CADTH

Canadian Medical Imaging Inventory Service Report

The Procurement of Advanced Medical Imaging Equipment: A Pan-Canadian Comparison

Context

Advanced imaging modalities are a significant contributor to the growth in health care costs,[1] especially when considering infrastructure, installation, and operating and ongoing maintenance costs. With the demand for imaging equipment continuing to increase[2] and showing no signs of abatement,[3] procurement practices that focus on patient safety, system value, and sustainability rather than cost containment may be gaining momentum.[4,5]

Factors more commonly considered in the procurement of medical equipment such as improved patient outcomes, better quality of life, health system value, and societal and economic benefits[5,6] are properties that are assessed within the context of health technology assessment (HTA). Indeed, the incorporation of HTA into procurement processes has helped to galvanize the move to a value-based approach to procurement[6] and has drawn attention to the need for greater collaboration between procurement and HTA bodies.[7]

An appreciation of current procurement practices and pathways across Canada may help decision-makers understand the different ways in which innovations are introduced into jurisdictions and identify opportunities for future efficiencies. As well, a more thorough understanding of procurement practices may help to identify opportunities for collaboration between procurement bodies. This, in turn, may optimize outcomes and promote more agile processes that are responsive to patient, system, and pathway needs.

Objective

This document summarizes the information on provincial procurement practices. The key objective is to compare procurement practices for advanced imaging equipment across all Canadian provinces. The purpose of this work is to better understand the current landscape, as well as to identify potential future opportunities to support sustainability and enhance patient outcomes.

Methods

Survey responses were collected from key jurisdictional informants involved in the procurement of advanced medical imaging equipment. A 16-question survey was developed and revised following expert review and was distributed via email to informants in each province. In some instances, in-person interviews were conducted and survey responses were recorded. Survey data were gathered until August 30th, 2021.

Results

Overview

The acquisition of new advanced imaging equipment in the Canadian health care system is characterized by a broad range of purchasing approaches that differ within and between jurisdictions. Equipment procurement is operated either through centralized or decentralized procurement processes. Centralized procurement is usually operated by a single mandatory procurement organization that often follows provincially enacted procurement legislation. Decentralized procurement is typically operated through a fragmented market consisting of group purchasing (e.g., groups of hospitals), shared services, or health care delivery organizations that use a broad range of procurement processes often left to the discretion of each organization's internal policies.

Eleven completed survey responses were received from all provinces. For 7 provinces, a single survey response reflects province-wide practice. For the remaining 3 provinces, 2 responses were received from New Brunswick and 1 each from Ontario and Quebec.

New Brunswick's 2 health authorities — the Horizon Health Network and the Vitalité Health Network — responded to the survey. The Horizon Health Network and the Vitalité Health Network have slightly different processes for the procurement of advanced diagnostic imaging equipment.

The response to this survey for Ontario come from 1 large academic hospital and is not representative of hospital practices across the province. In Ontario, all procurement decisions for advanced imaging equipment, apart from PET-CT, are under the control of individual hospitals and independent health facilities. The Ontario Ministry of Health and Long-Term Care does not currently set guidelines or criteria that hospitals must follow regarding decisions on imaging equipment.[3]

Many hospitals in Ontario work with shared service or group purchasing organizations that specialize in purchasing services and supply chain management on behalf of their members and public sector customers. Hospitals also use a government Vendor of Record and/or their own internal hospital procurement departments.[8]

Ontario is currently restructuring all public sector procurement, including the health care sector, by creating a single centralized government procurement agency through public procurement legislation reform. The Government of Ontario anticipates that the new centralized procurement strategy, delivered through Supply Chain Ontario, will reform the fragmented nature of Ontario's supply chain system and improve government purchasing by leveraging the bulk purchasing power of the entire province.[9] The centralized process is currently a work in progress but is anticipated to adopt a value-based model of procurement for health care.[10]

In Quebec, most medical equipment is currently purchased through procurement organizations known as joint procurement groups (JPGs). The response to this survey is representative of the bulk procurement practices used by a single JPG that purchases equipment for 34 establishments (such as hospitals, university medical centre) in Quebec.

However, like Ontario, Quebec has also announced an intention to move toward a centralized procurement process. The provincial government plans to group together all Quebec government supplies within a single entity, including supplies for health and social services. This work will be coordinated through the Centre d'acquisitions gouvernementales.[11]

Considerations When Purchasing New Imaging Equipment

Provincial representatives were asked to report the sources of clinical and economic information used to inform decisions on the acquisition of new imaging equipment. The survey included a list of 8 options (clinician input, manufacturer information, clinical practice guidelines, HTAs and systematic reviews, peer-reviewed clinical and economic studies, cutting-edge technology, non–peer-reviewed reports, and other) and survey responders were directed to select the top 4 criteria for their province. Responses are summarized in Table 1.

Table 1: Sources of Clinical and Economic Information Used to Inform Decisions on the Acquisition of New Imaging Equipment

Sources of information	Canadian jurisdiction[a]
Clinician input	AB, NBHH, NBVH,NL, NS, QC, SK, ON, PE
Clinical practice guidelines	BC, AB, NL, NS, QC, NBVH, ON
Information from manufacturers	BC, AB, NBHH, NL, QC, SK, PE
Health technology assessments and systematic reviews	AB, NBHH, NBVH SK, PE
Cutting-edge technology	BC, NBHH, NL, NS, PE
Peer-reviewed clinical and economic studies	NS, QC, SK, NBVH
Non–peer-reviewed reports	BC
Other	ON

AB = Alberta; BC = British Columbia; MB = Manitoba; NBHH= New Brunswick Horizon Health; NBVH = New Brunswick Vitalité Health; NL = Newfoundland and Labrador; NS = Nova Scotia; ON = Ontario; PE = Prince Edward Island; QC = Quebec; SK = Saskatchewan.

