

# The South Carolina Surgical Quality Collaborative: A New Effort to Improve Surgical Outcomes in South Carolina

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Regional surgical quality Collaboratives are improving surgical quality and cutting costs by building regional relationships that leverage information sharing to improve outcomes. The South Carolina Surgical Quality Collaborative (SCSQC) is a new regional surgical quality Collaborative focused on improving general surgery outcomes in South Carolina. It is a joint effort which brings together the skills and resources of Health Sciences South Carolina, the South Carolina Hospital Association, and the Blue Cross Blue Shield of SC Foundation to create a web-based data collection system to provide real-time outcomes data to participating surgeons, and establishing a supportive network for sharing best practices and promoting data driven quality improvement. Members of the SCSQC abstracted more than 8000 general surgery cases from eight participating hospitals in its first year. These facilities are spread across the state of South Carolina and range from large academic referral centers to small community hospitals. The resulting data should be representative of much of the surgical care provided in South Carolina. Monthly conference calls and quarterly face-to-face meetings occur with site Surgeon Leads, site Surgical Clinical Quality Reviewer, and Collaborative leaders. Each site is pursuing a quality improvement project addressing issues identified from analysis of their initial data. Early results on these efforts are encouraging. The SCSQC is a new regional surgical quality Collaborative, which leverages multiple state resources, builds on the successes of similar Collaboratives in Michigan and Tennessee, with the goal to improve the quality and value of general surgical care for South Carolinians.

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**A**LTHOUGH IMPROVING SURGICAL quality is a universally accepted goal, the route to improving outcomes is not clearly evident. National and regional quality Collaboratives using nurse abstracted data and statistical analysis have shown significant improvements in surgical outcomes over time.<sup>1-6</sup>

The South Carolina Surgical Quality Collaborative (SCSQC) is a new, regional Collaborative focused on improving the surgical care of South Carolinians. It is a joint effort that brings together the resources, knowledge, and expertise of Health Sciences South Carolina (HSSC), The South Carolina Hospital Association (SCHA), and The Blue Cross Blue Shield of SC Foundation (BCBSSCF). The proposal for the Collaborative was developed by surgical leaders from the

Medical University of South Carolina (MUSC), HSSC, SCHA, and Blue Cross Blue Shield of South Carolina (BSBSSC). The Collaborative is modeled after the Michigan Surgical Quality Collaborative and funding is provided by the BCBSSCF with a three-year grant. The Collaborative focuses on common general surgical procedures. It includes eight member hospitals that represent the major geographic sections of the state. The hospitals range from large academic referral centers to small community facilities.

## Methods

The Collaborative provides funding to each member facility based on their level of participation. These funds are used to support a facility-based abstractor who mines medical records to answer key data questions on each logged general surgical case. Each site has a surgeon lead that is responsible for engaging local surgeons, attending conference calls, leading

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site-specific quality improvement (QI) projects, and presenting at quarterly face-to-face meetings. The Collaborative contracts with Q C Metrix, Inc. (Boston, MA) who is responsible for performing case-specific data analysis and managing the collaborative’s website, www.scsqc.org. Each general surgeon at the member sites has a unique logon that allows him/her to log on to review his/her outcomes compared with the Collaborative as a whole or other surgeons at their facility. Each surgeon can see his/her rank within the comparator group, but other surgeon rankings are blinded. Hospital rankings are also deidentified. The Collaborative is built on the principle that highly reliable, actionable data placed at the fingertips of engaged surgeons can rapidly impact surgical outcomes.<sup>7</sup> The Collaborative works to build a collegial relationship between its members to foster shared best practices and learning while accelerating the QI process (Fig. 1).<sup>8</sup>

**Results**

*SCSQC Structure*

The Collaborative is supported by a three-year grant provided by the BSBSSC Foundation. The program’s Operations Team consists of a full-time Program Director, a surgeon lead, and data coordinating personnel. Each of the eight involved facilities receives funding from the Collaborative to support a surgeon lead and a Surgical Clinical Quality Reviewer. The funding is “pay for participation” during the initial phase of the project, with funding transitioning to QI results over time. The BCBSSC Foundation is provided with aggregate, deidentified hospital, and surgical outcomes data (Fig. 1).

