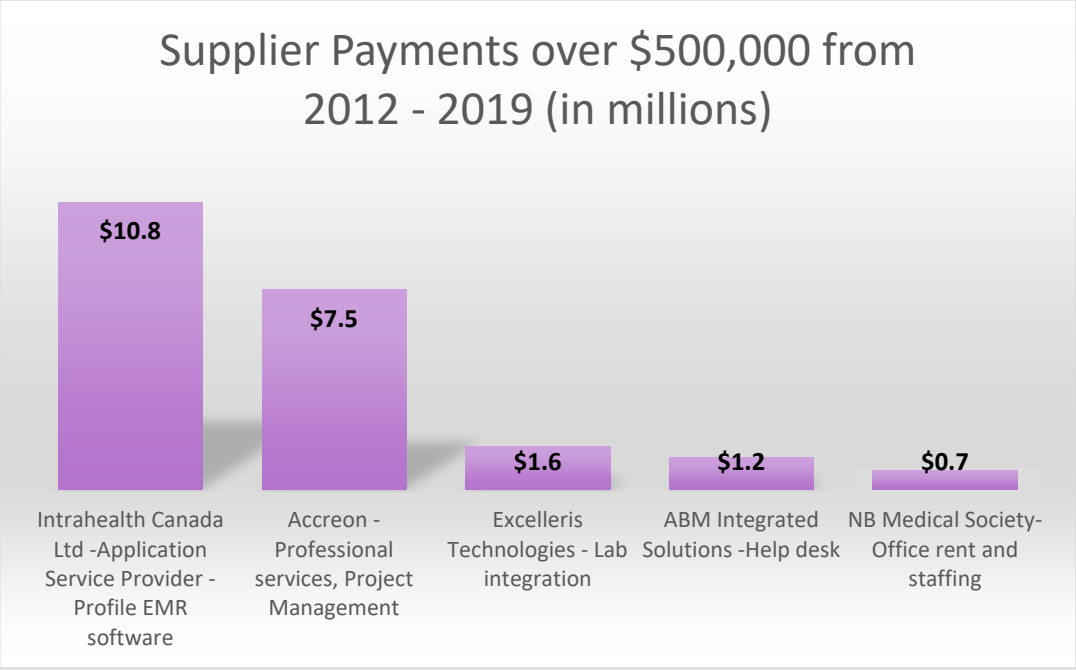
99% of EMR funding received by NBMS went to Velante

2.32 NBMS paid 99% of the EMR funding they received to Velante. The balance ($240,000) was paid directly to physicians for EMR subsidies and incentives.

Of the funds Velante received, 91% went to five vendors

2.33 Velante had limited in house resources or capability. It was staffed and managed by Accreon. Velante partnered with other IT companies and professional services firms to deliver the EMR. 91% of Velante's vendor expenditures ($21.8 million) between 2012 and 2019 went to five vendors as shown in Exhibit 2.5.

Exhibit – 2.5 Supplier payments over $500,000 (2012-2019)



Source: AGNB from unaudited Velante data

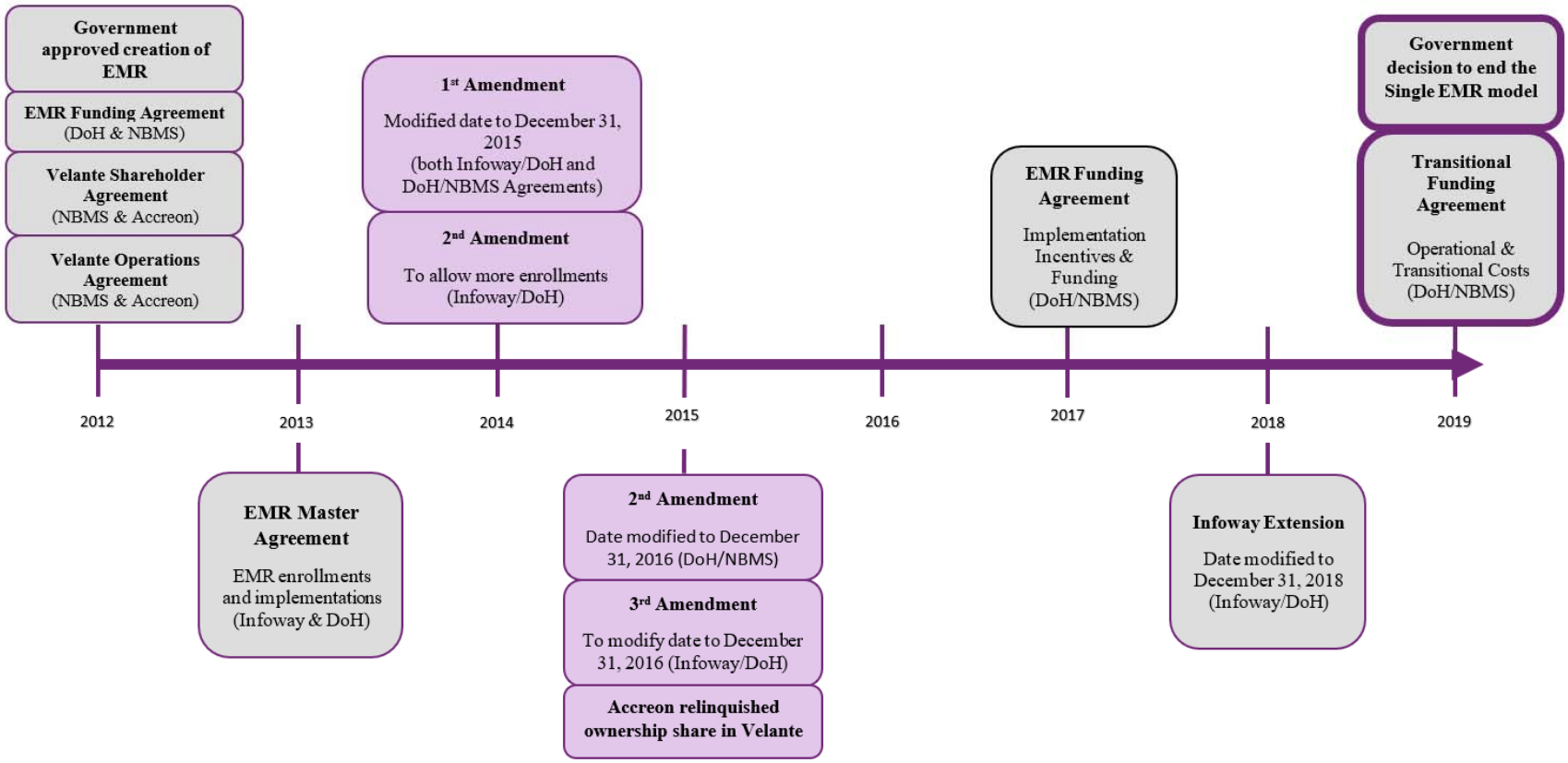
Government terminated the single EMR model in 2019

