NQF Review #:

THE NATIONAL QUALITY FORUM

COMPOSITE MEASURE SUBMISSION FORM
Version 4.1 January 2010

This form will be used by stewards to submit **composite** measures and by reviewers to evaluate the measures.

Measure Stewards: Check with NQF staff before using this form. Complete all non-shaded areas of the form. All requested information should be entered directly into this form. The information requested is directly related to NQF's composite measure evaluation criteria and will be used by reviewers to determine if the evaluation criteria have been met. The specific relevant subcriteria language is provided in a Word comment within the form and will appear if your cursor is over the highlighted area (or in balloons).

The measure steward has the opportunity to identify and present the information that demonstrates the measure meets the criteria. Additional materials will only be considered supplemental. Do not rely solely on materials provided at URLs or in attached documents to provide measure specifications or to demonstrate meeting the criteria. If supplemental materials are provided, be sure to indicate specific page numbers/ web page locations for the relevant information (web page links preferred).

For questions about completing this form, contact the project director at 202-783-1300. Please email this form to the appropriate contact listed in the corresponding call for measures.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 0965 **NQF Project:**
De.1 **Title of Measure:** Patients with an ICD implant who receive prescriptions for all medications (ACE/ARB and beta blockers) for which they are eligible for at discharge
De.2 **Brief description of measure** (*including type of score, measure focus, target population, time, e.g., Percentage of adult patients aged 18-75 years receiving one or more HbA1c tests per year*): Proportion of patients with an ICD implant who receive prescriptions for all medications (ACE/ARB and beta blockers) for which they are eligible for at discharge (all-or-none composite measure of two medication classes).
De.3 **Type of Measure:** ☒ Composite with component measures combined at patient-level (e.g., all-or-none) ☐ Composite with component measures combined at aggregate-level
Select the most relevant priority area(s), quality domain(s), and consumer need(s). De.4 **National Priority Partners Priority Area** ☐ patient and family engagement ☐ population health ☐ safety ☐ care coordination ☐ palliative and end of life care ☐ overuse

De.5 IOM Quality Domain ☒ effectiveness ☐ efficiency ☐ equity ☐ patient-centered ☐ safety ☒ timeliness

De.6 Consumer Care Need ☒ Getting Better ☒ Living With Illness ☐ Staying Healthy

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property agreement (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* **A.1 Do you attest that the measure steward holds intellectual property rights to the measure and the right to use any aspects of the measure owned by another entity (e.g., component measures, risk model, code set)?** ☒ Yes **A.2 Measure Steward Agreement** ☒ Signed and Submitted **OR** ☐ Government entity–public domain (If measure steward agreement not signed for non-government entities, do not submit) **A.3 Please check if either of the following apply:** ☐ Proprietary Measure ☐ Proprietary Complex Measure w/fees	**A** Y☐ N☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. **B.1** ☒ Yes (If no, do not submit)	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. **C.1 Purpose:** ☒ Public reporting ☒ Internal quality improvement **C.2** ☐ Accountability ☐ Accreditation ☐ Payment incentive ☐ Other, describe: (If not intended for both public reporting and quality improvement, do not submit)	**C** Y☐ N☐
D. The requested measure submission information is complete. Composite measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. **D.1 Testing:** ☒ Fully developed and tested (If composite measure not tested, do not submit) **D.2 Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** ☒ Yes (If no, do not submit) *If there are similar or related measures, be sure to address items 3b and 3c with specific information.* ►**Is all requested information entered into this form?** ☒ Yes (If no, do not submit)	**D** Y☐ N☐
De.7 If component measures of the composite **are aggregate-level measures, all** must be either NQF-endorsed or submitted for consideration for NQF endorsement (*check one*) ☐ All component measures are NQF-endorsed measures ☒ Some or all component measures are not NQF-endorsed and have been submitted using the online measure submission tool (If not, do not submit)	Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** Staff Notes to Steward (if submission returned):	**Met** Y☐ N☐
Staff Notes to Reviewers (issues or questions regarding any criteria):	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:

Comment [KP1]: The individual measures included in the composite or subcomposite measures must be either:
NQF-endorsed;
OR
assessed to have met the individual measure evaluation criteria as the first step in evaluating the composite measure.
(This does not apply to subscales of a scale/instrument that cannot be used independently of the total scale.)