Note: Data derived from the survey question: "What kinds of clinical or economic information (if any) are used to inform decisions on the use of new equipment?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

The most common source of information used to inform decisions on the acquisition of new imaging equipment, as reported by 9 jurisdictions, is clinician input. Seven jurisdictions indicated that both clinical practice guidelines and information from manufacturers are jointly considered the second most important factor when considering the purchase of new imaging equipment. Five jurisdictions jointly considered both HTAs and systematic reviews, as well as cutting edge technology, to be the third most important factor when considering the purchase of new imaging equipment.

Manitoba commented that they could not limit themselves to a top-4 criteria to inform decisions on the procurement of new equipment in their province. While procurement decisions are made with consideration to all the listed criterion, decisions are primarily driven by organizational long-term objectives, market considerations, and other limitations. Organizational long-term objectives may include the placement of equipment (urban versus rural), if purchases are system-wide or hospital-based; the type of facility (e.g., general or specialty), the size of a facility, whether there is preference to engage a single vendor or a variety of vendors, and anticipated patient volume (current and forecasted). Market considerations may include the procurement team's knowledge of imaging equipment and comparators, market dynamics such as stability of manufacturers and product lines, the speed of innovation — specifically technology enhancements and product features, how equipment integrates digital and analytical tools, and the upgradability of a system. Other considerations may include economic resources and infrastructural limitations related to the size of a facility and the space allocated for imaging equipment, as well as plans for expansion.

Sources of information captured under the "other" category include the functionality and performance of equipment and equipment that specifically address identified gaps in need.

Criteria Used to Ensure Optimal Imaging Unit Selection

Provincial representatives were asked to report the criteria used to ensure that the optimal imaging unit is selected after a decision has been made to procure imaging equipment. The survey included a list of 7 options (onsite demonstration of equipment capabilities, technical specifications, meets clinical needs of the department/province, provides value for the health care system, supports patient-related outcomes, incorporation of the latest technology and environmental factors [electrical, mechanical]) and survey responders were directed to select the top 4 criteria for their province. Responses are summarized in Table 2. The most commonly reported criterion across all jurisdictions is an onsite demonstration of equipment capabilities, with 9 jurisdictions reporting this as an important source of information. Eight respective provinces indicated that equipment-technical specifications and ensuring that clinical needs are met are jointly considered the second most important factors and 7 jurisdictions reported patient-related outcomes when selecting imaging equipment.

The Manitoba representative commented that there is an assumption that all new medical equipment will improve patient outcomes, so this criterion is not considered specifically within the context of decision-making (the exception would be for interventional radiology). Technical specifications are the main consideration in Manitoba. It was noted that it is challenging to differentiate the technical differences between vendors and product lines because they tend to offer the same technical features. It was also observed that the number of product lines from each manufacturer continues to expand, with the features and accessories changing with price range. It was noted that the experience of purchasing imaging equipment is not dissimilar to that of purchasing a car. The facility type and space allocated for equipment also inform decision-making on optimal imaging equipment.

Another province noted that vendor characteristics are also considered and these may include the financial stability of the organization, service quality, transition support, and inventory management.

Table 2: Criteria Used to Inform Optimal Imaging Unit Selection

Criteria	Canadian jurisdiction[a]
Onsite demonstration of equipment capabilities	BC, AB, QC, NBHH, NS, PE, NL, SK, ON
Technical specifications	BC, AB, MB, QC, NS, PE, NBVH, ON
Meets clinical needs of the department/province	AB, NBHH, NBVH NS, PE, NL, SK, ON
Supports patient-related outcomes	BC, AB, MB, NL, SK, NBVH, ON
Provides value for the health care system	BC, QC, NBHH, NBVH, NS, SK,
Incorporation of the latest technology	QC, NBHH, PE, NL
Environmental factors (electrical, mechanical)	

AB = Alberta; BC = British Columbia; MB = Manitoba; NBHH= New Brunswick Horizon Health; NBVH = New Brunswick Vitalité Health; NL = Newfoundland and Labrador; NS = Nova Scotia; ON = Ontario; PE = Prince Edward Island; QC = Quebec; SK = Saskatchewan.

Note: Data derived from the survey question: "What kinds of clinical or economic information (if any) are used to inform decisions on the use of new equipment?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

Green Procurement Practices

Provincial representatives were asked to report on the incorporation of green procurement practices (i.e., such as energy efficiencies, toxic substance use or release, reuse, or recycling conventions) when purchasing new imaging equipment. Responses are summarized in Table 3. Seven jurisdictions indicated that green procurement practices are considered in the procurement process. Of these, 3 provinces reported that they are not highly weighted criteria when purchasing new imaging equipment, 1 province reported that green practices were considered within the context of the safe working and disposal of equipment, and another province indicated green practices were considered within the context of the products used to clean and disinfect imaging equipment.

Table 3: Jurisdictional Incorporation of Green Procurement Practice During Procurement

Jurisdiction[a]	Survey response about green procurement practices
Alberta	No — we can and should. Are there any government incentives to run an energy-efficient program? (Grants?)
British Columbia	The potential environmental impact is considered to ensure safe working practices and discarding of product is followed. Where possible, recycling and reuse of parts and components is considered and utilized.
Manitoba	While many RFPs have some questions around green practices, ultimately this is not a factor that significantly influences procurement practices and is not highly weighted in a request for proposal.
New Brunswick	**Horizon Health** Not currently. **Vitalité Health** Yes, green practices are taken into consideration.
Newfoundland and Labrador	Yes, green procurement practices are a consideration during the procurement process; however, it has not been a major deciding factor in vendor selection.
Nova Scotia	We consider the cleaning products required to clean/disinfect the equipment and we prefer those products that are environmentally friendly and approved for use in Canada.
Ontario	Not at this time.
Prince Edward Island	There is usually a section in the RFP around shipping materials to ensure there is not an excess of packaging materials that ends up in waste. There is very little considerations around green procurement practices solely around DI equipment.
Quebec	Yes.
Saskatchewan	Yes, but it is rarely given a very high rating.