2.34 In 2019, the government terminated the single EMR model and moved to an open market where physicians can select and implement their own EMR solutions. Exhibit 2.6 shows a timeline of major events since the inception of the EMR planning phase in 2011 until the single EMR solution model was abandoned in 2019.

New funding agreement signed in 2019

2.35 A new funding agreement was signed in November 2019 between the Department and NBMS. This latest agreement offered NBMS funding of up to $3 million to cover the costs of transitioning to an open market EMR model. At the end of 2019, Velante was showing a $894,000 deficit.

Exhibit 2.6 – Timeline of Provincial EMR Program



Source: AGNB from Department documents

Oversight Failure by Department and Weak Accountability

Inadequate oversight and monitoring of program implementation

2.36 Overall the Department took a hands-off approach to EMR funding and program implementation. They did not exercise adequate oversight over program implementation and operation by third parties. As a result, the Province did not receive the intended benefit from over $26 million in funding of the Provincial EMR. After eight years:

- less than half of the 800 eligible physicians were implemented; and
- EMR data was not fully integrated into the eHealth system. Only three out of nine integrations were completed.

2.37 We found the Department oversight and monitoring of the program was lacking in several areas which contributed to the failure of the program:

- there was no formal business case to support the program from the outset;
- the complex structure made it difficult for the Department to monitor the implementation process, and hold participants accountable for the delivery of outcomes;
- the Department did not request the financial information that would have pointed to project failure;
- there was no timely intervention and enforcement of funding terms;
- no performance measures or progress reporting on program implementation; and
- no evidence that audits of the program were completed, even though it was stipulated in the funding agreement.

No formal business case

2.38 We found neither the Department nor NBMS prepared a comprehensive documented business case at the start of the program. There was no documentation of analysis undertaken to propose the single-vendor model over multi-vendor alternatives. While costs associated with the single EMR implementation were detailed on a workbook sent to Infoway by the Department to secure funding, there was no evidence that indicated the chosen program structure was the most beneficial.

Complex organization structure weakened Department oversight

2.39 There was a lack of consistent leadership and direction over the implementation and operation of the Provincial EMR program. Stewardship over program goals and strategic priorities became diluted due to the complex organization structure which created extra layers of separation between those responsible for funding and the private companies involved in delivering the solution, as shown in Exhibit 2.3.

2.40 The structure in place reduced the Department's ability to exercise proper oversight and to hold any one party accountable. The Department did not have a direct contractual relationship with Velante. They were not involved in how Velante was set up and had limited influence on how vendor contracts for IT and professional services were awarded. We were unable to determine the need for or intended benefits of this complex structure.

Recommendation

2.41 We recommend that the Department of Health:

- **structure contracts to maintain oversight and hold parties receiving public funds accountable; and**

- **if complex structures can not be avoided, the Department needs to build in adequate controls to manage the risks and protect public funds.**

Department chose not to review financial records of funding recipients or ensure compliance with funding agreements

2.42 The Department did not obtain or review the audited financial statements of NBMS or Velante to ensure compliance with funding agreements, appropriateness of program expenditures or overall completeness of accounting records.

2.43 Funding agreements with NBMS included clauses to allow the Department access to all financial records related to EMR funding. Regular review of such records by the Department would have shown that the actual costs incurred exceeded the funding and allowed corrective action to avoid the increased cost at no added benefit.

Recommendation

2.44 We recommend the Department of Health, as part of granting program funding;

- **assess the financial health of third-party funding recipients and their ability to achieve the desired results within agreed funding levels; and**
- **exercise periodic review of records as per the terms of funding agreements**.

In 2015, the Department failed to intervene even though there were clear signs of program failure

2.45 The Department did not intervene in the program in 2015 when there were clear signs the program was in jeopardy. Instead the Department kept extending the agreement deadlines and providing more funding in an effort to keep the program afloat. The signs of failure included:

- numerous implementation targets and funding deadlines were missed;
- private sector business partner (Accreon) abandoned the partnership;
- Velante solvency issues required NBMS to give it a cash injection in excess of $980,000;
- Infoway expressed concerns about lack of progress; and
- lab integration was significantly delayed.

Recommendation

2.46 We recommend the Department of Health intervene and take timely corrective action when there are indicators of program failure such as:

- **not achieving project deliverables;**
- **missing key deadlines; and**
- **incurring funding shortfalls.**

A further $9 million was spent on the single-vendor EMR model before the project was terminated in 2019

2.47 From 2016 to 2018 the Department (including Medicare) spent a further $9 million supporting the implementation of the single integrated EMR model before it was finally terminated in 2019.

In 2017, government requested a program review

2.48 As part of providing supplemental funding to finance Velante's operations for additional two years, in 2017, government requested a program review. The review was completed in 2019 and, as a result, it was decided to end support for the single-vendor EMR model in favour of an open market model for EMRs.

Department had no plan to monitor achievement of program outcomes

2.49 We found significant weaknesses in the Department's monitoring of the implementation and operation of the EMR Program. The Department had no ability to measure to what extent program outcomes were being achieved.

