

Submission of surgical specimens to
the anatomic pathology laboratory:
relevance and indications - Vascular,
cardiovascular and thoracic surgery
English summary

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SUMMARY

Submission of surgical specimens to the anatomic pathology laboratory:
relevance and indications

Vascular, cardiovascular and thoracic surgery

Introduction

Section 59 of *Organization and Management of Institutions Regulation* (C.Q.L.R., chapter S-5, r. 5)¹ has generally been interpreted as meaning that all surgical specimens must be submitted to the anatomic pathology laboratory for analysis. This regulatory provision has, for many years, resulted in a large volume of specimens being submitted and analyzed. This generates potentially substantial costs and results in suboptimal analysis turnaround times. It is estimated that a significant proportion of these submissions may not be necessary because the anatomopathological examination is unlikely to provide information that would be useful for patient management.

To reduce the number of unnecessary requests for an anatomopathological examination and to promote optimal anatomic pathology laboratory resource utilization, the ministère de la Santé et des Services sociaux asked the Institut national d'excellence en santé et en services sociaux (INESSS) to determine which surgical specimens could be considered for selective submission to the anatomic pathology laboratory and to spell out the conditions for submitting them. This fourth report, in a series of six, concerns specimens from vascular, cardiovascular and thoracic surgery.

Methodology

Using preestablished criteria, we conducted a systematic review of the scientific literature and of publications presenting positions, recommendations and guidance from learned societies and other organizations. In addition, contextual information and the perspectives of various stakeholders were gathered by an advisory committee consisting of individuals representing the various medical specialties concerned and by a monitoring committee consisting mainly of representatives from the professional orders and associations of the medical specialists concerned, and from different bodies, including the Régie de l'assurance maladie du Québec and the ministère de la Santé et des Services sociaux.

¹ *Compilation of Québec Laws and Regulation* (C.Q.L.R.). *Organization and Management of Institutions Regulation*, chapter V, BENEFICIARY'S RECORDS, section 59: "Where any part of a human body or any object is removed during surgery, a written report shall be prepared by the pathologist having examined that part of the human body or object. The original of the report shall be preserved in the beneficiary's record and a copy shall be kept by the laboratory, where an index cross-referenced by beneficiary and by pathology shall be constituted." (O.C. 1320-84, s. 59; O.C. 545-86, s. 25). Available at: <http://legisquebec.gouv.qc.ca/en/ShowDoc/cr/S-5,%20r.%205/> (consulted on February 18, 2022).

These consultations enabled us to gather experiential knowledge, to document perceptions and the level of acceptability concerning the selective or non-selective submission of certain surgical materials and specimens to the anatomic pathology laboratory, and to determine the potential organizational, clinical, economic, ethical and legal issues. The recommendations concerning surgical specimens from vascular, cardiovascular and thoracic surgery that could be selectively submitted to the anatomic pathology laboratory were developed through a 2-round simplified Delphi consultation process. This was carried out with the advisory committee's members using data and recommendations extracted from the systematic literature search. The monitoring committee's members were then asked to assess the list of samples that could be selectively submitted and to assess the applicability, acceptability and potential impact of implementing the recommendations.

Results

Regarding the **overall clinical utility** of anatomopathological examinations of surgical specimens:

- The decision to submit or not submit surgical specimens to the anatomic pathology laboratory is usually based on clinical suspicion or the examination's diagnostic or prognostic value;
- Changes in knowledge, technology and practice inevitably lead to changes in the clinical relevance of submitting or not submitting some of these specimens;
- Because of the nature and purpose of the surgical procedure or of the tissue's or organ's characteristics, many specimens removed must be systematically submitted to the anatomic pathology laboratory, while others should not. For some, the value of routine submission to the laboratory may be questioned. The decision should be made on a case-by-case basis according to the available scientific data, the best clinical practice recommendations, the clinical picture and the surgeon's judgment.

Regarding the **conditions for submitting** specimens for an anatomopathological examination:

- Several learned societies, including the College of American Pathologists (CAP), have proposed models for the selective submission of certain surgical specimens to the anatomic pathology laboratory in order to promote the efficient use of its resources;
- The lists of specimens that could be selectively submitted for an anatomopathological examination, as proposed in the guidelines reviewed and by certain Québec institutions, differ in terms of the number and type of specimens;

- Practice does not appear to be harmonized across Québec. Some public institutions in the health and social services network have already put in place a selective submission policy for certain surgical specimens, and others have not;
- Providing relevant clinical information (e.g., the procedure performed, the preoperative diagnosis, unusual intraoperative findings and special concerns) is key to performing an appropriate anatomopathological examination.