DI = diagnostic imaging; RFP = Request for Proposal.

Note: Data derived from the survey question: "Do you consider green procurement practices (i.e., energy efficiencies, toxic substance use or release, reuse or recycling conventions, other) when purchasing new imaging equipment?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

The Request for Proposal Process

Composition of Request for Proposal Committees

Provincial representatives were asked to report on the composition of their RFP committee. Table 4 provides a summary of complete responses for this question. Responses were similar across Canada, with radiologists and/or technologists represented in these committees in all provinces. Nine jurisdictions also sought representation from both engineers and equipment managers and/or directors. Five provinces included procurement specialist representation and 4 provinces included medical physicists as members of their RFP committees.

Table 4: Composition of RFP Committees

Jurisdiction[a]	Survey response about RFP committee composition
Alberta	• Provincial equipment manager(s) • Site administration/ management • Site technologists • Site clinicians • Information and privacy commissioner • IT specialist • Human factor representative, “as necessary"
British Columbia	The committee comprises members of the working group, with regular connection to and work responsibility of the equipment purchased. All participants are expected to sign a conflict of interest form in which Provincial Heath Services Authority ensure that there is no business conflict with participants and potential proponents of the process. The typical types of committee representatives would include: • Radiologists • Technologists • Infection control specialists • Biomedical engineers • IMIT specialist • Business stakeholders — department directors/managers.
Manitoba	The composition of a committee depends on the type of equipment considered for procurement. Committee members may include: • Physicians • End users (technologists) • Service technicians • Physicists • Clinical engineers • Radiologists • Manager/director of administration. Larger RFPs are usually guided by a steering committee that includes an evaluation team that addresses the detailed work of assessing the technical specifications of imaging equipment.

Jurisdiction[a]	Survey response about RFP committee composition
New Brunswick	**Horizon Health** • Area director of diagnostic imaging • Modality supervisor • Radiologist • Strategic procurement representation **Vitalité Health** • Department manager • Staff member • Clinician • Clinical engineer • Facilities management • IT • Category manager (strategic sourcing)
Newfoundland and Labrador	• A representative from Supply Chain Shared Services Department • Radiologist • MI director • MI manager • MI quality assurance manager • Biomedical expertise • MI technologist • PACS administrator • As needed Manager from infrastructure • As needed Infection control
Nova Scotia	• Technologist — technical specifications developer, evaluator, and site visit evaluator • Radiologist — technical specifications developer, evaluator, and site visit evaluator • DI manager/director — technical specifications developer, evaluator, and site visit evaluator • Medical physicist — technical specifications developer and evaluator • IT/PACS specialist — technical specifications developer and evaluator of IT section of RFP • Provincial procurement sourcing specialist — oversees the entire RFP process • Facilities management (as required) — oversees the "turnkey" construction aspect of the RFP • Subject matter experts, as required (infection control, biomedical)
Ontario	• Radiologists • Technicians • Imaging scientists • DI manager/director • Shared service representation • Administrative representation • Other specialists, as required

Jurisdiction[a]	Survey response about RFP committee composition
Prince Edward Island	• Procurement officer • DI manager • DI technical director • Medical radiation technologist • Medical physicist • Radiologist • Biomedical technologist
Quebec	• Biomedical engineer • Purchase officer (for legal purpose only) • Doctors (2 or more radiologists) • Physicist (for X-ray and nuclear medicine) • Operator (2 or more technologists)
Saskatchewan	This varies depending on the specific RFP process. The typical composition would include: • 1 senior leader (director level) as sponsor and participant • 2 to 3 department managers • 3 to 5 front-line staff who have experience with the equipment • 1 representative from finance • 1 representative from clinical engineering • 1 to 2 radiologists.

DI = Diagnostic imaging; IMIT = Information Management Information Technology; IT = Information Technology; MI = medical imaging; PACS= picture archiving and communication system; RFP= Request for Proposal.

Note: Data derived from the survey question: "Who comprises the Request for Proposal (RFP) committee?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

Shortlisting RFP Submissions

Provincial representatives reported on the process used to shortlist RFP submissions. Responses are summarized in Table 5. Nine jurisdictions explicitly stated that they use a scoring matrix when evaluating RFP criteria, 1 of which reported using weighting. One province reported that a shortlisting process is not used to eliminate unsuccessful contenders, another noted that clinical and technical requirements and practice considerations are criteria that are considered within the context of positive patient outcomes and room configurations, and another province noted the adoption of a phased RFP approach and ranking to evaluate proposals shortlisted for further consideration.

