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Surgery for Obesity and Related Diseases 2 (2006) 513–517

SURGERY FOR OBESITY AND RELATED DISEASES

Original article

Centers of excellence in bariatric surgery: design, implementation, and one-year outcomes

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Received May 23, 2006; accepted June 28, 2006

Abstract

Background: Bariatric surgery procedures increased from <20,000 annually in the early 1990s to >100,000 in 2003. The complications related to surgery have increased disproportionately, causing some payers to discontinue coverage for bariatric procedures and reducing patient access to an effective treatment modality. This report describes an alternative approach—the creation of a network of Centers of Excellence (COE) in Bariatric Surgery.

Methods: Blue Cross and Blue Shield of North Carolina developed a COE program by working collaboratively with the bariatric surgery community. Through systematic review, the collaborative identified bariatric surgical programs that appropriately select patients, comprehensively evaluate and prepare patients for surgery, produce superior outcomes, and provide long-term follow-up for patients.

Results: Seven practices were selected as Blue Cross and Blue Shield of North Carolina Bariatric Surgery COE. The short-term results comparing the 12 months before COE implementation and the 12 months after implementation included a 14% decline in the number of bariatric procedures performed (693 versus 596), a 23% decrease in the number of surgeons billing for bariatric procedures (53 versus 41), a 30-day readmission rate of 4.7% for COE providers and 8.3% for non-COE providers, and an average inpatient length of stay of 2.5 days for COE providers and 3.0 days for non-COE providers. The proportion of procedures performed by the COE providers increased from 55% to 61%.

Conclusion: The preliminary results are encouraging, with COE providers demonstrating reduced 30-day readmission rates and, surprisingly, overall reductions in the rate and number of procedures performed and the number of physicians performing them.

Keywords: Bariatric surgery; Centers of excellence; Quality-based networks

During the past 20 years, the prevalence of morbid obesity (body mass index ≥40 kg/m^2 or ≥35 kg/m^2 with specified co-morbidities), has increased at an alarming rate [1], and with it the frequency of bariatric surgery procedures [2]. Blue Cross and Blue Shield of North Carolina (BCBSNC) has provided coverage for bariatric surgery for >15 years; however, the number of procedures billed to the Plan increased from 75 in 1999 to 624 in 2004, an increase of 800% in 5 years.

Although bariatric surgery can be a safe and effective treatment for morbid obesity, the Plan medical management began noting significant medical complications related to bariatric surgery in late 2001. Furthermore, the higher complication rates were inversely correlated with surgical experience, especially laparoscopic experience. Several other Blue health plans across the United States had noted the same problem and concluded that laparoscopic bariatric

Supported by Blue Cross and Blue Shield of North Carolina.

D. W. Bradley and B. K. Sharma are employees of Blue Cross and Blue Shield of North Carolina.

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1550-7289/06/$ – see front matter
doi:10.1016/j.soard.2006.06.005

surgery did not warrant coverage because of patient safety concerns.

Although noncoverage might reduce the number of bariatric procedures, and thus the complications related to surgery, it would not address the legitimate need for appropriate patients to receive effective treatment for morbid obesity. BCBSNC chose an alternative approach—to identify a network of bariatric surgery providers who produced superior outcomes, and create a Bariatric Surgery Centers of Excellence (COE) program.

The goals of the COE program were twofold: to improve the outcomes of bariatric surgery and reduce the overall expense for bariatric surgery patients, including administrative expenses and costs related to surgical complications and co-morbid conditions.

Methods

The development of the COE was a true partnership with several key stakeholders. During the early research phase of the project, the Plan contacted the American Society for Bariatric Surgery (ASBS) and began working with that group and its subsidiary, the Surgical Review Corporation (SRC). Because of BCBSNC time constraints, the two organizations developed programs independently, although they shared work products as they proceeded. The ASBS/SRC has indicated that the Plan's early work was influential in their eventual COE criteria, and the Plan uses ASBS/SRC COE certification to exempt BCBSNC providers from significant portions of its COE application and recertification processes.

Our second key partner was a focus group of Plan employees and health plan members, who were also patients who had either undergone or were considering bariatric surgery. This group met with the Plan CEO and a senior medical director, initially focusing on concerns about the potential benefit limits for bariatric surgery and subsequent follow-up surgery for redundant skin. With time, however, the groups' critical role has been to bring the patient's perspective to the process of preparing for, undergoing, and following up after bariatric surgery, and their input was explicitly included in the selection criteria for the COE.