No performance measures or progress reporting on program implementation

2.50 There were no performance measures and no progress reporting on program implementation. In accordance with the funding agreement, NBMS was required to provide quarterly reports detailing the status of the project plan, deliverables achieved and status of project timelines. We found no evidence such reports were provided to the Department.

Recommendation

2.51 We recommend the Department of Health, for future programs:

- **develop measurable performance criteria to monitor program outcomes; and**
- **use regular progress reports to monitor program implementations.**

The scramble to meet physician enrolment targets resulted in many errors and discrepancies

2.52 Because of the low physician enrolment experienced early on, the implementation process suffered from extensive rework and exceptions. The initial funding secured by Infoway was based on a list of 415 practitioners (411 Physicians and 4 Nurse Practitioners) who had agreed to implement the EMR in their practice. Subsequently many physicians either left the province, left their practice, retired or otherwise decided not to implement the Velante EMR software. As a result, replacement physicians were sought in order to reach the target. Between 2014 and 2018, 124 replacements were made.

2.53 The process of keeping track of this ever-changing list and managing the implementation effort to achieve 415 implementations consumed the limited available administrative and managerial resources within the Innovation and eHealth Branch of the Department. This resulted in numerous errors and discrepancies including:

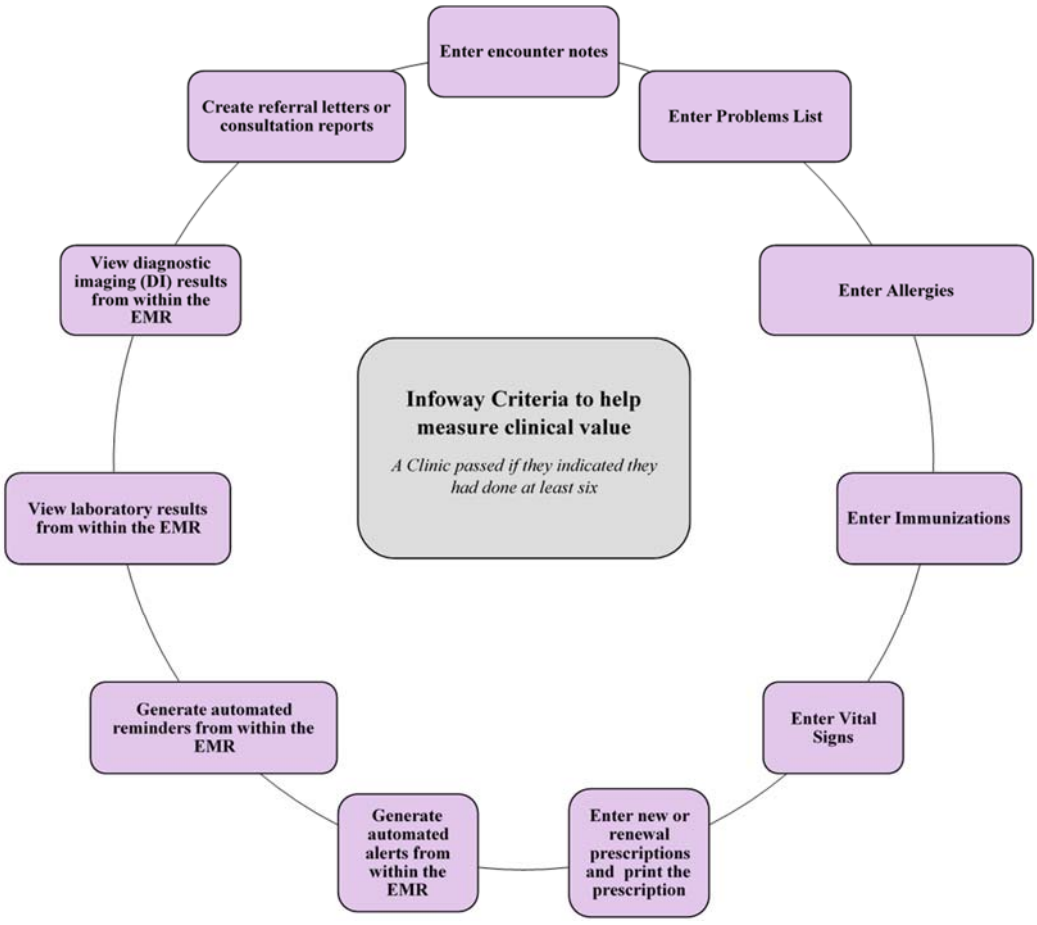
- duplicate payments;
- multiple payments per install location; and
- missed implementation deadlines.

Department did not monitor clinical value achievement

2.54 There was no effective process to ensure clinical value was achieved in all funded implementations and that funding deadlines were met.

2.55 The concept of clinical value and achieving greater clinical value through integrated EMR was the basis for funding an EMR program in New Brunswick. Clinical value was defined by Infoway as the effective use of an EMR. Effective use meaning improving clinical impact rather than just number of users. Infoway developed a list of 11 functions that were used as criteria to help measure clinical value as illustrated in Exhibit 2.7 below. A clinic passed the clinical value self assessment if they indicated they had done at least six of these functions.

Exhibit 2.7 - Clinical value assessment criteria



Source: prepared by AGNB from Department data from Infoway

Inadequate validation of clinical value survey – only negative responses were validated

2.56 The clinical value validation process consisted of a self-assessment survey completed by physicians within three months after the clinic's go-live date. The Department used the assessment to prove the physician is using the EMR system as intended and also as evidence for the Department to receive further funding from Infoway. A copy of this assessment form is provided in Appendix IV.

2.57 We found the Department validated physicians' negative survey responses by checking EHR access logs for evidence that the clinic had performed the function in question. For example, a physician would say they did not access labs, but system logs showed they had. In such cases, the Department changed the physician's response to positive in accordance with survey validation procedures.