NQF Review #:

Steering Committee Reviewer Name:

1. IMPORTANCE TO MEASURE AND REPORT

Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. *Measures must be judged to be important to measure and report in order to be evaluated against the remaining criteria.* (composite measure evaluation criteria)

Eval

(for NQF staff use) **Specific NPP goal**:

1d. Purpose/objective of the Composite

1d.1 Describe the purpose/objective of the composite measure: This measure is intended to assess the extent to which eligible patients receive evidence-based medications that are indicated at hosptial discharge following ICD placement.

1d.2 Describe the quality construct used in developing the composite: This measure focuses on processes of care that are supported by guidelines for optimal care for patients undergoing ICD placement.

Comment [KP2]: 1d. The purpose/objective of the composite measure and the construct for quality are clearly described.

C☐ P☐ M☐ N☐

1e. Components and conceptual construct for quality

1e.1 Describe how the component measures/items are consistent with and representative of the quality construct: Each of the components of this measure address appropriate medication prescribing at discharge for ICD patients.

Comment [KP3]: 1e. The component items/measures (e.g., types, focus) that are included in the composite are consistent with and representative of the conceptual construct for quality represented by the composite measure. Whether the composite measure development begins with a conceptual construct or a set of measures, the measures included must be conceptually coherent and consistent with the purpose.

If the component measures are combined at the patient level, complete 1a, 1b, and 1c.

If the component measures are combined at the aggregate level, skip to criterion 2, *Scientific Acceptability of Measure Properties* (individual measures are either NQF-endorsed or submitted individually).

1a. High Impact

1a.1 Demonstrated high impact aspect of healthcare (*Select the most relevant*)

☒ affects large numbers ☒ frequently performed procedure ☒ leading cause of morbidity/mortality ☒ high resource use ☒ severity of illness ☐ patient/societal consequences of poor quality ☐ other, describe: **1a.2**

1a.3 Summary of Evidence of High Impact: Optimal medical therapy is critical to ensure favorable patient outcomes following implantation of an implantable cardiac defibrillator (ICD) to prevent sudden cardiac death (SCD). In 2006, 114,000 inpatient defibrillator implantations were performed. The mean hospital charge for ICD procedures was $115,763. Approximately 81 million American adults have 1 or more types of CVD, with 5.8 million having heart failure. Over 30% of all deaths are related to CVD. Over 90% of patients receiving an ICD for primary prevention have ejection fraction under 40%, while 70% of patients receiving an ICD for secondary prevention have an ejection fraction under 40%. Therefore, it is critical that these patients receive discharge medications to treat left ventricular systolic dysfunction to reduce associated morbidity and mortality, as well as repeat hospitalizations and procedures.

1a.4 Citations for Evidence of High Impact: American Heart Association. Heart disease and stroke statistics- 2010 update: A report of the American Heart Association.
Available at: http://circ.ahajournals.org/cgi/content/abstract/CIRCULATIONAHA.109.192667v1. Accessed December 3, 2010.

Comment [KP4]: 1a. The measure focus addresses:
- a specific national health goal/priority identified by NQF's National Priorities Partners; OR
- a demonstrated high impact aspect of healthcare (e.g., affects large numbers, leading cause of morbidity/mortality, high resource use (current and/or future), severity of illness, and patient/societal consequences of poor quality).

1a H☐ M☐ L☐ N☐

1b. Opportunity for Improvement

1b.1 Briefly explain benefits (improvements in quality) envisioned by use of this measure: This measure is intended to improve rates of evidence-based medication prescribing for patients following ICD implantation to improve outcomes associated with cardiovascular disease.

1b.2 Summary of data demonstrating performance gap (*variation or overall poor performance across providers*)**:** Data from 518,695 patients from 1475 facilities in 2009 ranged from 40.0% at he 5th percentile, to 100.00% at the 95th percentile. The median was 73.3%.

1b.3 Citations for data on performance gap: Unpublished NCDR data, see supplemental documentation.

1b.4 Summary of Data on disparities by population group: Data from the ICD registry were stratified by safety net

Comment [KP5]: 1b. Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating considerable variation, or overall poor performance, in the quality of care across providers and/or population groups (disparities in care).

1b H☐ M☐ L☐ N☐

status, age, gender, and race. No significant disparities were found. Please see results in 2h in this form, as well as supplemental documentation provided.