The third critical partner was a group of 25 participating bariatric surgeons identified as high-volume providers. These dedicated practitioners worked with the Plan's initial survey that identified key patient eligibility criteria, preoperative workup and education items, inpatient staffing, equipment, clinical pathways, postoperative follow-up, and reasonable data collection elements and methods. The group also helped the Plan understand that although reasonable reimbursement for surgical services was important, other benefits were equally valued, including a reduction of the administrative hassle and the recognition as COE in the Plan directories.

Key internal partners also contributed to the COE project. Network management agreed to a (greater) unique fee schedule for the COE surgeons, and medical resource management agreed to forego prior plan approval questions for COE providers. Marketing provided a unique listing for COE practitioners, product management began planning for benefit differentials for members who use the COE, and quality improvement integrated the COE into the Plan's holistic program for lifestyle-related conditions.

Finally, key partnerships were established among bariatric surgeons, other healthcare providers (notably nutritionists, mental health providers, and exercise/activity providers), and the hospitals in which they practiced. Although we initiated the COE process through a surgeon-centric approach, the Plan and the surgeons recognized that a bariatric surgery program must include a comprehensive and integrated set of services. Successful programs reflect a multidisciplinary, teamwork approach to the care of the bariatric patient, including a hospital cross-functional committee to review the process and outcomes of the bariatric surgery program, the presence of nutritionists, mental health providers, and/or activity/exercise coaches in the surgeons' offices, and jointly sponsored follow-up support groups. The programs that were not selected for the inaugural COE network were provided specific feedback on what was needed to meet the COE criteria, often including suggestions to improve the integration of the program across provider types.

The COE program was expected to result in a credible, accessible network of high-quality bariatric surgery programs. The short-term outcomes to be evaluated included the number of active bariatric surgeons and number of procedures performed, average length of hospital stay, and 30-day postoperative readmission rates (as an indicator of postoperative complications). In addition, the COE approach was meant to be a continuing collaborative process with providers, to monitor and improve the outcomes of bariatric surgery programs into the future, including detailed follow-up data on postoperative weight reduction and improvement in co-morbid conditions such as hypertension and diabetes. Finally, the approach was expected to result in improved member satisfaction with BCBSC and bariatric surgery providers, with an eventual shift of virtually all bariatric procedures to COE providers.

Results

Table 1 provides an overview of the implementation timeline. Once the patient safety issues were identified and analyzed (2001–2002), development of the COE processes progressed rapidly, from March through September 2004. The earliest outcomes data were available in June 2005, and 1-year follow-up data was collected in December 2005 and January 2006.

The COE network is available to all product types (Health Maintenance Organization, Preferred Provider Or-

Table 1
Timeline of COE development

Date	Step
Late 2001 to early 2002	Identification of inordinate bariatric surgery postoperative complications
2003	Root cause analysis, review of medical data, BCBSNC medical policy review and revision, discussions with ASBS/SRC
2004	
March	COE conceptual review by BCBSNC Physician Advisory Group
April–June	BCBSNC employee focus group meetings
May	Identification of high-volume providers
May	Initial bariatric surgery survey and provider discussions
May	RFI: Fee schedule and prior approval changes
June	BCBSNC claims data validation of responses
June	Responders conference criteria and scoring review
July	RFI revisions by providers
August	Office and hospital site visits
September	Selection and directory listings
October	External communications
December	Follow-up Bariatric Surgery Advisory Group
2005	
June	Initial 6-mo data collection (with 3-mo claims lag)
June	Follow-up Bariatric Surgery Advisory Group
June	Follow-up BCBSNC employee focus group
October	Member satisfaction survey

COE = Centers of Excellence; BCBSNC = Blue Cross and Blue Shield of North Carolina; ASBS = American Society of Bariatric Surgeons; SRC = Surgical Review Corporation; RFI = Request for Information.

ganization, Point-of-Service and traditional), including all commercial plans (underwritten and Administered Service Only); however, government plans were not included if they contracted physicians and hospitals into their own unique networks. The COE are listed online and in hard-copy directories for Plan members. The geographic distribution of the centers meets the needs of our membership: 98% of BCBSNC members live within 100 miles of a COE, with an average driving distance of <40 miles.