Regarding the **professional practice of physicians** who remove specimens:

- There are appropriate ways other than submitting a specimen to the anatomic pathology laboratory to confirm that a specimen was removed (e.g., nurse confirmation and surgical notes);
- The standards for chart- and register-keeping by a physician are set out in regulations. Thus, the surgeon's surgical notes and surgery report are official documents in which any specimen removed during a surgical procedure must be documented and included in the patient's chart. The surgery report should be written or dictated within 24 hours of the procedure. This practice applies to physicians practicing in both the public and private institutions in the health and social services system.

Regarding the **clinical utility** of anatomopathological examinations of specimens from **vascular, cardiovascular and thoracic surgery**:

- For 33 surgical specimens initially identified, and after consolidation that reduced this list to 26, the risk of a clinically significant incidental finding was considered low for 18 of the 26 specimens. Sixteen were based on the literature reviewed and the current submission lists identified, and 2 were based solely on the perspectives of the stakeholders consulted;
- The surgical context was clarified for two surgical specimens on one of the selective submission lists identified;
- Eight of the 26 surgical specimens initially identified were ultimately excluded from the selective submission list because of the risk of an incidental finding on the anatomopathological examination, the contribution of the gross or microscopic findings to the prognosis, or because of medicolegal issues.

Regarding the **potential savings** associated with a change in practice in the submission of specimens for an anatomopathological examination:

- The selective-submission recommendations made by certain learned societies and organizations have led to a reduction in the workload associated with the analysis of specimens of limited or no clinical value;
- In vascular, cardiovascular and thoracic surgery, the reduction in the number of routine submissions to the anatomic pathology laboratory of some of these high-volume specimens (e.g., endarterectomy material) should result in the faster

completion of anatomopathological examinations whose results are clinically crucial, such as in oncology;

- Currently, it is difficult to estimate, even intuitively, the savings that could result from the selective submission of specimens for an anatomopathological examination, primarily because of the inability to identify and quantify in databases those anatomopathological analyses not considered relevant.

Conclusion

Upon the completion of this work, the selective submission list for specimens from vascular, cardiovascular and thoracic surgery that was drawn up, for which the level of risk for the patient was considered low and the anatomopathological examination unlikely to provide any useful information for patient management, should contribute to more judicious anatomic pathology laboratory resource utilization. Gradual implementation involving consultation between the Council of physicians, dentists and pharmacists, the directors of professional services, the OPTILAB co-directors and other bodies responsible for the quality of care will be needed to facilitate the changes and ensure optimal risk and medical procedure quality management. Since the recommendations are based on the scientific knowledge available at this time, it is possible that they will be modified in light of future scientific advances that might make the anatomopathological examination of certain surgical specimens clinically useful. For this reason, the advisability of updating these recommendations will be assessed in four years, that is, in 2026.

Recommendations

In light of these findings, INESSS, in collaboration with the stakeholders consulted, has developed a set of recommendations aimed at promoting more judicious anatomic pathology laboratory resource utilization, without compromising the quality and safety of patient care and services. The first few recommendations are intended to be general in nature and apply to all the surgical disciplines in which specimens are removed and submitted for an anatomopathological examination².

These recommendations appear in each of the six anatomic pathology relevance project reports. They are followed by a more specific recommendation for vascular, cardiovascular and thoracic surgery, namely, a list of specimens that can be submitted to the anatomic pathology laboratory on a selective basis. Lastly, recommendations aimed at facilitating the implementation and monitoring of the proposed changes are made as well.

² Certain provisions have been made in accordance with the current professional standards in Québec.

GENERAL RECOMMENDATIONS CONCERNING THE SUBMISSION OF SURGICAL SPECIMENS TO THE ANATOMIC PATHOLOGY LABORATORY

INESSS believes that certain surgical specimens might no longer need to be routinely submitted to the anatomic pathology laboratory for analysis in public institutions in the health and social services system. These specimens may be submitted on a selective basis according to clinical judgment.

To qualify for selective submission, a specimen should:

- be on a list of specimens for selective submission for an anatomic pathology; and
- arise from a surgical procedure for which no neoplastic or infectious process or other significant medical condition, which would warrant an anatomopathological opinion, is suspected by the clinician, based on the pre- and intraoperative findings.

All surgical specimens (organs, tissues, apparatuses, medical devices and foreign bodies) not sent to anatomic pathology must be visually examined by the surgeon to confirm that they do not exhibit any unexpected abnormalities and that the pre- and intraoperative findings are in line with expectations^{3, 4}.

The surgeon must record the removal, the visual examination findings, the intraoperative findings, and non-submission of the specimen to anatomic pathology laboratory in the patient's medical chart^{3, 5}.

The selective submission list proposed in this report should not, under any circumstances, be used as a substitute for clinical judgment.

Therefore, the specimens on this list can be sent to the anatomic pathology laboratory at any time at the clinician's discretion if there is some uncertainty or concern about the patient's health.