1b.5 Citations for data on Disparities: Unpublished NCDR data.

1c. Evidence-based

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population.)* This measure is intended to improve rates of evidence-based medication prescribing for patients following ICD placement to improve outcomes associated with cardiovascular disease.

1c.2 Type of Evidence *(Check all that apply)*
☐ Cohort study ☒ Evidence-based guideline ☐ Expert opinion ☐ Meta-analysis
☐ Observational study ☐ Randomized controlled trial ☐ Systematic synthesis of research
☐ Other (*Please describe*): **1c.3**

1c.4 Summary of Evidence *as described above for type of measure; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:** Several large randomized clinical trials have demonstrated the efficacy of ACE inhibitor or ARB use in preventing adverse outcomes for patients with left ventricular systolic dysfunction. A systematic review of the evidence supporting use of ACE inhibitors for heart failure assessed ACE inhibitor use for 12,763 patients followed for an average of 35 months. Mortality was found to be lower for all trials reviewed (23.0% vs. 26.8%, odds ratio 0.8), as were readmission rates and rates of MI. Benefits of ACE therapy were independent of age, sex, and baseline use of diuretics, aspirin, and beta blockers.

There has been substantial research to support the use of beta blockers in patients with chronic heart failure. Many studies have consistently shown a substantial reduction in the rate of mortality and morbidity, as well as improvement in symptoms with the use of beta-blocker therapy. Meta-analyses have shown beta blockers to be beneficial in the regardless of age in men or women, in diabetics, and in nondiabetics. Meta analyses of randomized trials and observational studies have shown a substantial reduction in mortality as a result of beta blocker therapy. These studies have shown that beta blockers reduce mortality by approximately 23% in prospective trials and up to 40% in observational studies.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom*) Level of Evidence A: Data derived from multiple randomized clinical trials or meta-analyses.
1c.6 Method for rating evidence: The weight of evidence in support of the recommendation is listed as follows:
• Level of Evidence A: Data derived from multiple randomized clinical trials or meta-analyses.
• Level of Evidence B: Data derived from a single randomized trial or nonrandomized studies.
• Level of Evidence C: Only consensus opinion of experts, case studies, or standard-of-care

1c.7 Summary of Controversy/Contradictory Evidence: N/A

1c.8 Citations for Evidence (*other than guidelines*) Flather MD, Yusuf S, Kober L, et al. Long-term ACE-inhibitor therapy in patients with heart failure or left-ventricular dysfunction: a systematic overview of data from individual patients. ACE-Inhibitor Myocardial Infarction Collaborative Group. Lancet.2000;355:1575-81.

Packer M, Fowler MB, Roecker EB, et al. Effect of carvedilol on the morbidity of patients with severe chronic heart failure: results of the carvedilol prospective randomized cumulative survival (COPERNICUS) study. Circulation. 2002;106:2194-9. Effect of metoprolol CR/XL in chronic heart failure: Metoprolol CR/XL Randomised Intervention Trial in Congestive Heart Failure (MERIT-HF). Lancet. 1999;353:2001-7.

The Cardiac Insufficiency Bisoprolol Study II (CIBIS-II): a randomised trial. Lancet. 1999;353:9-13. Dulin BR, Haas SJ, Abraham WT, et al. Do elderly systolic heart failure patients benefit from beta blockers to the same extent as the non-elderly? Meta-analysis of >12,000 patients in large-scale clinical trials. Am J Cardiol. 2005;95:896-8.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number*)
ACC/AHA Secondary Prevention Guidelines:
ACE inhibitors:
• Start and continue indefinitely in all patients with left ventricular ejection fraction </=40% and in those with hypertension, diabetes, or chronic kidney disease, unless contraindicated. I (A)