The employee/Plan member focus group continues to meet at least annually to provide their input and review of COE progress, and seven COE surgeons, one from each COE practice, participate in the ongoing Bariatric Surgery Advisory Group, which is helping refine the clinical guidelines for components of bariatric surgery programs (e.g., mental health evaluation and the role of the laparoscopic band technique), identify data elements to be collected, and review COE outcomes as they become available.

The postoperative complication rates, as represented by readmission rates, were significantly lower for COE providers (7.6%) than for non-COE providers (16.4%) in 2003 (Fig. 1). The readmission rates for both groups improved during COE implementation and 1 year after implementation, remaining somewhat lower for COE providers in 2005 (4.7% versus 8.3%, $P = 0.072$). The average length of stay in 2005 was also 0.5 hospital day less for COE providers (2.5 versus 3.0 days, $P < 0.05$; Fig. 2). The relative illness burden of patients undergoing surgery, as measured by the Impact Pro predictive modeling tool (Ingenix), was slightly greater for the COE population, supporting the conclusion that COE providers' short-term outcomes were superior to those of non-COE providers. Without the benefit differential to direct members to the COE, the proportion of bariatric procedures performed in COE networks increased from 54.5% in 2004 to 61.3% in 2005 (Fig. 3).

The COE development process is extremely portable when modified to meet individual plan environments. The Plan has presented its approach to COE development in a variety of forums across the United States and has shared Request for Information (RFI) and scoring criteria to those requesting them (including several other health plans). In addition, BCBSNC has worked with a larger association effort to develop a national Blues Bariatric Surgery COE program.

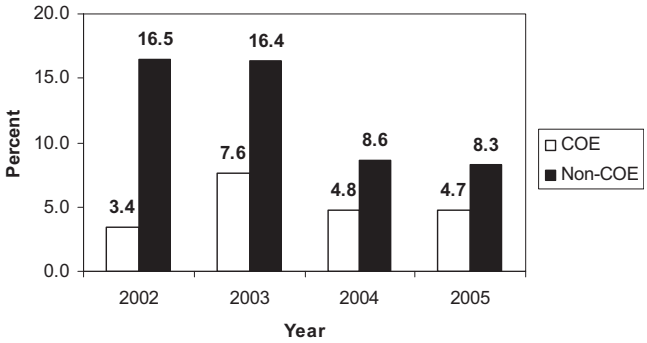

Fig. 1. Percentage of patients readmitted within 30 days of undergoing bariatric surgery for 2002–2005.

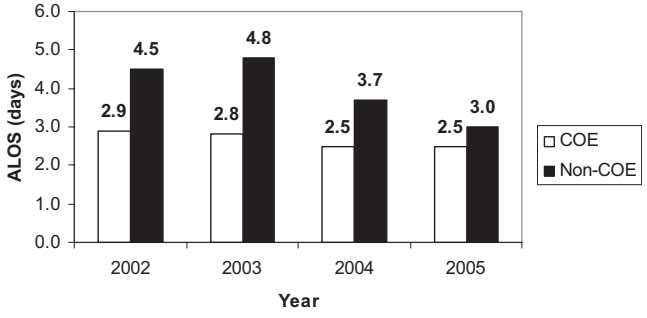

Fig. 2. Average length of stay (ALOS) for bariatric procedures for 2002–2005.

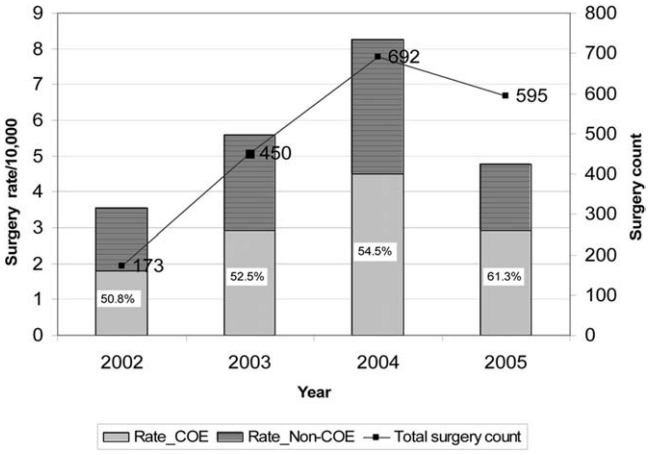

Fig. 3. Number and rate of bariatric surgeries in and out of COE for 2002–2005.