*Leadership Structure*

SCSQC is led by a group of highly engaged leaders from multiple institutions focused on improving the

health of South Carolinians. HSSC is the grant recipient and has the skills and experience needed to manage large volumes of secure patient data for QI purposes. SCHA has a track record of conducting state-wide surgical improvement initiatives and is instrumental in identifying key hospitals with a keen interest in QI. BCBSSCF provided the funding for the program by way of a three-year grant. MUSC was involved in the initial proposal and provides key surgical leadership. The SCSQC Executive Leadership Committee consists of the Principal Investigator of HSSC, Vice President for Quality and Safety of SCHA, Chief Medical Officer and Vice President of Clinical Innovation for BSBSSC, and the Chairman of the Department of Surgery at MUSC (Figs. 2 and 3).

*Information Gathering and Analytics*

Data abstraction is done in a similar manner to other national and regional Collaboratives.<sup>9, 10</sup> Each hospital abstracts 25 general surgical cases chosen from an

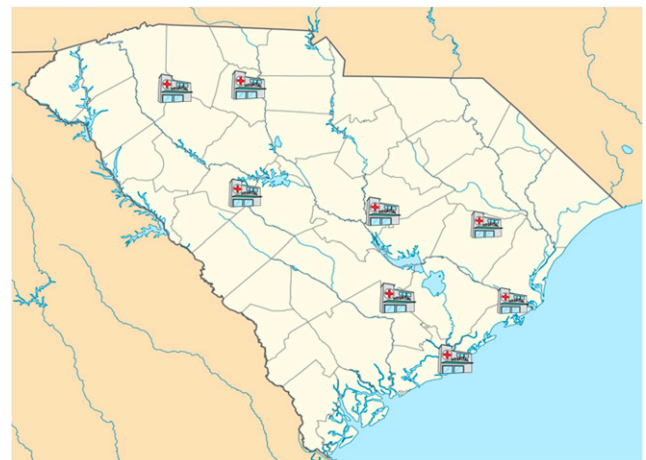


FIG. 2. Collaborative member locations.



FIG. 1. Involved organizations.

- Baptist Easley (Easley)
- Kershaw Health (Camden)
- McLeod Regional Medical Center (Florence)
- Medical University of South Carolina (Charleston)
- Self Regional Healthcare (Greenwood)
- Spartanburg Regional Healthcare (Spartanburg)
- The Regional Medical Center (Orangeburg)
- Tideland Health (Georgetown)

FIG. 3. Collaborative members.

eight-day cycle of operative cases. For smaller facilities, 25 cases may encompass most general surgical cases performed at the facility, whereas 25 cases are only a small portion of the cases performed at larger facilities. Random case selection is conducted at most sites. However, facilities can preferentially choose to include high value cases if desired (*e.g.*, colectomy or gastrectomy). The ability to adjust which cases are entered into the data base is an advantage of a regional collaborative relative to national systems. Selective abstraction allows facilities to prioritize the data that are most useful to them. Common, low-risk procedures such as percutaneous gastrostomies are not included in the data base. Each abstractor enters the patient data into a web-based data collection portal. The data analysis is performed under contract by Q C Metrix, Inc. SCSQC also uses a Data Coordinating Center staffed with statisticians who audit reports, analyze data, and answer data queries from member hospitals. The data are protected health information and, in compliance with HIPAA (Health Insurance Portability and Accountability Act), are stored behind secure firewalls. Each hospital signed a Data Use Agreement with HSSC to allow transfer of information and to protect the data. HSSC data are managed using a protected server.

Cases are grouped into major categories based on CPT code (Table 1). Data points are provided with regard to morbidity, mortality, readmission, return to the OR, and other common quality monitors (Table 2). Individual surgeons can run surgeon-specific reports or reports that show the results for the hospital as a whole. These results are ranked in comparison with other facilities in the collaborative. The web-based platform allows real-time data analysis. Each member can create custom reports to look at specific cases or complications. Providers have the ability to drill down to individual patient results. The system can be set to autogenerate reports and send data directly to the surgeon *via* email. This gives surgeons near real-time data that they can analyze and use to improve their practices.