1c
H☐
M☐
L☐
N☐

Comment [KP6]: 1c. The measure focus is:
•an outcome (e.g., morbidity, mortality, function, health-related quality of life) that is relevant to, or associated with, a national health goal/priority, the condition, population, and/or care being addressed;
OR
•if an intermediate outcome, process, structure, etc., there is **evidence** that supports the specific measure focus as follows:
oIntermediate outcome – evidence that the measured intermediate outcome (e.g., blood pressure, Hba1c) leads to improved health/avoidance of harm or cost/benefit.
oProcess – evidence that the measured clinical or administrative process leads to improved health/avoidance of harm and
if the measure focus is on one step in a multi-step care process, it measures the step that has the greatest effect on improving the specified desired outcome(s).
oStructure – evidence that the measured structure supports the consistent delivery of effective processes or access that lead to improved health/avoidance of harm or cost/benefit.
oPatient experience – evidence that an association exists between the measure of patient experience of health care and the outcomes, values and preferences of individuals/ the public.
oAccess – evidence that an association exists between access to a health service and the outcomes of, or experience with, care.
Efficiency – demonstration of an association between the measured resource use and level of performance with respect to one or more of the other five IOM aims of quality.

• Consider for all other patients. I (B)
• Among lower-risk patients with normal left ventricular ejection fraction in whom cardiovascular risk factors are well controlled and revascularization has been performed, use of ACE inhibitors may be considered optional. IIa (B)
Angiotensin receptor blockers:
• Use in patients who are intolerant of ACE inhibitors and have heart failure or have had a myocardial infarction with left ventricular ejection fraction </=40%. I (A)
• Consider in other patients who are ACE inhibitor intolerant. I (B)
• Consider use in combination with ACE inhibitors in systolic-dysfunction heart failure. IIb (B) (Page 2132)
ACC/AHA Heart Failure Guidelines (2005, 2009 Update)
13. In patients with reduced ejection fraction experiencing a symptomatic exacerbation of HF requiring hospitalization during chronic maintenance treatment with oral therapies known to improve outcomes, particularly ACEIs or ARBs and betablocker therapy, it is recommended that these therapies be continued in most patients in the absence of hemodynamic instability or contraindications. (Level of Evidence: C) (Page e47)

14. In patients hospitalized with HF with reduced ejection fraction not treated with oral therapies known to improve outcomes, particularly ACEIs or ARBs and beta-blocker therapy, initiation of these therapies is recommended in stable patients prior to hospital discharge. (Level of Evidence: B) (Page e47)
17. Comprehensive written discharge instructions for all patients with a hospitalization for HF and their caregivers is strongly recommended, with special emphasis on the following 6 aspects of care: diet; discharge medications, with a special focus on adherence, persistence, and uptitration to recommended doses of ACEI/ARB and beta-blocker medication; activity level; follow-up appointments; daily weight monitoring; and what to do if HF symptoms worsen. (Level of Evidence: C) (Page e48)

ACC/AHA Secondary Prevention Guidelines (2006), Beta Blockers:
-Start and continue indefinitely in all patients who have had myocardial infarction, acute coronary syndrome, or left ventricular dysfunction with or without heart failure symptoms, unless contraindicated. I (A)
-Consider chronic therapy for all other patients with coronary or other vascular disease or diabetes unless contraindicated. IIa (C) (Page 2132) ACC/AHA Heart Failure Guidelines (2005, 2009 Update)
13. In patients with reduced ejection fraction experiencing a symptomatic exacerbation of HF requiring hospitalization during chronic maintenance treatment with oral therapies known to improve outcomes, particularly ACEIs or ARBs and beta-blocker therapy, it is recommended that these therapies be continued in most patients in the absence of hemodynamic instability or contraindications. (Level of Evidence: C) (Page e47)
14. In patients hospitalized with HF with reduced ejection fraction not treated with oral therapies known to improve outcomes, particularly ACEIs or ARBs and beta-blocker therapy, initiation of these therapies is recommended in stable patients prior to hospital discharge (569,570). (Level of Evidence: B) (Page e47)

15. Initiation of beta-blocker therapy is recommended after optimization of volume status and successful discontinuation of intravenous diuretics, vasodilators, and inotropic agents. Beta-blocker therapy should be initiated at a low dose and only in stable patients. Particular caution should be used when initiating beta blockers in patients who have required inotropes during their hospital course (569,570). (Level of Evidence: B) (Page e47)
17. Comprehensive written discharge instructions for all patients with a hospitalization for HF and their caregivers is strongly recommended, with special emphasis on the following 6 aspects of care: diet; discharge medications, with a special focus on adherence, persistence, and uptitration to recommended doses of ACEI/ARB and beta-blocker medication; activity level; follow-up appointments; daily weight monitoring; and what to do if HF symptoms worsen. (Level of Evidence: C) (Page e48)