2.58 However, the Department did not attempt to validate any of the positive responses to verify that clinical value measures had been met. If a physician indicated they had entered immunization records, no checking was done to ensure they did. This meant that any errors made in the positive responses were not detected by the validation process.

No EMR audit was conducted

2.59 The Department did not conduct any audits of the EMR implementation and use in physician clinics. We found no evidence that a program audit was considered. We were told that a Project Manager within the Department conducted informal visits to clinics and had discussions with physicians who implemented the EMR about their experiences with the software program. This is not enough to evaluate the achievement of program outcomes or compliance with funding criteria.

2.60 The EMR program plan developed by the Department in 2011 states that "*The New Brunswick Department of Health may conduct an audit of the EMR contents to ensure compliance with Clinical Value Level 1 criteria by reviewing randomly selected charts or viewing aggregate reports provided by the clinic or Application Service provider. If compliance is not confirmed, the Department of Health may choose to withhold a milestone payment until compliance is demonstrated*".

Recommendation

2.61 We recommend the Department of Health ensure regular audits are carried out on future programs to evaluate achievement of program outcomes and funding recipients' compliance with funding terms.

Continued EMR usage was not a criteria for funding

2.62 At the end of December 2018, the Department had funded 406 implementations to be completed by Velante. Out of these, only 366 implementations were completed, and only 345 Physicians had successfully demonstrated they were using at least the minimum functionality of the program.

Physicians were able to discontinue EMR usage without having to pay back subsidies

2.63 The Department did not stipulate that a physician had to keep the EMR for a specific length of time to be eligible for funding. Because of the lenient eligibility criteria, physicians who had their implementations subsidized were able to discontinue using the EMR without having to pay the Department back. We found 42 instances where physicians stopped using the EMR.

Department paid multiple times for one EMR site

2.64 When a physician stopped using the EMR, their systems were passed on to other interested physicians as if they were fresh installs. If a salaried physician left their practice and another physician took it over, the Department was billed for a completely new installation at a cost of $16,000. As a result, there was one instance where the Department paid for two full installations for one EMR site when the physician left the province.

2.65 We found another instance where the Department was billed for three installations for the same EMR. This occurred due to the original physician leaving the province, the second physician also leaving the province and the EMR being taken over by a third physician.

2.66 The Department was aware they would be paying for a new implementation if a physician with an EMR left and was replaced. They also were responsible for the spreadsheet that tracked replacement physicians. However, there was no control in place to identify when the same EMR site was repeatedly paid for.

Department overpaid its subsidies for Fee for Service physician implementations

2.67 The Department did not verify that FFS physicians paid for 50% of their EMR software implementation cost. The EMR funding agreement committed the Department to match the contributions made by FFS physicians. The Department paid a total of $1.6 million towards FFS physicians' software implementation costs during the term of the agreement. FFS physicians paid only $671,000. This means the Department overpaid its contribution by over $900,000. This is illustrated in Exhibit 2.8 below.

Exhibit 2.8 - Department and Fee for Service physicians share of implementation cost (2013 – 2018)

Department and Fee for Service physician shares of implementation cost (2013-2018)							
Velante Revenue	**Calendar Year (000s)**						
	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**Total**
Department Paid	$56	$444	$372.6	$223.6	$206.6	$296	$1,599
Physician Paid	$64	$243.5	$165	$88.5	$87	$23	$671

Source: AGNB from Velante audited Financial Statements

Funding match between the Department and physicians did not occur

2.68 Exhibit 2.8 shows the funding match between the Department and FFS amounts did not occur. The Department paid the agreed upon amount of $8,000 per implementation, whereas not all FFS Physicians did. We were told by NBMS that the annual $1.5 million EMR amount in the Fee for Service Master Agreement should be considered as part of the FFS physician contribution.

Weak enforcement of funding agreement by the Department

2.69 Under the EMR funding agreement and subsequent amendments, the Department was to be reimbursed by NBMS for funded EMR implementations that did not meet the minimum clinical value measure or were not implemented by the respective funding deadline. We found no reimbursement to the Department occurred because the Department extended the funding deadline twice to allow NBMS time to meet the funding conditions. Exhibit 2.9 below summarizes the EMR funding agreements and amendments.

Exhibit 2.9 - Funding Agreements between the Department of Health and New Brunswick Medical Society

Funding Agreements between the Department of Health and New Brunswick Medical Society				
	Date	**Purpose**	**Funding**	**Deadline**
Original agreement	September 2012	Department to provide EMR implementation subsidy to NBMS NBMS to implement a single-vendor EMR solution and integrate it with the EHR	$8,000 per Fee for Service (FFS) physician implementation $16,000 per Salaried (SAL) physician implementation	December 2013
1st Amendment	August 2014	Deadlines extended Clause added to reimburse Department for subsidized FFS implementations that do not meet the funding criteria by December 30, 2015	Funding reduced to $6,600 per FFS physician Number of SAL physicians covered by agreement capped at 200.	December 2015
2nd Amendment	May 2015	Deadlines extended Reimbursement clause amended to account for early enrolees who's funding was $8,000	No change	December 2016
EMR Funding Agreement	December 2017	New funding for EMR implementations Further early adoption incentives and a 1% increase in Medicare Code 1 office visits to be paid from the $1.5 million annual Medicare fund	$1.5 million in 2017-18 $1.3 million in 2018-19	March 2019
Transitional Funding	November 2019	Provided up to $3 million in funding to NBMS for Velante's operating and transitional costs	Up to $1.5 million in 2019-20 Up to $1.5 million in 2020-21	March 2021

Source: AGNB from Department data

2.70 After the first amendment of the original funding agreement in 2014, NBMS would have been required to pay the Department back $1.9 million in EMR funding. This was for physician enrolments where the NBMS received advanced funding but did not meet the Department's December 2015 implementation deadline. This repayment never happened because the 2015 deadline was eventually extended until the funding paid for implementations had been used.

