Frequently Asked Questions about the Acute Care Episode (ACE) Demonstration

1. Q: What is the goal of the ACE demonstration?
   A: The goals of the demonstration are threefold: (1) Improve quality of care through consumer and provider awareness of price and quality information; (2) Increase collaboration among providers and health systems; and (3) Reduce Medicare payments for acute care services using market mechanisms.

   Typically, Medicare patients receive care from multiple physicians and sometimes across multiple care settings for individual episodes of care (defined as inpatient stays and including both Part A and Part B services in this demonstration). This demonstration tests whether improvements in quality of care result from aligning financial incentives between hospitals and physicians in such a way that they must coordinate care on a case-by-case basis. The market-based mechanisms that are being used to achieve improved quality and efficiency are bundled payment, competitive bidding, gainsharing and shared savings.

2. Q: What are the selected procedures for the demonstration?
   A: The inpatient surgical procedures summarized below have been selected for the ACE demonstration. Note that in the solicitation for prospective applicants, the procedures are listed in greater detail by Medicare Severity Diagnosis Related Groups (MS-DRGs).

   CMS is focusing on this initial set of services because margins and volume have historically been high, the services are easy to specify, and quality metrics are available.

   Demonstration applicants will have the option to bid on either cardiac or orthopedic procedures or both. The Acute Care Episode Demonstration procedures are: (1) Cardiac valve procedures; (2) Cardiac defibrillator implant procedures; (3) Coronary bypass procedures; (4) Cardiac pacemaker procedures; (5) Percutaneous cardiovascular procedures; (6) Hip replacement surgery; and (7) Knee replacement surgery.

3. Q: Why did CMS choose the selected procedures for the demonstration?
   A: CMS is focusing on this initial set of inpatient services because margins and volume have historically been high, services are easy to specify, and quality metrics are available.

   The selected inpatient procedures have enough costs for providers to realize efficiencies of care.

   The Medicare Cataract Surgery Alternate Payment demonstration yielded important findings regarding the types of procedures which lend themselves to successful bundled payment programs. Namely, the importance of using the bundled payment methodology for high volume, *inpatient* services where economies of scale can result in savings for both Medicare providers and the Medicare program was found to be imperative.
4. Q: Why would a physician hospital organization want to participate in this demonstration?
A: (1) To develop efficiencies of care; (2) to engage in gainsharing (the providers of care can distribute payment within the health care group as they deem most appropriate); (3) to benefit from CMS marketing as a “Medicare Value-Based Care Center”; (4) there is potential for increasing volume at participating sites; (5) CMS will incentivize beneficiaries with special offers; (6) the sites may enhance their reputation based on participation in a Medicare demonstration; and finally (7) opportunity for product line development.

5. Q: What makes the ACE demonstration different from previous bundled payment demonstrations?
A: In 1996, CMS completed two bundled payment demonstrations, the Medicare Participating Heart Bypass Center demonstration and the Medicare Cataract Surgery Alternate Payment demonstration.

The ACE demonstration builds upon these earlier efforts by expanding this concept to a broader set of inpatient orthopedic and cardiovascular procedures with the potential to include or expand to post-acute care services (e.g., cardiac and orthopedic rehabilitation) after Year 1 of the demonstration. Also, ACE will use a competitive bidding, rather than negotiated pricing, approach to awarding voluntary applicants. The ACE demonstration will be implemented for 3 years on a limited scale potentially involving up to 15 sites in a multi-State area (Texas, Oklahoma, New Mexico, and Colorado). Finally, unlike previous bundling demonstrations, beneficiary participants will share in Medicare savings, and CMS intends to take an active role with ACE demonstration sites in the marketing of the demonstration.

6. Q: Why only locate the ACE demonstration in Texas, Oklahoma, New Mexico, and Colorado?
A: There were two main considerations in choosing where to locate the ACE demonstration.

First, for administrative simplicity and funding purposes, CMS decided to restrict demonstration applicants to one Medicare Administrative Contractor (MAC) geographic (or jurisdiction) area. MACs are new Medicare payment contractor entities which integrate the administration of Medicare Parts A and B for the Medicare fee-for-service benefit. Formerly, these functions were performed separately by Medicare Part A fiscal intermediaries (FIs) and Medicare Part B carriers. Because Medicare payment under the ACE demonstration will bundle payment for both Part A and B services, operating the demonstration in a geographic area that has transitioned to an integrated MAC will be beneficial.