Table 5: Process Used to Shortlist RFP Submissions

Jurisdiction[a]	Survey response about processes for shortlisting RFP submissions
AB	The clinical and technical requirements and practice considerations are considered within the context of positive patient outcomes and room layout.
BC	Overall evaluation that includes a phased approach and rankings.
MN	All RFPs are scored and the totals are added up. The top proposals are shortlisted and must meet a minimum threshold. There is weighting allocated to each section. Scored out of 100. Weighting can vary between different imaging modality types. When there is large variation between models, more weight might be allocated to technical factors. The weighting of the various technical factors is not necessarily based on the importance of the presence of that factor but more so where differences are expected to be seen between systems. For example, dual energy is very important but may not be weighted highly in the technical factors since most vendors now have systems that have this capability. Newly introduced features that may distinguish systems from each other may be weighted higher. The review of RFPs requires a good understanding of the market to structure the RFP. It's important to understanding the differentiating features. There is a strategy to developing RFPs to ensure the right factors are evaluated (e.g., otherwise all units score the same and your evaluation is based on very narrow and limited criteria). An understanding of the long-term objectives related to the purchasing of equipment influences the review process. Objectives can be different, depending on, for example, whether equipment is intended for urban or rural settings.
NB	**Horizon Health** Scoring criteria that were established for the RFP. **Vitalité Health** Specific evaluation grid for the call for tenders is used that requires a minimum score of 75% to advance.
NL	A scoring methodology is used so that the vendor that meets most of the equipment specifications will be the chosen vendor. Often the minimum score required to make the short list is set as 80%.
NS	The total technical specification scores are calculated and added to the financial scores. The 2 vendors with the highest scores are shortlisted. Those shortlisted must meet a minimum threshold.
ON	RFP submissions must meet a threshold of 60% to 70 % in their overall scores.
PE	RFP responses are reviewed and data from them are input into the evaluation form. The vendors must achieve a designated minimum score before being shortlisted.
QC	A short list is not used.
SK	All submissions are reviewed and scored by the RFP committee.

AB = Alberta; BC = British Columbia; MB = Manitoba; NB = New Brunswick Horizon Health; NL = Newfoundland and Labrador; NS = Nova Scotia; ON = Ontario; PE = Prince Edward Island; QC = Quebec; RFP = Request for Proposal; SK = Saskatchewan.

Note: Data derived from the survey question: "How do you determine which RFP submissions are shortlisted?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

Number of Shortlisted Request for Proposals

Provincial representatives reported on the number of proposals shortlisted for further consideration. Table 6 provides a summary of responses for this question. Overall, the average number of RFP submissions shortlisted during the procurement process is within the range of 2 to 4 across Canada, with limited variation between provinces. It was noted by numerous provinces that the number of shortlisted submissions may be influenced by the number of manufacturers and models on the market, and the type of imaging modality under consideration for procurement. One province commented that precisely prepared RFP submission criteria can help to eliminate candidates.

Table 6: Number of Shortlisted Requests for Proposals

Jurisdiction[a]	Survey response about the number of shortlisted RFPs
Alberta	The specific number of shortlisted submissions is determined and agreed on based on the overall market intelligence of the anticipated respondents; typically, 2 to 3.
British Columbia	This would be dependent on the requirements of the project and offerings of the proponents.
Manitoba	The number of shortlisted submissions is dependent on the number of manufacturers and models on the market. Usually, 3 submissions are shortlisted. Depending on the type of modality and the overarching objective, the short list may be limited to 3 manufacturers or 3 specific models of equipment.
New Brunswick	**Horizon Health** Generally, the top 3 to 4 proponents are selected, depending on the modality. **Vitalité Health** In the majority of cases, 3 submissions are selected.
Newfoundland and Labrador	Usually, there are 2 to 3 vendors submissions shortlisted, depending on the modality and the number of vendor responses.
Nova Scotia	2
Ontario	3 to 4. Each successful vendor submission requires a site visit. This is a time-consuming process and a precise RFP will automatically eliminate the least suitable players.
Prince Edward Island	3 to 4
Quebec	Not applicable
Saskatchewan	Typically, 3 to 4

RFP = Request for Proposal.

Note: Data derived from the question: "How many submissions are shortlisted?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

Percentage of Request for Proposal Score Assigned to Technical Specifications and Clinical Needs

Provincial representatives reported on the overall score of an RFP that is assigned to technical specifications and clinical needs. Table 7 provides a summary of the responses for this question. Seven jurisdictions reported that upwards of 50% (with an upper limit of 80%) of the total RFP score is assigned to technical specifications and clinical needs, and 3 provinces reported less than 50% (with a lower limit of 20%). One jurisdiction indicated that no scoring policy is in place

and another reported that scoring adjustments may be made following the oral presentations and demonstrations from the shortlisted vendors. Additional factors that may influence the overall scoring include the nature of the project, the type of imaging modality, and the implementation plan, as well as the warranty, service, and value-added incentives.

Table 7: Percentage of RFP Score Assigned to Technical Specifications and Clinical Needs

Jurisdiction[a]	Survey response about the % score assigned to technical specifications and clinical need
Alberta	Approximately 50% to 60%. Some flexibility is permitted depending on the nature of the project and equipment.
British Columbia	Approximately 55%
Manitoba	Typically, at least 30% of the value is assigned to each of these factors. This is dependent on a variety of factors related to the main objective of the imaging modality that is under consideration for procurement. Various factors must equal 100%. Price, clinical use, and technical specifications are the key scoring factors, with technical specifications ranking the highest.
New Brunswick	**Horizon Health** 70% to 80% **Vitalité Health** There is no policy for this procedure.
Newfoundland and Labrador	70% average. Other considerations include the implementation plan, warranty, service, and value add. Scoring adjustments may be made following oral presentations and demonstrations for the shortlisted vendors.
Nova Scotia	Usually, 40% to 50%
Ontario	35% technical specifications, 10% clinical need, and 5% service need
Prince Edward Island	It will often vary from RFP to RFP, but most often the specifications will be valued at 20% to 25% of the overall score.
Quebec	It varies from 50% to 70%
Saskatchewan	40% to 50%

RFP = request for Proposal

Note: Data derived from question: "What percentage of the overall score of an RFP is assigned to technical specifications/ clinical needs?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