Department provided financial assistance to Velante in 2017

2.71 In 2017, the Department agreed to provide $2.8 million of financial assistance to NBMS. The additional funding was to allow Velante enough capital to continue operating for two years while an independent program review was conducted. The funds were provided over two fiscal years with $1.5 million given in 2017-2018 and $1.3 million in in 2018-2019.

Department paid an extra $2.8 million and did not receive a reconciliation of where it was spent

2.72 The supplemental funding agreement stipulated that "*a reconciliation of the Provincial EMR Funding would be prepared by the Society for fiscal years 2017-18 and 2018-2019 and any unexpended amounts will be returned to the Minister*".

2.73 The second payment of $1.3 million was not to be paid until NBMS provided a reconciliation showing how the first $1.5 million had been used. The Department did not receive either reconciliation but still made the second payment to NBMS in April 2018.

2.74 According to the funding agreement any unused funds were to be returned to the Department. We found no evidence that the Department requested or received any refund.

New EMR funding agreement signed in November 2019

2.75 The Department entered into a new funding agreement with the New Brunswick Medical Society on November 29, 2019. The purpose of this funding was to "*provide the Society with Provincial EMR Funding for Operational Costs and Transitional Costs to support, promote, and encourage, continued utilization and adoption of EMR by physicians in the Province of New Brunswick, to support ongoing operation and maintenance of the Provincial Electronic Medical Record to an open market of EMR providers."*

2.76 This funding agreement provided up to $1.5 million in 2019/2020 and an additional $1.5 million in 2020/2021. It also required detailed financial documentation before financing was paid. Up to September 30, 2020, $1 million has been paid from the $3 million funding available.

Recommendations

2.77 We recommend the Department of Health stipulate, in future funding agreements, withholding of final payment until all agreement terms are satisfied.

Single-Vendor Provincial EMR Model Failed

2.78 We found the provincial EMR program using a single integrated software system failed. The software was not integrated with the EHR, there was insufficient uptake by physicians and the implementation and operating business model was not sustainable from the outset.

Overall the EMR program did not satisfy Department's expectations

2.79 Overall the EMR program did not satisfy the Department's expectations for a single integrated EMR software system to be used by community based medical practices in New Brunswick. According to the Project Charter, there were to be "355 doctors fully implemented with their associated three-month CV1 [Clinical Value 1] assessment successfully completed by March 31, 2015." Only 93 doctors had achieved the CV1 assessment at that point and only 155 implementations had been carried out. Eight out of nine data integrations were planned to be in place by 2014. This was not achieved.

EMR solution has never been fully integrated with the Electronic Health Record

2.80 The EMR was never fully integrated with the EHR. The EHR database did not receive any clinical information from the provincial EMR system. As shown in Exhibit 2.10 below, only one of the nine planned integrations, client registry, was completed within the planned timeline. Integration of lab results and Medicare billing were significantly delayed, before they were finally completed in 2019. The remaining integrations were supposed to be completed and included in the EMR by 2014. As of September 30, 2020, none of these were completed.

Exhibit 2.10 - Status of EMR integrations with EHR as at September 2020

Status of EMR integrations with EHR as of September 2020			
Integration	**Description**	**Status as at September 2020**	**Date Completed**
Client Registry integration/ EHR viewer	Integration of physician and EHR patient demographics to enable unique identification of the patient and the viewing of patient data in the appropriate context within the EHR.	Completed	January 2014
Medicare Billing	Integration of billing between physician offices and Medicare and billing reconciliation reports	Completed	January 2019
Lab Results	Integration of lab data to the EMR	Completed	January 2019
Diagnostic Imaging Reports	Integration of diagnostic imaging data to the EMR	Incomplete *	
Patient Visits	Integration of encounter (visit) information from the EMR to the EHR	Incomplete *	
Allergies/ Intolerances	Integration of allergy/intolerance information from the EMR to the EHR	Incomplete *	
Immunizations	Integration of immunization information from the EMR to the EHR	Incomplete *	
eReferrals	Integration of referral information from the EMR to EHR	Incomplete *	
ePrescribe	Integration of prescription data from the Drug Information System (DIS)	Scheduled January 2021	

** To be determined when the transition to an open market occurs.*
Source: Table prepared AGNB from EMR program documentation

2.81 Under the revised plan, following government's 2019 decision to go to open market, the incomplete integrations referenced above will be considered individually and implemented with the open market EMRs based on government priorities. No specific timelines were set for these implementations.

Integration work neglected as efforts were focused on meeting enrolment targets

2.82 We found integration work was given a lower priority while efforts were focused on meeting physician enrolment targets to satisfy the minimum funding criteria.

Responsibility for integration work was not clearly defined

2.83 We also found there was a disagreement as to who was responsible for parts of the integration work. It is not clear who was responsible for building the technology needed for the information to flow between the EMR and the systems it was meant to integrate with.

Lab integration, a desired essential component, was significantly delayed

2.84 We found lab integration, a desired essential component of the EMR, was significantly delayed. The ability to have lab results automatically brought into a physician's patient records was an important selling feature of the EMR software offered by Velante. Physicians identified this as a top integration item and repeatedly asked for it to be done as a priority.

2.85 During the enrolment period, physicians were promised the ability to receive the results of blood tests and other diagnostic lab tests directly into their EMR software. However, this integration was not ready for the initial rollout. We were told that this delay was due to issues integrating with the hospital information system, Meditech. Lab integration was piloted in 2017 and partially put in place in 2018, a five-year delay.

2.86 Government's decision in 2012 granting the Department authority to proceed with the EMR project, stipulated that the "*EMR system will be accessible to provide information for strategic management with the health system"*. The Department acknowledged, in the EMR Program Plan, that integrating it within the rest of the EHR was essential. This was to support the flow of information throughout the entire healthcare system. As shown in Exhibit 2.10, only three EMR integrations were completed as of September 2020.