Second, in choosing one MAC area, CMS wanted to maximize the number of viable applications from prospective demonstration sites. An important element of the design of the ACE demonstration is site selection through competitive bidding. Therefore, CMS wants to chose a MAC that has a lot of hospital market competition, approximated by the number of hospitals in a given market area that meet particular volume thresholds for the demonstration.
procedures. We would expect to receive more applications from those market areas with greater numbers of hospitals that meet the procedure thresholds. At the time this demonstration becomes operational, only eight MACs will be operational. Of those MACs, MAC Jurisdictions 4 (comprised of Texas, Oklahoma, New Mexico, and Colorado) is the jurisdiction with the greatest number of local market areas with 3 or more prospective provider sites with sufficient procedure volumes to qualify for the demonstration.

The numbers of hospitals in the chart below include only hospitals that meet the volume requirements and are located in a CBSA with at least two other hospitals that meet the volume requirements. There are more hospitals which meet the volume requirements but which are the sole or one of two hospitals in their CBSA that do (these hospitals are not reflected in the chart). In our geographic analysis, CMS sought to select a MAC with greater numbers of hospitals that meet the procedure thresholds in order to maximize the number of prospective applicants. Any hospital meeting the volume thresholds is welcome to apply.

<table>
<thead>
<tr>
<th>MAC Jurisdictions</th>
<th>Number of Hospitals Meeting CABG/Valve Thresholds (#CBSAs)</th>
<th>Number of Hospitals Meeting Hip/Knee Thresholds (#CBSAs)</th>
<th>Overlapping CBSAs</th>
</tr>
</thead>
<tbody>
<tr>
<td>J1 (CA, HI, NV)</td>
<td>13 (3)</td>
<td>54 (3)</td>
<td>3</td>
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<tr>
<td>J2 (AK, ID, OR, WA)</td>
<td>4 (1)</td>
<td>15 (1)</td>
<td>1</td>
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<tr>
<td>J3 (AZ, MT, ND, SD, UT, WY)</td>
<td>9 (2)</td>
<td>20 (2)</td>
<td>2</td>
</tr>
<tr>
<td>J4 (CO, NM, OK, TX)</td>
<td>18 (4)</td>
<td>51 (4)</td>
<td>4</td>
</tr>
<tr>
<td>J5 (IO, KS, MO, NE)</td>
<td>16 (4)</td>
<td>35 (4)</td>
<td>4</td>
</tr>
<tr>
<td>J7 (AR, LA, MS)</td>
<td>4 (1)</td>
<td>8 (1)</td>
<td>1</td>
</tr>
<tr>
<td>J12 (DE, DC, MD, NJ, PA)</td>
<td>33 (7)</td>
<td>111 (13)</td>
<td>7</td>
</tr>
<tr>
<td>J13 (CT, NY)</td>
<td>17 (2)</td>
<td>84 (10)</td>
<td>2</td>
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</table>

7. Q: How will competitive bidding work?
   A: Competitive bidding, also known as competitive contracting, is a tool that has been tested and used in both the public and private sectors. This tool could potentially allow the Medicare program to purchase care at a lower cost by promoting greater efficiency among providers and higher quality care for Medicare beneficiaries. In this demonstration, sites will bid on a voluntary basis to provide selected cardiac and/or orthopedic services to Medicare patients in inpatient settings.

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1 MAC Jurisdiction 12 (comprised of Delaware, District of Columbia, Maryland, New Jersey, and Pennsylvania) was removed from consideration because the contract for this MAC was contested and the timeline for implementation was in jeopardy at the time that CMS’s selection process was underway.

2 The number of CBSAs (Core-Based-Statistical Areas) corresponds to the number of CBSAs which meet both the CABG and Hip/Knee thresholds. The number of hospitals meeting the Hip/Knee threshold always exceeds the number meeting the CABG threshold.

3 The one CBSA for Maryland, a rate setting state, is excluded.
CMS expects to award only one ACE demonstration site per market, where a market is defined as a metropolitan core-based statistical area, or the aggregate of non-metropolitan (rural) areas within a given State. However, a PHO with more than one hospital in the same market area may apply on behalf of both hospitals and both may be selected as demonstration sites if they meet the eligibility criteria individually and are selected by the CMS review panel. After Year 1 of the demonstration, CMS will consider expanding the demonstration to test alternative competitive bidding models, such as awarding multiple sites per market area, in a new geographic area (i.e., MAC jurisdiction).