Percentage of Request for Proposal Score Assigned to Price

Provincial representatives reported on the overall percentage of an RFP score assigned to price. Table 8 provides a summary of responses for this question. Ten jurisdictions assign between 20% to 40% of an RFP's score to price, with some variability from jurisdiction to jurisdiction. One province assigns up to 50% of the overall RFP score to price. One jurisdiction reported using a formula to adjust the price depending on the overall scored assigned to the quality of imaging equipment. Another province noted that the percentage of an RFP that is assigned to price is influenced by the intended setting of new imaging equipment. For example, if equipment is planned for a rural setting, the time it takes for service personnel to travel out to repair a unit

is considered in the price ratio. Other factors that may influence the weight assigned to price include whether the objective is to buy a fleet of units or a single unit and, if a fleet, whether the plan is to select a single vendor or a variety of vendors.

Table 8: Overall Percentage of a Request for Proposal Assigned to Price

Jurisdiction[a]	Survey response about the % score assigned to price
Alberta	Approximately 20% to 40% Some flexibility is permitted depending on the nature of the project and equipment.
British Columbia	A 35% score is generally utilized for pricing. In addition, a 10% for value adds is considered.
Manitoba	While Manitoba does not have pre-specified ranges, "0" could not be assigned to price. Price is a key scoring factor — approximately 30%. The value assigned to price depends on whether equipment will be placed in rural versus urban settings. For example, a consideration in a rural setting is the time it takes for service personnel to travel out to repair a unit. If the plan is to buy a fleet of units, then price may be a key consideration. Price may also be influenced by a strategy of selecting a single vendor or a variety of vendors.
New Brunswick	**Horizon Health** 20% to 30% **Vitalité Health** 25% to 30%, but this may vary
Newfoundland and Labrador	Approximately 30%
Nova Scotia	Usually, 20% to 25%
Ontario	35% to 50% (with 10% to potentially negotiate for academic partnership)
Prince Edward Island	30% to 40%
Quebec	"In Québec, we use a formula to adjust price: If the score of the quality evaluation of a proposal is over 70%, the price is adjusted with the following formula: Adjusted price = Total price from the RFP / (1+ ((Quality score -70)/100)) "
Saskatchewan	40%

RFP = Request for Proposal.

Note: Data derived from question: "What percentage of the overall score of an RFP is assigned to price?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

Costs Included in Price

Provincial and regional representatives reported on the costs included in price, selecting their responses from a list of 6 options (equipment, construction, application training, service contracts, life cycle costs, and other). Table 9 provides a summary of responses for this question. All jurisdictions include equipment costs as part of the overall price and 10 jurisdictions include service contracts, although one jurisdiction noted that it was optional. Both application training and life cycle costs are also considered in 9 respective jurisdictions, with 3 noting that the inclusion of life cycle costs is dependent on specific circumstances. Three jurisdictions include construction costs in the total price all the time, and 5 jurisdictions incorporate construction costs some of the time, particularly for turnkey installations. Examples of costs that were captured under the "other" category include consumables, recalibrations, quality assurance practices, reagents, trade-in value, and integration with PACS.

Table 9: Costs Incorporated Into the Price of Imaging Equipment

Jurisdiction[a]	Survey response about cost categories					
	Equipment	**Construction**	**Application training**	**Service contracts**	**Life cycle costs**	**Other**
AB	Yes	Yes	Yes	Estimated/ anticipated total cost of ownership of 5-year period (could be longer)	We address this in Master Service Agreements negotiations with our larger vendors	Related consumables if applicable
BC	Yes	Yes	Yes	No	Yes	No
MB	Yes	It depends on the imaging modality type and the strategy for install	Yes	Yes	It depends: we take into account base price and the level of service contract x the lifespan of equipment (e.g., 10 years)	No
NBHH	Yes	No	Yes	Yes	No	No
NBVH	Yes	Optional	Yes	Optional	Costs of consumables	Acquisition and rental cost

Jurisdiction[a]	Survey response about cost categories					
NL	Yes	If turnkey	Yes	Yes	Yes	Integration with PACS and other modalities, post-processing needs, software licences, education fund, current equipment removal and/or trade-in value, future software commitments
NS	Yes	Yes	Not directly — it would be included with the equipment price but buried in those costs	Yes	Yes	No
ON	Yes	No	Yes	Yes	Yes	No
PE	Yes	If turnkey	Yes	Yes	Yes	Trade-in value
QU	Yes	No	Yes	Yes	No	Reagents, consumables, disposables, rejects (if applicable)
SK	Yes	Sometimes	Yes	Yes	Yes	Related consumable supplies, calibrations, quality assurance, equipment required with the system

AB = Alberta; BC = British Columbia; MB = Manitoba; NBHH= New Brunswick Horizon Health; NBVH = New Brunswick Vitalité Health; NL = Newfoundland and Labrador; NS = Nova Scotia; ON = Ontario; PACS = picture archiving and communication; PE = Prince Edward Island; QC = Quebec; SK = Saskatchewan.

Note: Data derived from question: "Does price include the following costs?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

Price Disclosure

Provincial and regional representatives reported on the point during the RFP process when pricing information is disclosed to the RFP committee. Table 10 provides a summary of responses for this question. Overall, the jurisdictional responses to this question indicate that the timing of price disclosure is varied across Canadian jurisdictions and occurs at different junctures, if at all, during the RFP process. The most common response, as reported by 3 respective jurisdictions, is either that price is not disclosed to RFP committees at all or it is

disclosed after the equipment demonstration. Two provinces reported that price is disclosed after the completion of the technical evaluation. One jurisdiction noted that their RFP committee is informed of the price at the beginning of the review process.