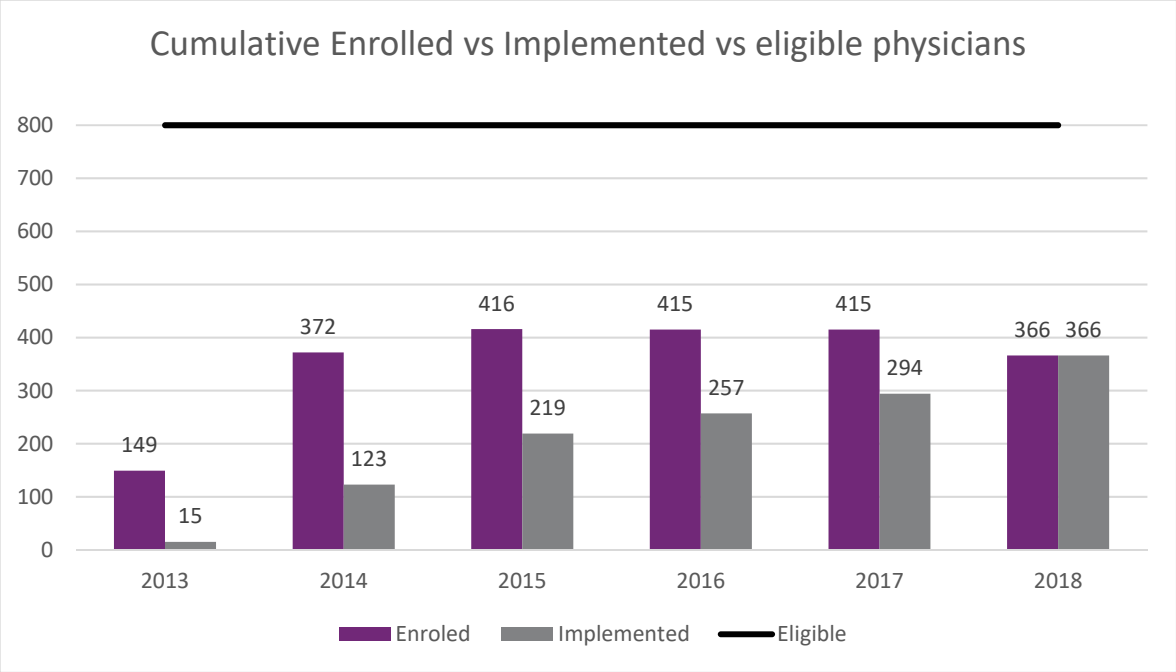
EMR program failed to meet its intended outcomes

2.87 Without all integrations being in place, the EMR program has failed to achieve its intended outcomes as stipulated in the 2012 decision and the EMR program plan.

After eight years and over $26 million, less than half of 800 eligible physicians implemented the Provincial EMR

2.88 An insufficient number of physicians chose to implement the provincial EMR in their practice. After eight years of open implementation opportunities and over $26 million in funding, less than half of the 800 eligible New Brunswick physicians are active users of the single provincial EMR system. This low enrolment was mainly due to the high initial cost of the program and lack of desired integrations. Exhibit 2.11 shows the numbers of enrolled and implemented physicians for the six-year period from 2013 to 2018. This covers the years the Department was receiving Infoway funding.

Exhibit 2.11 - Cumulative enrolled vs implemented vs eligible physicians



Source: AGNB from Velante and Department unaudited data

2.89 The total number of eligible physicians in the province fluctuates but is typically over 800, with potential for more to be added in the future. According to project funding agreements, an eligible physician was defined as any

community based salaried or fee for service physician, working outside a hospital or other institutional setting that has its own government operated medical records system. By December 31, 2018, only 366 out of the 800 eligible physicians were active on the EMR system. As of June 30, 2020, the number of active EMRs was 382.

Physician implementations never met Canada Health Infoway (Infoway) target

2.90 We found EMR implementations never met the Infoway funding target of 415 (411 physicians and 4 nurse practitioners) by the funding deadline of December 31, 2015. By that date, only 165 implementations had been done. In 2015, Infoway expressed concerns over the lack of progress being made towards meeting physician implementation targets.

Infoway deadlines extended several times to avoid claw-back of funds

2.91 After the initial Infoway master funding agreement was signed, there were two amendments and an extension to the agreement that pushed the end dates out until December 31, 2018. This was to allow NBMS to bring more physicians on to the provincial EMR, so the Department would not be required to pay back Infoway funding. This was based on a claw-back clause in Infoway's funding agreement. Funds received by the Department for unimplemented EMRs were required to be paid back to Infoway by December 31, 2015. Exhibit 2.12 below shows a summary of Infoway funding agreement and amendments.

Exhibit 2.12 – Summary of Infoway EMR funding agreement and amendments

Summary of Infoway EMR funding agreement and amendments				
	Date	**Purpose**	**Funding**	**Deadline**
Original agreement	March 2013	EMR implementation subsidy by Infoway	$12,000 per Physician	December 2014
1st Amendment	April 2014	Deadline was extended	Unchanged	December 2015
2nd Amendment	September 2014	Reduced per implementation subsidy amount for physicians enrolled after 2014	$10,134 per Physician	December 2015
3rd Amendment	April 2015	Deadline was extended	Unchanged	December 2016
Extension	April 2018	Extended funding deadline from December 2016 to December 2018	Unchanged	December 2018

Source: AGNB from Infoway funding agreement and amendments

2.92 The final extension allowed the Department to remove physicians previously enrolled who did not intend to implement by the agreement deadline. It also allowed the Department more time to achieve other implementation milestones.

2.93 Had these extensions not been granted, the Department would not have met the deadlines to achieve the minimum funding criteria and they would have had to repay part of the funding back to Infoway.

2.94 In order to accelerate the adoption of the provincial EMR system in 2018, the Department announced that any new physician coming into New Brunswick or joining the Family Medicine New Brunswick (FMNB) Model would be required to use the EMR. FMNB is a program funded by the Department and delivered by NBMS. This new collaborative model was intended to improve physician recruitment, provide better access to family doctors and give doctors more time for patient care.