Selection will be based upon size of discount (percent total dollar savings) and evaluation of quality of care to meet the goal of value based purchasing. This is explained and a formula for calculating discounted bids is provided in the solicitation for applications.

8. **Q:** Why is CMS specifying volume thresholds as an eligibility criterion for applicants?
   **A:** Demonstration applicants are required to show that they meet specific volume thresholds as per peer reviewed medical literature (see table below; rows #1 to 3) for the lead orthopedic and cardiovascular procedures that are the focus of this demonstration. Institutions will also be evaluated on whether they meet the following additional threshold volumes, although sites will not necessarily be excluded if all of these volumes are not met (see table below; rows # 4 and 5).

By limiting the demonstration to applicants that meet evidence-based volume standards, CMS is emphasizing the quality component of VBP. Research has shown that hospitals with higher volumes of certain surgical procedures have better results, and surgeons who perform more of certain operations have fewer patient deaths. As such, this demonstration encourages health care groups to redesign care processes to maximize quality of care and health outcomes by allowing them to share the resulting savings in ways that are not currently permissible by law.

<table>
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<tr>
<th>Cardiovascular and Orthopedic Minimum Volume Thresholds</th>
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<tr>
<td>Procedures</td>
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<tr>
<td>1. CABBG &amp; Valve Replacement</td>
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<td>2. PTCA</td>
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<tr>
<td>3. Hip &amp; Knee Replacement</td>
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<tr>
<td>4. Defibrillator Implant</td>
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<td>5. Pacemaker Insertion</td>
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CMS has conducted local market analyses of the hospitals in the targeted geographic area (Medicare Administrative Contractor Jurisdiction 4, MAC J4). Interestingly, the hospitals which meet the volume threshold for CABBG surgery in MAC 4 make up 70 percent of the overall CABBG market within MAC 4 (TX, OK, NM, CO) and the hospitals which meet the volume threshold for hip/knee replacement in MAC 4 make up almost 85 percent of the overall hip/knee replacement surgery market within MAC 4. That said, if a prospective applicant is close to but does not meet the volume requirements, it can request to discuss the requirement with CMS. For example, if an applicant previously met the volume criteria but...
in the past year, it did not by a slim margin, this may be a situation for an exception. CMS will make such determinations on a case-by-case basis.

In addition to volume, applications that show evidence of a quality committee with both hospital and board-certified physician representatives and dedicated time to overseeing this demonstration will be given preference as will applicants which have multi-disciplinary provider teams and participate in clinical improvement programs/registries.

All surgeons and cardiologists performing each procedure must be board certified or board eligible in cardiothoracic surgery, orthopedic surgery, or cardiology. Medical/surgical Fellows and residents may be part of the care team with the principal board-certified surgeon or cardiologist responsible for the inpatient episode of care.

9. **Q: Why only one designated Medicare Value-Based Care Center in each market/CBSA?**
A: CMS expects to award only one ACE demonstration site per market, where a market is defined as a metropolitan core-based statistical area, or the aggregate of non-metropolitan (rural) areas within a given State\(^4\). However, a PHO with more than one hospital in the same market area may apply on behalf of both hospitals and both may be selected as demonstration sites if they meet the eligibility criteria individually and are selected by the CMS review panel. After Year 1 of the demonstration, CMS will consider expanding the demonstration to test alternative competitive bidding models, such as awarding multiple sites per market area, in a new geographic area (i.e., MAC jurisdiction).

Initially, CMS chose to award only one site per market area in order to encourage participation in the demonstration. Sole demonstration hospitals within a market area may see a higher increase in the number of demonstration patients compared with a situation in which there are two or more demonstration sites in a market area. Therefore, potential applicants may be more interested in participating in the demonstration if they will be the only awardees in their market area, likely increasing the number of applicants as well as potentially improving the quality of the bids offered.

Because CMS does not have statutory authority to require all qualified applicants to bid, we must otherwise incentivize participation in the demonstration. Awarding only one contract per CBSA is one such incentive.

10. **Q: How will payment be made under the ACE demonstration?**
A: For purposes of the ACE demonstration, a demonstration site is a health care group comprised of at least one hospital affiliated with at least one physician group, an entity known as a physician hospital organization (PHO). Applicants must provide documentary evidence of an agreement between the entities comprising the PHO.