The relevant clinical information constituting the rationale for submitting a specimen on a selective submission list to the laboratory must be indicated on the examination requisition to guide the anatomopathological investigation⁶.

³ "All surgery reports must contain information about the procedure performed (the preoperative diagnosis, the procedure performed, the postoperative diagnosis, the normal or abnormal findings made during the procedure, including the organs examined and the type of examination, etc.). The surgery report must be written up or dictated within 24 hours" (translation). [CMQ, 2005, p. 29] (consulted on February 18, 2022) .

⁴ Biological and biomedical waste disposal standards must be applied to specimens that are not sent to the anatomic pathology laboratory. *Regulation respecting biomedical waste, Environment Quality Act* (chapter Q-2, r. 12, s. 59), available at: <http://legisquebec.gouv.qc.ca/fr/ShowDoc/cr/Q2,%20r.%20r.%2012> (consulted on February 18, 2022).

⁵ "At the end of the procedure, the surgeon must add a postoperative note summarizing the surgical findings, the procedure performed, the incidents, the blood loss, the intraoperative complications, if any, and the patient's condition at the end of the procedure" (translation). [CMQ, 2005], p. 19 (consulted on February 18, 2022) .

⁶ "All requests for an anatomopathologic examination must include the place of origin (hospital, office, operating room, outpatient clinic, etc.) and the patient's identity (last name, first name, address, sex, age, health insurance number and hospital chart number), the date of the specimen, the procedure performed, the pre- and postoperative diagnoses, the type and origin of the specimen, and any other relevant clinical information" (translation). [CMQ, 2005], p. 24 (consulted on February 18, 2022).

SELECTIVE SUBMISSION RECOMMENDATIONS SPECIFIC TO VASCULAR, CARDIOVASCULAR AND THORACIC SURGERY

After reviewing all the data gathered, INESSS recommends that the following surgical specimens be submitted to the anatomic pathology laboratory on a selective basis for analysis, this throughout Québec.

! This list is not a substitute for the clinician's judgment.

VASCULAR SURGERY

- Major or minor lower-limb amputation specimens in the context of peripheral vascular disease
- Prosthesis, endoprosthesis or graft removed during vascular surgery
- Venous specimens removed during a saphenectomy or phlebectomy

CARDIOVASCULAR SURGERY

- Residual donor and recipient tissue during a heart transplant
- Residual cadaveric donor tissue during a valve replacement
- Coronary ostia

CHEST SURGERY

- Specimens removed during hiatal hernia surgery
- Mediastinal fat specimens removed for better surgical access
- Sternal debridement specimens (except when looking for osteomyelitis)
- Residual donor and recipient tissue from a lung transplant (except in cases of pneumoreduction)

SPECIMENS COMMON TO DIFFERENT SURGICAL SPECIALTIES

- Endarterectomy material (atherosclerotic plaque)
- Traumatic or postoperative hematoma
- Wall thrombus removed during an abdominal aortic aneurysm repair
- Abdominal aortic or aortoiliac aneurysm wall specimens
- Arterial or venous autograft segments not used in a revascularization procedure (e.g., saphenous vein, radial artery or mammary artery)
- Rib segments removed for better surgical access (normal ribs with no history of pathology)
- Foreign bodies (unless forensic documentation is required)
- Implants, devices and medical equipment (with the exception of prosthetic heart valves) removed during a cardiovascular or thoracic procedure (unless forensic documentation is required)
 - Examples of implants and prostheses included in the wording: intravascular catheters or probes, removed surgical endoprosthesis (stents and meshes), defibrillator, pacemaker, cardiac pacing lead, intracardiac implants, drainage tube, hemostats, therapeutic radioactive sources, Nuss bar.

RECOMMENDATIONS FOR PROMOTING THE IMPLEMENTATION AND MONITORING OF A SELECTIVE SUBMISSION PROCESS FOR CERTAIN SPECIMENS

- The selective submission recommendations and list proposed in this report should be the subject of a structured dissemination and communication process targeting professional orders and associations and universities.
- A gradual implementation process for the recommendations should be planned to facilitate optimal change management. The process should be developed jointly with the Council of physicians, dentists and pharmacists, the directors of professional services, the OPTILAB co-directors and other bodies responsible for the quality of care. The process should include the development and implementation of a procedure for measuring compliance with the recommendations and practice quality.
- A mechanism for recording the reasons for not submitting a surgical specimen to the anatomic pathology laboratory, whether or not it is on the list, might be considered in the public institutions in the health and social services system. This mechanism, which should be simple and rapid, would reflect the exercise of clinical judgment.
- The coding of medical procedures and anatomopathological analyses should be revised and standardized to facilitate the collection and interpretation of medical-administrative data and thus make it possible to monitor the optimization measures deployed.

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