High initial cost of EMR was a deterrent to physician enrolment

2.95 The high upfront price was believed to be one of the reasons why physicians were not adopting the Velante solution. The unsubsidized upfront implementation price was set at $16,000 by Velante. Fee for service physicians were initially expected to pay half of that amount. For salaried physicians, the Department would pay the full $16,000.

2.96 In response to low uptake by physicians, the Department provided additional subsidy funding to NBMS through the Medicare Physician Master Services Agreement. This reduced the upfront FFS physician fee to $4,000 or less per implementation.

Instances found where physicians were paid to implement the EMR system

2.97 When examining FFS physician payments, we found instances where physicians were paid to implement the system, effectively receiving a net benefit. For example, we found invoices showing one physician who paid $4,000 was given an incentive credit of $2,500 as well as an early adopter credit of $3,000. In this case, effectively, the physician was paid $1,500 to implement the software.

Incomplete EMR clinical data does not benefit population health management

2.98 Low participation by all physicians means that even if the data was integrated, it would be incomplete and would not provide the desired benefits for population health management. Incomplete and inconsistent data also means that other users in the healthcare system could not rely on the data for analytics or to improve health system efficiencies. For the healthcare data to be useful for population health management, most physicians need to be contributing useful information back into the health system.

2.99 While all jurisdictions in Canada provided some degree of financial assistance for the adoption of integrated EMRs, the amounts of assistance significantly declined over time as the use of EMRs (vs paper filing) gained acceptance by physicians. The EMR operational review conducted by an independent consulting firm reported in 2019 that "*Provinces with high levels of EMR adoption have for the most part ceased providing financial incentives/subsidies to physicians for their EMRs.*"[4]

[4] New Brunswick EMR Operational Review, 4 April 2019

New Brunswick has one of the lowest EMR adoption rates in Canada

2.100 Comparatively, New Brunswick is the only province that has the Medical Society financially managing and fully operating the EMR program through a wholly owned subsidiary, Velante. Appendix III shows comparative EMR status data. New Brunswick has one of the lowest adoption rates across Canada and limited integrations when compared to other Provinces. In most cases, provinces with multi-vendor EMRs have significantly higher rates of adoption by physicians.

Provincial EMR business model was unsustainable from the outset

2.101 The provincial EMR business model was unsustainable from the outset. We found the delivery of the EMR software solution to FFS medical practices in New Brunswick required ongoing financial support from the Department.

Velante had $8,000 shortfall in planned revenue per physician implementation

2.102 We found both the unsubsidized EMR implementation price and the monthly maintenance fees were below actual costs. From the beginning of the program in 2012, Velante's price of $16,000 per physician implementation was below the expected cost of $24,000 per physician. As shown in Exhibit 2.13, Velante had an $8,000 revenue shortfall per physician implementation before the project even started.

Exhibit 2.13 - Planned EMR price and cost per physician implementation (2012)

Planned EMR Price and Cost per Implementation (2012)		
	Cost	***Price***
Velante EMR implementation price charged per physician		$16,000
EMR implementation costs (per funding agreement worksheet)		
EMR direct costs	$17,200	
EMR integration costs	$6,800	
Total EMR cost/physician	$24,000	
Revenue shortfall per implementation		**($8,000)**

Source: AGNB prepared table from EMR funding agreement worksheet and Velante business planning documents (unaudited)

2.103 NBMS provided a detailed breakdown of EMR implementation costs to the Department and Infoway as a requirement of the initial EMR funding agreement. The forecasted direct costs per implementation based on 500 physicians was calculated at $17,200. An additional $6,800 was added to cover integration development and testing costs for a total estimated EMR cost of $24,000 per implementation.

Project proceeded despite known funding deficit

2.104 It is unclear how this shortfall was going to be made up. We were told by NBMS that Velante and NBMS believed that the Department was going to provide additional direct implementation subsidies. However, we found no indication that this was planned or considered. Yet, the Department proceeded with the single-vendor EMR model knowing the proposed business logic was flawed.

Velante was making a loss on monthly user fees

2.105 We found there was never a path to a sustainable operation of the EMR solution by Velante. Even at full physician implementation, monthly subscription revenue charged by Velante would be insufficient to cover the recurring monthly fees being paid to Intrahealth, the EMR software provider. There would not be enough revenue for Velante to cover overheads and other administrative costs.

2.106 Once the EMR was implemented, FFS physicians were charged a subsidized maintenance fee of $195 per month payable to Velante. The full fee set by Velante was $395 per month. The difference was taken from the annual $1.5 million EMR payment included in the Medicare Physician

Master Services agreement. The Department paid the full $395 per physician for salaried physicians. This fee is paid yearly by the Department for all salaried physicians on the Provincial EMR and will continue to be paid as long as the physician is actively using the EMR.

2.107 Based on correspondence from Velante in February 2019, they calculated the actual full monthly licensing cost was $480. They would need to charge all physicians at least $480 per month just to break even. Exhibit 2.14 shows a breakdown of the actual recurring monthly EMR maintenance cost per physician.

Exhibit 2.14 - Monthly Loss on EMR Maintenance Cost per Physician (February 2019)

Monthly EMR Maintenance Cost per Physician (February 2019)		
Component	Description	Amount
IntraHealth – Contract	Profile EMR software	$336
Vigilance	Drug database for Drug Information System	17
Maestro	Communications interface	5
Excelleris	Lab interface	122
	Actual Cost/Physician/ month	**$480**
	Unsubsidized monthly maintenance fee	**$395**
	Loss on monthly maintenance fee per physician	**$(85)**

Source: AGNB prepared from unaudited Velante correspondence

Unfavourable pricing model for monthly user fees

2.108 Velante had a contract with Intrahealth for the EMR software. The contract included a tiered pricing model for recurring monthly fees. The amount due was based on the number of physician implementations, tiered in block increments of 200 users. Velante had to pay Intrahealth for the full block of users not per actual user. This means once there were 201 users they had to pay for the equivalent of 400 users. We view this as an unfavourable pricing model that indicates a poorly negotiated contract by Velante.