The bundled payment amounts bid by demonstration applicants and agreed to by CMS shall be processed by the Part A/Part B Medicare Administrative Contractor (MAC) serving the

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\(^4\) The term "core based statistical area" (CBSA) became effective in 2000 and refers collectively to metropolitan and micropolitan statistical areas. See [http://www.census.gov/population/www/estimates/aboutmetro.html](http://www.census.gov/population/www/estimates/aboutmetro.html).
demonstration site. The PHO (most likely the hospital’s administrative office) will submit a bill as per usual in the electronic data entry system. The only difference will be that a demonstration code will be included. There will be training at individual sites prior to the beginning of the demonstration about this.

As for physicians bills, we ask that physicians continue to bill (separately if that is current practice or through their hospital affiliation if that is current practice) so that CMS can capture the information on the Part B volume. However, the bills will be processed as “no pay” claims because the data entry done by the PHO (or hospital) will signal CMS claims processing that a demonstration payment is needed. Physicians and the affiliated hospitals should discuss how they will communicate about services rendered before the start of the demonstration.

Physicians and hospital departments involved in the demonstration will then distribute payment according to their agreed-upon methodology. PHOs must accept the single bundled payment as payment in full. The single bundled payment can be used as the PHO deems most appropriate, therefore the PHO will distribute payment to the relevant clinicians and hospitals. All physicians practicing at the demonstration hospitals will be subject to the demonstration payment provisions if they provide services to demonstration beneficiaries.

11. Q: Why would a beneficiary want to participate in this demonstration?
A: CMS and HHS senior leadership view the ACE demonstration as an opportunity to promote this Administration’s interest in market-based mechanisms such as competitive bidding, gainsharing, and shared savings. The main research question being tested is: do financial incentives impact quality of care and, consequently, beneficiary provider choice and provider referrals? CMS chose to share 50 percent of savings to underscore the importance of quality-related efficiencies that will be derived within physician-hospital organizations as a result of the demonstration, as well as our commitment to passing savings on to the ultimate beneficiaries of service through Medicare.

By making the beneficiary shared savings significant, we hope to demonstrate shifts in volume (unlike in the ‘Cataract’ and ‘Bypass’ demonstrations). Also, CMS may make progress in breaking the perception that higher cost of healthcare means better quality. Finally, we will test the effect of beneficiary savings on beneficiary choice.

CMS intends to take an active role in publicizing the demonstration to Medicare beneficiaries and providers in the relevant geographic locations once sites have been selected. Beneficiary outreach may include updating the Medicare.gov website’s two popular tools (“Find a Doctor” and “Hospital Compare”) with ACE demonstration-specific information and data (participating providers, Hospital Quality Alliance-approved quality measures, etc.). Also, a link to further information about how beneficiaries may benefit from receiving care at participating demonstration sites (including amount of shared savings payments) may be included on the Medicare.gov homepage. Finally, provider-specific outreach may include education efforts through CMS Regional Offices, local provider and beneficiary advocacy groups, relevant medical and hospital conferences, and the CMS Open Door Forum.
During the evaluation phase, CMS will use control groups to determine whether beneficiaries under the care of a participating provider would select that participating hospital even without any shared incentive. That said, it is possible for providers who are not employees or in any way linked to demonstration sites to refer patients to demonstration sites due to information on high quality services provided through marketing materials. The CMS beneficiary shared savings payments will be a notable aspect of both CMS’s and, presumably, demonstration sites’ marketing campaigns. Beneficiaries who receive the shared savings and their physicians will no doubt take notice of the demonstration even if they were not aware of it before the payment. Finally, internet, Open Door Forum, organizational meetings, and press release announcements in addition to the demonstration sites’ marketing efforts are all means of communicating with providers about the demonstration.

12. Q: **How will provider incentive programs (or gainsharing) work?**  
A: Providing provider incentives, sometimes known as “gainsharing” is an optional element for ACE demonstration applicants. To the extent that applicants propose provider incentive programs, they must meet criteria developed by CMS. See the separate document, “Provider Incentive or Gainsharing Rules,” on the ACE demonstration webpage for the provider incentive program rules associated with the ACE demonstration.

The main provisions of the rules are that ACE demonstration sites must provide CMS with information such as: (1) each clinical process of care intervention designed to promote improved quality and how the intervention will lead to more efficient use of resources; (2) how financial gains to the physician hospital organization are measured and ultimately distributed; (3) the composition and role of a provider incentive program oversight committee. Also, provider incentive payment must not induce a physician to reduce/limit services that are medically necessary; payments must not be based on the volume or value of referrals or business otherwise generated between the hospital and physicians; and payments to individual physicians must not exceed 25 percent of the amount that is normally paid to physicians for relevant cases.