Discussion

BCBSNC views the development of COE as a means to an end, rather than an outcome in and of itself. COE are designed to identify physicians practicing in the context of specific hospitals who produce superior clinical outcomes and are committed to improving the quality, efficiency, and documentation of clinical outcomes.

The key innovations of the BCBSNC Bariatric Surgery COE program include collaboration with a recognized professional organization, the ASBS, to develop COE criteria and processes; use of the bariatric patient focus group to develop the criteria for the COE program; and partnership with participating bariatric surgeons to develop the criteria and scoring for the COE applicants and to monitor and improve COE outcomes. Furthermore, the relationship with bariatric surgeons includes a greater professional fee schedule for covered bariatric procedures, elimination of prior plan approval questions for COE providers (reducing administrative costs for providers and the Plan), and the implementation of data collection and quality improvement processes that will help providers and the Plan improve outcomes even more.

The BCBSNC approach addresses many of the concerns raised by Birkmeyer and Birkmeyer [3] regarding the development and implementation of programs designed to reward superior surgical outcomes. Their concerns included a lack of physician acceptance, lack of adequate measures to determine quality, and lack of public reporting. By working with the ASBS/SRC to develop the COE RFI and using their RFI data collection portal for applications to the BCBSNC COE, the Plan hoped to facilitate provider acceptance by standardizing the application process and reducing the administrative overhead of applying to multiple COE. Although the providers still face multiple COE processes (multiple national health plans, including the BCBS Association and the American College of Surgeons), some convergence of the critical data elements collected appears to have occurred.

With increased consensus and communication of professional and program standards for bariatric surgery, it is likely that the entire bariatric community will continue to improve its performance. Similar observations were noted as certification of trauma centers occurred in the 1980s [4]. Indications of this overall improvement have been seen: non-COE 30-day readmission rates improved from 16.4% in 2003 (when the COE RFI process was initiated) to 8.3% in 2005. Not coincidentally, the number of non-COE providers billing BCBSNC for bariatric procedures dropped 29% between 2004 and 2005 (41 to 29). In the end, health plan members may benefit whether their bariatric procedures are performed inside or outside the COE (although the benefit will be significantly more if they use COE providers).

The BCBSNC COE program is physician centric rather than facility centric, at odds with several national COE efforts, but we believe that collecting more granular information facilitates actionable interventions by individual surgical programs. Conversely, although some consumer advocates recommend provider-specific reporting of surgical outcomes, it may not be necessary to report individual physician results if members accept the aggregate COE program results reported.

The program did not provide financial incentives for members to use the COE. However, the proportion of bariatric procedures performed by COE member programs increased from 55% during the year before COE implementation to 61% during the first year (2005). The only interventions to steer patients to COE were separate listings of COE in the Plan provider directories, a modicum of Plan publicity related to the COE, and individual provider publicity regarding their COE status. The Plan intends to further publicize and provide incentives to use the COE in the future, which may further increase steerage to the COE.

The clinical outcomes we have reported are encouraging even if they are crude proxies for medical outcomes. The COE practices have agreed to track and report to the health plan more detailed clinical information on an annual basis, which will allow more detailed assessment of excess body weight lost, the status of co-morbid conditions, and surgical complications. Multiple process measures, including follow-up rates and measures of patient satisfaction and function, are being collected.

Conclusion

The BCBSNC Bariatric Surgery COE program is young but has produced working relationships and processes that promise to significantly improve the clinical outcomes of bariatric surgery during the next 3 years. We have established productive relationships with providers, members, and a major professional organization and demonstrated

short-term quality improvements. Favorable outcomes (return on investment) will take longer to demonstrate, probably 5 years.

Acknowledgments

The authors acknowledge the tireless support of Samantha Ramos, Endo-Ethicon US, who helped identify credible bariatric literature and clinical experts for the project and encouraged early and repeated collaboration with the bariatric surgery professional community. The authors also appreciate the support and advice of Dr. Walter Poires, who provided an opportunity to fully collaborate with the bariatric surgery professional community at the national level. The authors appreciate and acknowledge the North Carolina bariatric surgeons participating in the COE, not only for their clinical expertise, but also for their time and effort in improving the process and outcomes of bariatric surgery in North Carolina. Finally, we appreciate the support and expertise of Linda Ager and Katrina Krause, who kept the project on track and helped mold our communications of the outcomes.

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