Recommendation

2.109 For all future EMR solutions, we recommend the Department of Health:

- **identify and prioritize all data integration requirements;**
- **clearly define responsibilities of all parties involved in integration; and**
- **ensure implementation timelines are met.**

Appendix I – Audit Objectives and Criteria

The objectives and criteria for our audit of the Department of Health Electronic Medical Record program are presented below. Senior management within the Department of Health reviewed and agreed with the objectives and associated criteria.

Objective 1	To determine if the Provincial Electronic Medical Record (EMR) program was implemented as intended and has achieved its planned outcomes.
Criterion 1	The Provincial EMR Program should be fully integrated with the Department's electronic health record database
Criterion 2	The Provincial EMR Program should contribute "clinically relevant", timely information to and from the Department of Health's Electronic Health Record
Criterion 3	The Department should have a formal monitoring system in place to evaluate the degree of success achieved by the EMR program.
Criterion 4	The Department should be able to demonstrate how the provincial EMR program has facilitated: • Individual health outcomes; • Population health outcomes, and; • Improved health system performance and efficiencies.
Objective 2	To determine if the Department monitored Electronic Medical Record (EMR) funds to mitigate risk to the taxpayer and to ensure compliance with funding agreements.
Criterion 1	Department should have processes and controls in place to ensure recipient funding was used in accordance with the applicable agreements
Criterion 2	Department should inspect the accounts and records of funding recipients to ensure EMR-related funds were accounted for and used for eligible costs
Criterion 3	EMR-related expenditures should be made in accordance with project plan and under a funding agreement

Source of Criteria: Developed by AGNB based on:

- the Department of Health and New Brunswick Medical Society's Electronic Medical Record Funding Agreements & Amendments;
- Infoway and Department of Health's Electronic Medical Record Master Agreement and Amendments; and,
- the NB EMR Project Charter.

Appendix II – About the Audit

This independent assurance report was prepared by the Office of the Auditor General of New Brunswick on the Department of Health on Electronic Medical Record Program. Our responsibility was to provide objective information, advice, and assurance to assist the Legislative Assembly in its scrutiny of the Department of Health on its implementation and operation of the Electronic Medical Record Program.

All work in this audit was performed to a reasonable level of assurance in accordance with the Canadian Standard on Assurance Engagements (CSAE) 3001 – Direct Engagements set out by the Chartered Professional Accountants of Canada (CPA Canada) in the CPA Canada Handbook – Assurance.

AGNB applies Canadian Standard on Quality Control 1 and, accordingly, maintains a comprehensive system of quality control, including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

In conducting the audit work, we have complied with the independence and other ethical requirements of the Rules of Professional Conduct of Chartered Professional Accountants of New Brunswick and the Code Professional Conduct of the Office of the Auditor General of New Brunswick. Both the Rules of Professional Conduct and the Code are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality, and professional behaviour.

In accordance with our regular audit process, we obtained the following from management:

- confirmation of management's responsibility for the subject under audit;
- acknowledgement of the suitability of the criteria used in the audit;
- confirmation that all known information that has been requested, or that could affect the findings or audit conclusion, has been provided; and
- confirmation that the findings in this report are factually based.

Period covered by the audit:

The audit covered the period between January 1, 2012 and December 31, 2019. This is the period to which the audit conclusion applies. However, to gain a more complete understanding of the subject matter of the audit, we also examined certain matters that preceded the starting date of the audit.

Date of the report:

We obtained sufficient and appropriate audit evidence on which to base our conclusion on January 8, 2021, in Fredericton, New Brunswick.

Appendix III – Jurisdictional Summary (2017)

	BC	AB	SK	MB	ON	QC	NB	NS	NL	PEI
EMR Prog Start	2006	2003	2009	2010	2009	2012	2012	2005	2014	-
Adoption Rate	91%	78%	70%	70%	75%	42%	34%	55%	9%	-
# Approved Vendors	10	2	2	3	13	10	1	3	4	-
EMR Incentives/Funding		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-
Funding Source		Gov/Med Assoc	Gov/Med Assoc	Gov/ Infoway	Gov (eHealth Ont)		Med Assoc	Gov/ Infoway	Gov (70), Phy (30)	-
EMR Program Governance	Joint (Gov/Med Assoc)	N/A	Joint (Gov/Med Assoc)	Gov	Joint (Gov/Med Assoc)	Gov	Med Assoc	Gov	Joint (Gov/Med Assoc)	-
Role of Medical Association	Governance	Advise	Governance Operate	Advise	Governance Operate	Advise	Governance Operate	Advise	Governance	-
Provincial Standard EMR	None	None	Med Access or QHR	None	None	None	IntraHealth (Velante)	Nightingale OnDemand	Med Access	-
Interoperability Status	Yes	Yes	Yes	Planned	Yes	Planned	Partial	Partial	Planned	

Source: AGNB based on information from the Department

Appendix IV – Clinical Value Benefits Survey

New Brunswick EMR Program

Clinical Value Benefits Survey

Clinical value is defined by Canada Health Infoway as the effective use of EMR. It is an important, and required, part of the NB EMR Program as achieving clinical value ensures that each clinic reaps the full benefits of the EMR. Achieving clinical value defines program success based on clinical impact and use rather than just the number of users.

Clinical value is expected to be evaluated and achieved within 3 months of the clinic's Go-Live date.

To confirm clinical value, each physician using an EMR is required to complete the short questionnaire below:

Criteria	Answer
Please identify the clinical value criteria you and your staff have achieved in the 3 months since you began using the EMR.	Place an "X" beside each function used
1. Enter encounter notes	
2. Enter problem lists	
3. Enter allergies	
4. Enter immunizations	
5. Enter vital signs	
6. Enter new or renewal prescriptions and print the prescription	
7. Generate automated alerts from within the EMR	
8. Generate automated reminders from within the EMR	
9. View laboratory results from within the EMR	
10. View diagnostic imaging (DI) reports from within the EMR	
11. Create referral letters or consultation reports	
Comments or Feedback	

Source: Information from the Department