

Vigilance indicators in surgery

Candice LEGRIS, Hervé MENTEC, Laëtitia MAY-MICHELANGELI
Evaluation and Tools for Health Care Quality and Safety Service – Improvement in Quality Care and Safety Department
French National Authority for Health – La Plaine Saint-Denis – France | www.has-sante.fr

CONTEXT

- Within the framework of a hospital reform relating to the system of authorizations for healthcare activities, the French Ministry of Health requested that the National Authority for Health define surgery vigilance indicators and methods for implementation to improve patient safety and quality of care. If a quality or safety issue is identified, authorization maintenance or renewal of surgical activities will be conditional on the hospital’s participation in the implementation of improvement actions.
- To avoid an additional burden for hospitals, vigilance indicators had to be calculated from medico-administrative databases.

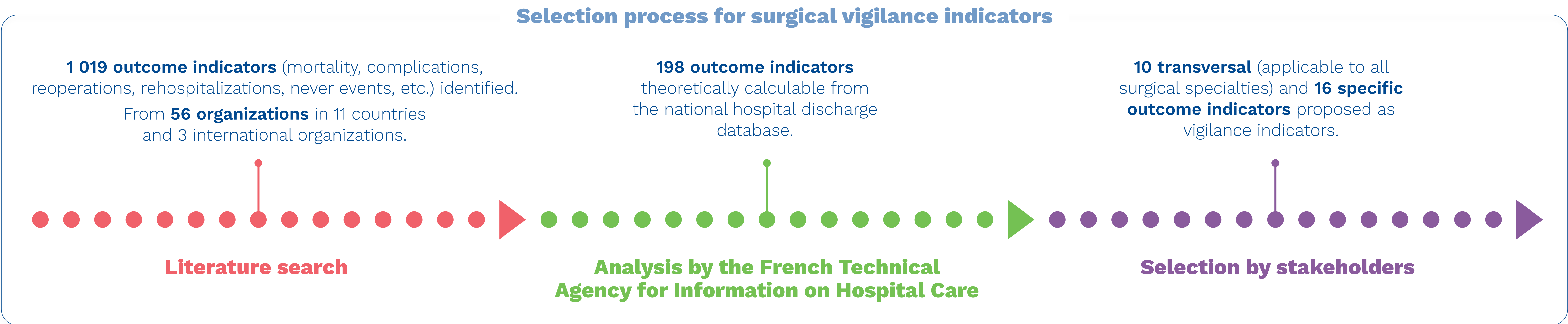
What are vigilance indicators?

These are screening tools to help professionals identify areas of potential concern, via alert thresholds which detect outlier results.
An outlier status must automatically trigger further analysis and investigation with a review of factors that may have an impact on the delivery of care and patient outcomes.

METHOD

- **A non-systematic international literature search** was conducted in 2021 to identify:
 - outcome indicators relating to the quality and safety of care in 13 surgical specialties (mainly from specialized websites of institutions producing indicators and, for surgical specialties where few indicators were found, from automated bibliographic databases);
 - methods for implementing vigilance indicators.
- **An analysis** was then carried out by the French Technical Agency for Information on Hospital Care **to assess which indicators could be calculated from the national hospital discharge database.**
- Among the calculable indicators, **stakeholders from the 13 surgical specialties were asked to select the 5 most relevant indicators** from a clinical point of view and for the improvement of practices.

RESULTS



List of selected surgical vigilance indicators	
Transversal indicators	Specific indicators
■ All-cause in-hospital mortality rate within 30 days of major surgery. ■ Number of diagnosis-related groups with an atypical rate of death. ■ Rehospitalization rate within 1-7 days. ■ Readmission rate after day surgery (within 48 hours after discharge). ■ Readmission rate between 1 and 3 days after day surgery, excluding emergency surgery and with a same-day discharge to the place of residence. ■ Surgical site infection rate. ■ Readmission rate for surgical site infection within 30 days after discharge. ■ Rate of postoperative hemorrhage or hematoma requiring intervention. ■ Retention rate of a foreign body or foreign substance accidentally left in the body during surgery. ■ Rate of failure or mechanical complication of devices, catheters, grafts, implants, or prostheses related to surgery.	■ In-hospital mortality rate after isolated operation of the coronary vessels, in the absence of primary diagnosis of myocardial infarction (age > 19 years). ■ In-hospital mortality rate after isolated open-heart aortic valve replacement without other heart surgery and without primary diagnosis of endocarditis (age > 19 years). ■ 30-day risk-adjusted all-cause in-hospital mortality rate after coronary artery bypass grafting and aortic valve replacement (age ≥ 18 years). ■ Risk-adjusted hospital survival rate after heart surgery. ■ Readmission rate for post-operative complication (infection, ileus, urinary tract pathology, voiding disorders) within 28 days after hysterectomy (exclusions: cancer, childbirth, trauma). ■ Reoperation rate within 30 days after hysterectomy. ■ In-hospital mortality rate after first hip endoprosthesis implantation in case of femoral neck or trochanter fracture. ■ In-hospital mortality rate after spinal decompression without other spinal procedures. ■ Readmission rate (including to another hospital) within 28 days after cosmetic surgery. ■ Reoperation rate (including to another hospital) within 28 days after cosmetic surgery. ■ Hospital mortality rate after lung lobectomy for bronchial carcinoma. ■ In-hospital mortality rate after open abdominal aortic resection/replacement for non-ruptured aneurysm. ■ In-hospital mortality rate after open abdominal aortic resection/replacement in the absence of aneurysm. ■ Reoperation rate within 30 days after primary colon cancer surgery. ■ In-hospital mortality rate after pancreatic resection (without transplant, age > 19 years). ■ Bleeding rate complicating tonsillectomy.

- ### Implementation of recommendations
- Several recommendations were made on:
 - risk adjustment: to age, sex, comorbidities, diagnostic related group, level of severity, type of surgical intervention (e.g., laparotomy versus laparoscopy), emergency treatment;
 - alert threshold: more specific than sensitive, double threshold whenever possible (alarm and alert);
 - periodicity of production: as frequent as possible;
 - display of results: temporal evolution, alert thresholds, alert signals in a single graph;
 - revision periodicity: annual update with justifications.
 - It was also highlighted that vigilance indicators cannot be stand-alone measures and must be part of a global approach to improving the quality and safety of care.
 - Furthermore, they cannot be used for purposes other than alerting (e.g., quality incentives, public dissemination, inter-establishment comparisons, etc.), because they were not designed for such other purposes.

CONCLUSION

The French National Authority for Health defined a set of vigilance indicators for surgery. Before they can be implemented, they need to be developed further and measured for each healthcare facility involved. The first indicators are planned to be operational by 2024.