13. Q: **What is bundled in the global payment for an episode of care in the ACE demonstration?**  
A: The ACE demonstration will test the use of a global payment for an episode of care as an alternative approach to payment for service delivery. In this case, an episode of care is defined as Part A and Part B services provided during an inpatient stay for Medicare fee-for-service (FFS) beneficiaries for selected procedures.

Medicare Severity-Diagnosis Related Groups (MS-DRGs, formerly Diagnosis Related Groups, or DRGs) are a form of bundling. However, as certain care can be shifted outside of the inpatient setting (to outpatient and/or post-acute care settings), and because the MS-DRG system does not encourage coordination between settings, CMS, MedPAC, and other organizations are giving thought to bundling groups of services larger than what is currently bundled through MS-DRGs in the inpatient prospective payment system.
The ACE demonstration is one means of testing bundling. As noted in the solicitation, while the *time window* for an episode of care will follow current Medicare Part A rules (for administrative simplicity upon first implementation), the *scope of included services* is different than usual because Part B services provided during the inpatient visit will be included in the bundled payment as well as Part A. Therefore, all inpatient facility and professional services rendered to the demonstration beneficiaries from the date of admission through the date of discharge at the demonstration facility are included in the bundled payment.

After Year 1 of the demonstration, CMS and demonstration sites may consider including some post-acute care services in the episode of care. Further analysis will be performed prior to a change in the demonstration’s scope of work and demonstration sites will have the opportunity to modify their bids if the scope of services included in the bundled payment changes.

14. **Q: How will CMS make sure that quality of care is maintained during the demonstration?**

A: About 95 percent of prospective payment system hospitals currently participate in CMS’ pay-for-reporting initiative, Reporting Hospital Quality Data for Annual Payment Update (RHQDAPU). CMS will require ACE demonstration applicants to have received the full IPPS annual payment update for reporting quality measures to CMS (through [www.qualitynet.org](http://www.qualitynet.org)) since at least FY 2006. Hospitals must continue to participate in RHQDAPU throughout the demonstration period.

In the application, we ask for a narrative description of applicants’ quality assurance (QA) programs demonstrating rigorous QA procedures, in total, and in relevant surgical areas, discussion of current resources devoted to QA and QA reporting initiatives, publicly reported Medicare Patient Outcomes is expected, participation in cardiac and orthopedic clinical registries is expected, as appropriate, and presence of QA mechanisms between hospital and physicians.

Additionally, as part of the demonstration, there will be quality monitoring of sites jointly by CMS and our contractor, RTI, International. Quality monitoring is the process by which CMS will collect data on care provided to Medicare beneficiaries in the demonstration as close to real-time as possible in order to determine any measurable changes in process or outcomes related to quality care.

Quality of care measures (both process and outcome measures) will include: general surgical care improvement measures such as antibiotic provided before surgery and discontinued at the proper interval; 30-day readmission and mortality rates; percent of hip revisions for patients over 75 years of age, patients with hip fracture, and patients with rheumatoid arthritis (i.e. complication rates); and CABG/hip/knee revision within 6 months. These will be collected directly from hospitals (largely based on existing data collection formats), or calculated by CMS and our contractor based on Medicare Administrative Contractor or other internally available data. A full list of the quality measures is available on the ACE demonstration webpage.
We will also have comparative, Medicare expenditure data for Part A and Part B based on claims. We will request sites submit Part B claims despite the fact that they will be processed as “no pay” because payment will be bundled with Part A and paid in one complete payment.

Through the ACE demonstration, CMS is testing whether quality of care will improve by raising consumer awareness of price and quality information and increasing collaboration among providers and health systems. The ongoing quality monitoring and separate, independent evaluation of the demonstration will determine if this is the case. If quality of care appears to be compromised at one of the demonstration sites, CMS reserves the right to discontinue the sites’ participation in the demonstration.

15. **Q:** If a PHO applies for participation in the ACE Demonstration on behalf of more than one Medicare provider within its system, can more than one hospital within the PHO be designated a Medicare Value-Based Care Center even if they are located in the same market area?

**A:** Yes, hospitals within the same PHO which qualify individually for participation in the ACE Demonstration may each be designated as Medicare Value-Based Care Centers, even if they are in the same market area. The PHO should submit a separate application and full set of tables for each unique Medicare provider number. Some of the application material may be repeated verbatim across more than one application for the same PHO. The review panel will consider each application individually and may award one or multiple hospital providers within a PHO.