Table 10: Point in Procurement Process When Pricing Information is Disclosed to the Request for Proposal Committee

Jurisdiction[a]	Survey response about the point in the RFP process when pricing information is disclosed
Alberta	Pricing details are not shared with overall evaluation/RFP team. The current process is that vendors complete the financial workbooks, workbooks are open and verified by CPSM and the RFP lead (and/or BAS). Final scoring calculations are entered and overall scores are shared. Final pricing negotiations strategy is determined with RFP team after award notification has been signed and sent.
British Columbia	After the clinical/technical evaluation has been completed
Manitoba	During the technical specification evaluation
New Brunswick	**Horizon Health** Strategic Procurement knows the price but does not disclose to the rest of the RFP committee until the top proponent is identified **Vitalité Health** After the final evaluation (score)
Newfoundland and Labrador	After the equipment demonstration
Nova Scotia	The RFP committee does not see pricing information. Only the RFP Clinical Lead would see the pricing from the top 2 vendors. Pricing is held in privacy and it is not a driver for decision-making. Technical specifications and meeting the clinical needs are what is important in any RFP we conducted. Only once we have signed a contract with the preferred vendor would pricing be released and only the pricing of the top candidate.
Ontario	Following the equipment demonstration/site visit
Prince Edward Island	Following the equipment demonstration
Quebec	At the end, when opening the "price" envelope, calculating the adjusted price, and announcing the winner
Saskatchewan	The RFP committee can be aware of price from the beginning. We have a fixed formula to calculate RFP score for pricing.

BAS = Business Advisory Service; CPSM = Contracting, Procurement and Supply Management; RFP = Request for Proposal.

Note: "At what point in the RFP process is pricing information disclosed to the RFP committee?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

Bulk Purchasing Practices

Provincial Participation in Bulk Purchasing Arrangements

Provincial and regional representatives reported on whether they participated in bulk purchasing initiatives. Table 11 provides a summary of responses for this question. All but one jurisdiction engages in some type of bulk purchasing program in Canada. While many jurisdictions operate centralized bulk purchasing arrangements, where all equipment is purchased through a single

procurement body, bulk purchasing programs in other jurisdictions may operate between groups of hospitals, or via third-party group purchasing or procurement organizations. Not all bulk purchasing initiatives are used routinely. Rather, some bulk purchasing is used when there is a specific request or under other special circumstances. As well, bulk purchasing initiatives may not necessarily operate across an entire province or region but may be localized to a particular setting, group, or body.

Table 11: Participation in Bulk Purchasing Initiatives

Jurisdiction[a]	Survey response about participation in bulk purchasing initiatives
Alberta	Yes. HealthPro and others. RFP awards can and do apply provincially and can remain for 1 to 3 years. Multiple purchases during the cycle of the award may occur.
British Columbia	PHSA conducts bulk purchasing, where possible, to aggregate provincial spend and receive best value for taxpayers through patient outcome key performance indicators. We are also active participants on pan-Canadian initiatives, where available.
Manitoba	Yes. Within province
New Brunswick	**Horizon Health** **Yes, we have in the past** **Vitalité Health** Yes: CAPsource and Mohawk Medbuy
Newfoundland and Labrador	Yes, when possible
Nova Scotia	No
Ontario	Yes
Prince Edward Island	Yes
Quebec	Yes, 34 establishments in Quebec participate in bulk purchasing
Saskatchewan	Yes, RFPs are issued for the entire province. Typically, there will be a number of machines for initial purchase, with options for additional systems over 3 to 5 years.

PHSA = Provincial Health Shared Services; RFP = Request for Proposal.

Note: Data derived from question:" Do you participate in a bulk purchasing initiative?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

Intra- and Interprovincial Bulk Purchasing Arrangements

Provincial and regional representatives reported on the extent to which bulk purchasing initiatives operate within and/or between provinces. Table 12 provides a summary of responses for this question. Five provinces engage in bulk purchasing within their own jurisdictional boundaries alone, 2 of which operate centralized bulk purchasing arrangements for all their advanced imaging equipment needs. The 6 remaining provinces have mechanisms in place to facilitate interprovincial bulk purchasing in addition to intraprovincial initiatives, although the extent of interprovincial bulk purchasing depends on need, timing, and if they receive a request to collaborate.

Table 12: Participation in Bulk Purchasing Initiatives Within and/or Between Provinces

Jurisdiction[a]	Survey response about participation in bulk purchasing initiatives within and/or between provinces
Alberta	Typically for lower modality equipment such as point-of-care ultrasound and general consumables. AHS onboards with other provinces. AHS usually represents 50% of overall volume for group spend due to our provincial purchasing scope and number of facilities. Other provinces often only onboard with smaller clinical jurisdictions and do not have true provincial purchasing volume represented.
British Columbia	Bulk purchasing is derived through the collective consideration and agreement between the 6 health authorities in British Columbia. Aggregating spend and solution-driven procurement over a set period is reviewed and shared to optimize procurement opportunities. Most contracts consider the possible participation of other provinces, if requested.
Manitoba	Within the province, RFPs are usually for standing contracts, for a duration of 3 to 5 years. Shared Health is now responsible for all provincial-level purchases. Previously, these decisions were made at the site level.
New Brunswick	**Horizon Health** Group purchasing organizations in the past; Atlantic procurement initiative, only, moving forward **Vitalité Health** It varies; some initiatives are undertaken for the province and other initiatives included several provinces, such as the pCCHEP. "Health Equipment Procurement based on the success of agreements to jointly negotiate pharmaceutical prices, provinces and territories are pursuing pan-Canadian collaboration to purchase health equipment. Provincial and territorial ministers have advanced recommendations to premiers for consideration at their upcoming meeting that would support innovation, efficiencies and improved patient care."
Newfoundland and Labrador	We do provincial RFP and we leverage a relationship between RHAs and with CAPsource/Mohawk Medbuy/St-Joseph's. We also leverage agreements between provinces (Atlantic) to gain better pricing and expertise for the RFP procurement.
Nova Scotia	We participate in provincial pricing agreements so any hospital can purchase off the agreement. These agreements are typically 3 to 5 years. But there is no decision up front to purchase "X" number of equipment. All sites must follow the pricing agreement and all sites and zones have input into the decision of which vendor to purchase from. It is a great way to eliminate the need to go to RFP with every new purchase. And the price is known up front to allow for appropriate budgeting.
Ontario	Within province via a group purchasing organization