### Collaboration

Collaboration takes many forms.<sup>8</sup> The primary method for collaboration revolves around quarterly face-to-face meetings where surgeon leads, data abstractors, hospital administrators, and SCSQC leaders meet to review data and discuss QI projects. In addition to quarterly face-to-face meetings, monthly conference calls are conducted. These calls help to troubleshoot data abstracting issues, to share best practices and lessons learned, and to provide assistance with specific QI projects. These meetings and calls allow sites that are working on similar projects to discuss their successes and challenges while implementing QI projects. This

TABLE 1. *Surgical Case Grouping/Volume/Morbidity*

Surgery	Total Cases	Cases (%)
Cholecystectomy	1879	22.8
Large/small bowel	1126	13.7
Lumpectomy/excision of breast	879	10.7
Incisional/ventral hernia	563	6.8
Appendectomy	552	6.7
Inguinal hernia	492	6.0
Thyroid/parathyroid	408	5.0
Mastectomy	295	3.6
Exploratory laparotomy	294	3.6
Bariatrics	268	3.3
Debridement	255	3.1
Amputation	191	2.3
Pancreas	119	1.4
Gastric/stomach	103	1.3
Other	824	10.0
TOTAL	8248	—

TABLE 2. *Key Metrics Measured*

Quality metrics
Overall morbidity
Mortality
Length of stay (median)
SSI
Pneumonia
VTE
Sepsis
UTI
Preoperative bleeding disorder
Transfused
Presentation to ED (30 days)
Unplanned reoperation (30 days)
Unplanned readmission (30 days)

SSI, surgical site infection; VTE, venous thromboembolism; UTI, urinary tract infection.

collaborative effort accelerates the QI process through shared best practices, lessons learned, and identified gaps that can amplify and drive successes. Individual facilities can share their data if desired, but all data presented by the collaborative at meetings are deidentified with regard to facility ranking. Facilities know their own rankings within the collaborative, but they do not know where other hospitals rank.

The SCSQC website has an electronic means to communicate called Collaborate that works much like Facebook. A Collaborative member can post a question and other members can comment, provide answers, or make suggestions. Because site-specific QI projects mature and areas of success are identified, the website will also act as a portal for best practices and clinical pathways to be easily shared across the Collaborative. Presentations from quarterly meetings are posted to the website for quick reference.

### Unique Features of the SCSQC

The SCSQC is intentionally engaging patients and surgical residents in its QI efforts. SCSQC is querying

patients to determine patient-related factors that may contribute to surgical outcomes. SCSQC uses a questionnaire administered to a portion of surgical patients to learn some of the patient-related components involved in quality surgical outcomes. Did the patient understand the preoperative and postoperative instructions? Did the patient have all the resources he/she needed to recover—prescriptions filled, dressings changed, and physical therapy? SCSQC plans to use the responses from this survey to develop systems to improve patients' understanding and preparation going into surgery, and to identify ways to improve patient recovery after surgery. Focus groups will be created to further elucidate areas for improvement. Answers to the questionnaire will be linked to the patients' surgical procedure data to compare perceived outcomes and actual outcomes.

SCSQC is also committed to shaping the next generation of surgical leaders. Two surgical residency programs are involved in the Collaborative—The MUSC and Spartanburg Regional Health System. Each facility has designated resident involvement in their Collaborative's QI project. Residents involved in each surgical case are part of the abstracted data that allow residents to track their own outcomes. Residents also participate in quarterly Collaborative meetings. Both residency programs are using SCSQC data in QI efforts and are using Institute of Healthcare Improvement Open School educational modules to support their QI curriculums. Resident involvement in a regional quality Collaborative allows resident physicians to build lasting QI and systems-based practice skills. The collaborative nature of the program also educates residents on system variation across different hospitals and how to leverage resources across disparate facilities to most efficiently implement QI projects.

### Conclusion

The SCSQC is a newly established regional surgical quality Collaborative that is a combined effort of state and private institutions committed to improving the health of South Carolina's residents through improved surgical care. The Collaborative provides surgeons with real-time, web-based, surgeon-specific data and facilitates QI initiatives across member hospitals. The

Collaborative empowers providers with the data resources they need to improve care. It allows flexibility and facility-level customization of data capture, which is not available through national systems. A strong emphasis on patient engagement and a focus on training future surgeons are important unique initiatives included in the collaborative. We expect this Collaborative will lead to improved surgical outcomes, decreased costs, and more rapid dissemination of effective QI methodologies.

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