Bariatric Surgery in Minority Patients Before and After Implementation of a Centers of Excellence Program

Numerous studies documenting better surgical outcomes at hospitals with higher procedure volume have motivated proposals to concentrate elective surgery in high-volume settings. However, concerns about access to care, doubts about causality of the volume-outcomes relationship, and lack of easily identified volume thresholds have limited use of selective referral policies.

In 2006, the Centers for Medicare & Medicaid Services (CMS) implemented a national coverage decision (NCD) restricting Medicare patients to centers of excellence (COEs) for bariatric surgery. Professional organizations designate hospitals as COEs for bariatric surgery if these hospitals submit data to a registry, have adequate protocols for care of morbidly obese patients, and perform at least 125 bariatric procedures annually. Recently, CMS proposed eliminating the COE requirement after studies suggested little if any safety benefit. The NCD restricting patients to COEs could lead to many potential harms, including reducing access to bariatric surgery for vulnerable populations. We compared rates of bariatric surgery for minority Medicare vs non-Medicare patients before and after implementation of the NCD.

Methods | We studied all bariatric surgery discharge abstracts from inpatient hospitals in 8 states using the State Inpatient Databases (2004 through 2009) created by the Agency for Healthcare Research and Quality as part of its Healthcare Cost and Utilization Project. We chose 8 large, geographically dispersed states that consistently reported patient race and ethnicity; 34% of Medicare beneficiaries lived in these states.

We used difference-in-differences regressions to compare the proportion of minority patients undergoing bariatric surgery with and without Medicare before (January 2004-March 2006) and after (April 2006-December 2009) NCD implementation. Non-Medicare patients provided a control group to isolate associations with the NCD relative to trends among all bariatric surgeries over time. Ordinary least-squares regressions included state and year indicator variables and clustered standard errors at the hospital level. Data and methods were described previously. We compared white patients with those from all other minority groups because the State Inpatient Databases report a single variable combining patient-reported race and ethnicity. Patients with missing race/ethnicity were excluded.

This study was exempt from institutional review board review. Analyses were conducted using Stata 12MP (StataCorp). We used 2-tailed hypothesis tests, with P<.05 considered statistically significant.

Results | Of 228,136 patients undergoing bariatric surgery in 429 hospitals, 18,607 (8.2%) had Medicare; 49,009 Medicare patients (26.4%) and 58,729 non-Medicare patients (28.0%) were nonwhite, and 54,415 nonwhite patients (85.5%) were black or Hispanic. The proportion of Medicare patients undergoing bariatric surgery who were nonwhite was 27.5% before the NCD and stable after the NCD (25.9%; change, −1.5 percentage points [95% CI, −4.0 to 0.87]) (Table, Figure). In contrast, the proportion of nonwhite patients increased from 26.2% to 29.1% (change, 2.9 percentage points [95% CI, 0.88 to 5.0]) among non-Medicare patients. After adjusting for patient state and time trends common to all patients, the Medicare COE policy was associated with a 4.7 percentage point decline (95% CI, −7.3 to −2.7) in the proportion of nonwhite patients with vs without Medicare receiving bariatric surgery. This decline represents 17% of the proportion (4.7/27.5) before implementation of the NCD.


<table>
<thead>
<tr>
<th>Patients</th>
<th>Before NCD (January 2004-March 2006)</th>
<th>After NCD (April 2006 to December 2009)</th>
<th>Percentage Point Change (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. (%)</td>
<td>No. (%)</td>
<td>Before − After NCD</td>
</tr>
<tr>
<td>Medicare</td>
<td>1482 (27.5)</td>
<td>3427 (25.9)</td>
<td>−1.5 (−4.0 to 0.87)</td>
</tr>
<tr>
<td>Non-Medicare</td>
<td>38 169 (28.0)</td>
<td>38 169 (29.1)</td>
<td>2.9 (0.88 to 5.0)</td>
</tr>
</tbody>
</table>

The Centers for Medicare & Medicaid Services issued an NCD restricting Medicare patients to centers of excellence for bariatric surgery.

Nonwhite group included patients with self-reported race/ethnicity recorded as black, Hispanic, or other (relative to white) in State Inpatient Databases data. State Inpatient Databases collect a single race/ethnicity variable; when patients report both race and ethnicity, the databases retain only ethnicity.

The change associated with the NCD is the difference-in-differences estimate comparing Medicare and non-Medicare patients. Non-Medicare patients provided a treatment group who experienced other trends in bariatric surgery availability over time but were not restricted to centers of excellence during the period after implementation of the NCD. Ordinary least-squares regression controlled for year of admission and hospital state, with standard errors clustered at the hospital level.
Discussion | A CMS policy restricting care to COEs was associated with a relative decline in the proportion of nonwhite Medicare patients receiving bariatric surgery. A policy intended to improve patient safety may have been associated with the unintended consequence of reduced use of bariatric surgery by minority patients.

Our data precluded consideration of longer-term outcomes or minority subgroups. Our results may overestimate the change associated with the COE policy if commercial insurers made changes to increase use of bariatric surgery by non-Medicare minorities after the NCD.

Although our research design controls for time-invariant differences between Medicare and non-Medicare patients and common time trends affecting both groups, our study is observational and relies on administrative data, raising the possibility that unobserved confounding factors bias our results.

Morbidity and mortality associated with bariatric surgery have declined in recent years. Safety gains from limiting hospital choice are likely lower than they were in 2006. However, a policy restricting patients to COEs was associated with less bariatric surgery among nonwhite Medicare beneficiaries.

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Study concept and design: Nicholas, Dimick.
Acquisition of data: Dimick.
Analysis and interpretation of data: Nicholas, Dimick.
Drafting of the manuscript: Nicholas, Dimick.
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COMMENT & RESPONSE
Therapy for Mental Stress–Induced Myocardial Ischemia

To the Editor Recent research on mental stress–induced myocardial ischemia (MSIMI) has been devoted to pathophysiology, prognosis, and intervention, the latter being the focus of the Responses of Mental Stress Induced Myocardial Ischemia to Escitalopram Treatment (REMIT) trial.1 Aside from the early work of Deanfield et al,2 researchers have mostly used secondary markers of ischemia (eg, left ventricular [LV] dysfunction) rather than directly assessing myocardial blood flow. The REMIT trial also used secondary indices (wall motion and LV dysfunction), which is unfortunate because more recent research has shown these to lack the sensitivity and specificity