Jurisdiction[a]	Survey response about participation in bulk purchasing initiatives within and/or between provinces
Prince Edward Island	It depends on the equipment being purchased. There is no set rule around including other provinces. There is usually a clause in the RFP that will allow other provinces to purchase equipment from the awarded vendor. We have also used a third-party RFP process like CAPsource, where multiple provinces had been involved across Canada. We usually try to purchase multiple pieces of similar equipment to replace units across the province at the same time, when possible.
Quebec	Bulk purchasing is within the province of Quebec. The 34 establishments represent 180 installations (such as hospitals, university medical centre).
Saskatchewan	Within 1 province, with 3 to 30 hospitals involved (depending on equipment type)

AHS = Alberta Health Services; RFP = Request for Proposal; RHA = Regional Health Authority; pCCHEP = pan-Canadian Collaborative on Health Equipment Procurement.

Note: Data derived from question: "Is bulk purchasing operated within a province or between provinces?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

Barriers to Interprovincial Bulk Purchasing

Provincial and regional representatives reported on the main barriers to the expansion of bulk purchasing agreements between provinces. Table 13 provides a summary of responses for this question. Some barriers reported by jurisdictional representatives include:

- different procurement regulations and/or policies that may be onerous to harmonize across multiple jurisdictions
- complex funding mechanisms may be challenging to coordinate
- lack of expertise on bulk purchasing practices
- absence of clinical representation in the bulk purchasing process
- multi-jurisdictional representation may result in a team that is too large to function optimally
- time constraints, particularly when equipment breaks down and replacements are required
- specific geographical region or location needs and nuances
- scheduling challenges associated with large groups
- individual hospitals prefer to make their own decisions about imaging equipment rather than negotiate between hospitals.

Table 13: Barriers to Interprovincial Bulk Purchasing

Jurisdiction[a]	Survey response about barriers to interprovincial bulk purchasing
Alberta	Lack of clinical involvement in selection process for sites
British Columbia	Most medical imaging equipment is very specific to the programs of the specific geographical region and location. The funding methodology utilized currently makes aggregation across provinces a little more challenging. Equipment of this nature is usually procured, as required. It is also important to keep competition between suppliers healthy for the sustainability of these programs within Canada. We are always trying to coordinate pan-Canadian opportunities that support site-specific requirements yet yield the best value overall.
Manitoba	No; there was talk about an initiative a few years ago but it did not come to fruition. The barriers were likely related to the fact that regional nuances can be so great that executing a pan-Canadian approach would be too challenging to navigate. As well, there is a concern that an interprovincial approach would require representatives across all participating jurisdictions. This may render the procurement team too large to function optimally and may result in scheduling challenges.
New Brunswick	**Horizon Health** Not applicable **Vitalité Health** Not applicable
Newfoundland and Labrador	We would not participate in interprovincial purchasing initiatives when sole sourcing is required and/or under known time restraints, particularly when equipment replacement is needed urgently for operations.
Nova Scotia	In past experiences, we found we ended up doing more work as a participant than with the regular RFP process. Also, we're not convinced the pricing was better.
Ontario	Intraprovincial and interprovincial bulk purchasing opportunities are limited because individual hospitals prefer to make their own decisions about imaging equipment rather than negotiate between hospitals.
Prince Edward Island	We have been relatively successful; however, time constraints between provinces and differences in provincial procurement policies are main barriers. Lack of knowledge and experience around bulk purchasing initiatives is also a barrier.
Quebec	There are provincial Acts relating to bulk purchasing contracts by public bodies.
Saskatchewan	Not applicable

Note: Data derived from question: "If you do not participate in interprovincial bulk purchasing initiatives, what are the main barriers to this?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

Use of Piggyback Clauses

Provincial and regional representatives report that 8 jurisdictions currently use a "piggyback" or "onboard" clause to purchase imaging equipment. Piggyback clauses may not be used routinely but, rather, when needed, particularly in emergent situations when there is not time to develop a new RFP or when site suitability for a particular modality is a good match and service reliability and vendor reputation is already known. Of the 3 jurisdictions that do not have piggyback clauses in place, 1 is revisiting its current position. Table 14 provides a summary of responses for this question.