16. **Q:** If a PHO operates more than one hospital under a single Medicare provider number and applies for participation in the ACE Demonstration, can it apply on behalf of one or more but not all hospitals within its system?

**A:** A PHO may apply for participation on behalf of multiple hospitals functioning under the same Medicare provider number, but only if all hospitals that perform covered ACE demonstration procedures meet the provider participation criteria. Applicants with more than one hospital must make clear which particular hospital(s) will perform the covered ACE procedures. For each of these hospitals, the PHO must complete an additional set of Tables 1 through 11 within the ACE Guidance Pre-Formatted Microsoft Excel Table Shells. Tables 12 and 13 should be completed only once for each application, as there should be only one set of cardiac and/or orthopedic bids submitted for each Medicare provider number. However, the information in Tables 12 and 13 should be repeated for each hospital providing demonstration services to aid in the application review process.

Demonstration status cannot be awarded to a PHO if, under a single Medicare provider number, it includes one or more hospitals that are approved by the review panel, but also one or more hospitals that do not meet the participation criteria yet continue to perform the covered ACE demonstration procedures. A PHO facing these circumstances must be prepared to consolidate care for demonstration beneficiaries at the hospitals that meet the established procedure volumes and other participation criteria. Except in emergency situations, it is
Medicare’s intention that demonstration beneficiaries will receive care only at hospital sites that meet the stated participation criteria.

17. Q: Please provide guidance on CMS’ expectations regarding application submission for hospitals applying for both cardiac and orthopedic care

A: The ACE Application Review Panel requires one application for each hospital with a unique Medicare provider identification number (whether the hospital is applying for cardiac, orthopedic or both service lines). A full application includes addressing the ten elements in the Medicare Waiver Demonstration Application as well as completing the 13 tables within the ACE Guidance Pre-Formatted Microsoft Excel Table Shells. The ACE Solicitation provides guidance and evaluation criteria.

18. Q: Which DRGs and MS-DRGs should be used in calculating the quality measures in Table 11 of the ACE Guidance Pre-Formatted Table Shells requested as part of the ACE Demonstration application?

A: On Table 11 of the ACE Guidance Pre-Formatted Microsoft Excel Table Shells, CMS has requested quality measurement data by procedure category for Calendar Year 2007. Table 11 asks only for data on Medicare cases for procedures covered under this demonstration and it asks for it by Calendar Year, in order to make sure that the reported 2007 quality measures can be compared to subsequent reporting throughout the demonstration period. We note that Tables 5 and 7 also ask for historical case data within these same procedure categories, but they ask for case counts by Fiscal Year, and they list all the DRGs with which the procedures are associated. The intention of these earlier two tables is to demonstrate that applicants have enough experience with these procedures. Consequently the requested data in Tables 5 and 7 include both Medicare and non-Medicare experience, and the associated DRGs include some that will have provided relevant procedure experience even though they do not crosswalk to one of the 37 ACE-covered MS-DRGs.

Table 11 data, however, should be restricted to the DRGs that are covered under the ACE demonstration. A chart is now available to help prospective sites determine which DRGs and MS-DRGs to include in the measurement calculations for Table 11. Medicare DRGs were in use from 1/1/2007 until 9/30/2007, and Medicare Severity (MS) DRGs were in use from 10/1/2007 until 12/31/2007.

List of DRGs to be included for calendar year 2007 utilization and quality measures (Table 11)

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<thead>
<tr>
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<tbody>
<tr>
<td>Cardiac valve &amp; other major cardiothoracic</td>
<td>104, 105</td>
<td>216</td>
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<td></td>
<td></td>
<td>217</td>
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<tr>
<td>Procedure</td>
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<td>----------------------------------------------------------------</td>
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<tr>
<td>Defibrillator implants, w/out catheterization</td>
<td>219, 220, 221</td>
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<tr>
<td>Coronary artery bypass graft (CABG)</td>
<td>106, 547, 548, 549, 550</td>
<td></td>
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<tr>
<td>Percutaneous coronary intervention (PCI)</td>
<td>518, 555, 556, 557, 558</td>
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<tr>
<td>Cardiac pacemaker Implant or Revision</td>
<td>117, 118, 551, 552</td>
<td></td>
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<tr>
<td>Hip or knee replacement or revision</td>
<td>471, 544, 545, 503</td>
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