Table 14: Use of Piggyback Clauses Developed by Provinces With Existing Contracts

Jurisdiction[a]	Survey response about the use of the piggyback clause
Alberta	NWT and Canada Trade are the applicable terms of agreement. However, AHS does not currently reference them or share our agreements with other provinces. The item is currently under review.
British Columbia	There are clauses in the contracts by which other provinces, including BC, can utilize contracts. When considering this option, it is important to understand that terms and conditions are met including privacy, cyber security, and equipment composition (MDS^2) information.
Manitoba	No
New Brunswick	**Horizon Health** Yes, if the selected equipment satisfies the clinical need of our patients. Site visit/clinical demos are used to assess. Review of RFP documents, as made available. **Vitalité Health** Yes, an agreement between the Atlantic provinces. Clinical needs are taken into account for the application of this clause.
Newfoundland and Labrador	Yes, we will utilize a piggyback clause to purchase equipment for standardization purposes, as well as if the vendor of choice is known for a modality. With that said, the NL government must approve the process.
Nova Scotia	Yes, we use this. Factors to consider in the clause include that it must meet clinical and patient care needs, newer technology, and that the price is competitive.
Ontario	Members of a purchasing buying group can piggyback.
Prince Edward Island	Yes; clinical preferences, site suitability, service reliability, and vendor reputation
Quebec	No
Saskatchewan	Yes, but we would typically only piggyback if we needed to purchase ahead of being able to complete our own RFP or a similar purchase.

AHS = Alberta health Services; MDS^2 = Manufacturer Disclosure Statement for Medical Device Security; NWT = Northwest Territories; RFP = Request for Proposal.

Note: Data derived from question: "Do you use a piggyback clause to purchase equipment that another province has already developed a contract for?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

Hospital Foundation and Donor Involvement in Selecting Imaging Equipment

Jurisdictional representatives reported on the extent to which hospital foundations and donors are involved in selecting imaging equipment. The response across all jurisdictions indicates that hospital foundations and donors are not involved in this process. However, it was noted that occasionally physician groups may donate money to purchase specific pieces of equipment (usually less expensive items such as ultrasound machines and probes) or hospital foundations may be involved in the type of equipment (for example, if it is an MRI or a CT) but do not participate in the procurement process.

The Influence of Jurisdictional Regulations on Procurement Practices

Jurisdictional representatives reported on the extent to which jurisdictional regulations influence procurement practices. Table 15 provides a summary of responses for this question. All jurisdictions indicated that procurement practices were influenced by either statutes, regulations, policies, practices, bodies of rules including legal and trade requirements, case law and custom, or a combination of the aforementioned. Five provinces have enacted government procurement legislation of broad provincial application, 2 of which noted that these legal frameworks can result in delays in equipment installations. Another province noted that national regulations, such as Health Canada approvals and nuclear medicine requirements operated through the Canadian Nuclear Safety Commission, can also influence procurement practices.

Table 15: Jurisdictional Regulations That Influence Procurement Practices

Jurisdiction[a]	Survey response about jurisdictional regulations that influence procurement practices
Alberta	Contracting, Procurement and Supply Management is a provincial department involved in the contracting, purchasing, inventory, and distribution of all supplies and services for Alberta Health Services. There are also trade agreements, such as the *New West Partnership Trade Agreement* and the *Canadian Free Trade Agreement*, which influence procurement practices.
British Columbia	Yes, and delays in equipment installation
Manitoba	Yes; there are many legal and trade requirements requiring adherence
New Brunswick	**Horizon Health** Yes, March 31 deadlines for equipment delivery cause challenges and often lead to storage costs and delays in equipment installation. **Vitalité Health** Yes, New Brunswick's First Procurement Strategy supports the strategic development of local suppliers.
Newfoundland and Labrador	Yes; there is a provincial *Public Procurement Act*. The Public Procurement Agency is an independent branch of the public service and the central procurement unit for the Government of Newfoundland and Labrador. The authority for the Agency's operations is provided by the *Public Procurement Act*, which outlines its mandate and role.

Jurisdiction[a]	Survey response about jurisdictional regulations that influence procurement practices
Nova Scotia	We have a provincial procurement policy that we must adhere to. Some equipment must meet national regulations such as being approved for use by Health Canada, nuclear medicine and PET-CT regulations through the Canadian Nuclear Safety Commission.
Ontario	Yes, there are strict guidelines from shared service organizations around RFPs and the proportions of allocations.
Prince Edward Island	Yes; we must follow the procurement practices and regulations outlined for the province, which will sometimes limit us to what we need clinically due to ensuring a fair process is in place for the vendors.
Quebec	Quebec has enacted an Act respecting contracting by public bodies that, along with its regulations, prescribes specific rules that apply to public purchasing by all public agencies in Quebec.
Saskatchewan	There is a provincial act that has specific rules for public purchasing by all by public agencies.

RFP = request for proposal.

Note: Data derived from question: "Are there jurisdictional regulations that influence procurement practices?"

[a] Data for Quebec is limited to the bulk purchasing process used by a single joint purchasing group that represents 34 establishments with imaging equipment; data for Ontario is limited to the response from a single large academic hospital.

Conclusion

Most jurisdictions centralize advanced imaging equipment procurement through a single body and those that operate decentralized procurement processes are shifting in this direction through regulatory reform. However, there is no consistent model or practice for procurement across Canada. The landscape is different in each province and may vary within regions or with specific providers (e.g., community care, long-term care, or hospitals), depending on a variety of factors including the type of imaging modality, the number of modalities considered for procurement, and the intended setting for imaging equipment. At the same time, there are some commonalities between jurisdictional procurement practices, especially related to the composition of the members of RFP committees and the number of submissions considered for shortlisting.

Bulk purchasing initiatives are largely limited to practices operated within provinces, although capabilities are in place for contracts between some provinces. The expanded use of bulk purchasing initiatives between groups of provinces may be feasible when some important barriers to implementation are addressed, such as the harmonization of procurement regulations and policies, and the coordination of complex funding mechanisms.

Previously, Canada's procurement processes have been criticized for focusing on cost containment. The results of this survey indicate that procurement processes are not dominated by price and that the overall quality of equipment is a more significant factor when considering the acquisition of advanced imaging equipment.

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CADTH receives funding from Canada's federal, provincial, and territorial governments, with the exception of Quebec.

October 2021

CADTH Evidence Driven.

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