1c.10 Clinical Practice Guideline Citation: 1.Smith SC, Jr., Allen J, Blair SN, et al. AHA/ACC guidelines for secondary prevention for patients with coronary and other atherosclerotic vascular disease: 2006 update endorsed by the National Heart, Lung, and Blood Institute. J Am Coll Cardiol. 2006;47:2130-9.
2.Hunt SA, Abraham WT, Chin MH, et al. 2009 Focused update incorporated into the ACC/AHA 2005 Guidelines for the Diagnosis and Management of Heart Failure in Adults A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines Developed in Collaboration With the International Society for Heart and Lung Transplantation. J Am Coll Cardiol. 2009;53:e1-e90.
1c.11 National Guideline Clearinghouse or other URL: Http://www.cardiosource.org/Science-And-Quality/Practice-Guidelines-and-Quality-Standards.aspx

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom*) Class 1: Conditions for which there is evidence and/or general agreement that a given procedure or treatment is beneficial, useful and effective.

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF*)**:** ACC/AHA Taskforce on Practice Guidelines Method: Indications are categorized as class I, II, or III on the basis of a multifactorial assessment of risk and expected efficacy viewed in the context of current knowledge and the relative strength of this knowledge. These classes summarize the recommendations for procedures or treatments as follows: Class I: Conditions for which there is evidence for and/or general agreement that a given procedure or treatment is beneficial, useful, and effective. Class II: Conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of a procedure or treatment. Class IIa: Weight of evidence/opinion is in favor of usefulness/efficacy. Class IIb: Usefulness/efficacy is less well established by evidence/opinion. Class III: Conditions for which there is evidence and/or general agreement that a procedure/treatment is not useful/effective and in some cases may be harmful. **1c.14 Rationale for using this guideline over others:** These guidelines are the most widely recognized professional guidelines in the US for cardiovascular medicine for patients with cardiovascular disease.	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report***, met?** **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (composite measure evaluation criteria)	**Eval**
2a. COMPOSITE MEASURE SPECIFICATIONS	
In the future, NQF will require measure stewards to provide a URL link to a web page where current detailed specifications can be obtained? **S.1** Do you have a web page where current detailed measure specifications can be obtained? no, not at this time. **S.2** If yes, provide web page URL: 2a. Precisely Specified **2a.0.1 Components of the Composite** (*List the components, i.e., domains/sub-composites, individual measures. If component measures are NQF-endorsed, include NQF measure number*; if not NQF-endorsed, provide date of submission to NQF) 1.ACE/ARB prescribed at discharge for patients with left ventricular systolic dysfunction (LV ejection fraction <40%) without contraindications to ACE and ARB therapy. 2. Beta blockers prescribed at discharge for patients with left ventricular systolic dysrfunction (ejection fraction <40%) without contraindications to beta blocker therapy 3. Beta blockers prescribed at discharge for patients with a previous myocardial infarction without contraindications to beta blocker therapy.	
If the composite measure cannot be specified with a numerator and denominator, please consult with NQF staff. *If the component measures are combined at the aggregate level, do not include the individual measure specifications below.*	
2a.1 Composite Numerator Statement: Patients who receive all medications for which they are eligible. 1. ACE/ARB prescribed at discharge (if eligible for ACE/ARB as described in denominator) AND 2. Beta blockers prescribed at discharge (if eligible for beta blockers as described in denominator)	**2a-specs** **C☐** **P☐** **M☐** **N☐**

Comment [KP7]: 2a. The composite measure is well defined and precisely specified so that it can be implemented consistently within and across organizations and allow for comparability. Composite specifications include methods for standardizing scales across component scores, scoring rules (i.e., how the component scores are combined or aggregated), weighting rules (i.e., whether all component scores are given equal or differential weighting when combined into the composite), handling of missing data, and required sample sizes.

2a.2 Numerator Time Window: 1 year

2a.3 Numerator Details: Numerator: Count of ICD implant patients with

[(ACE/ARB=yes) AND [(EF<40) AND (ACE/ARB not contraindicated or blinded)]] AND

[[(Beta blocker=yes) AND [(EF<40) AND/OR (previous MI)]] AND (beta blockers not contraindicated or blinded)]

AND

[(Discharge status=alive) AND (Discharged Against Medical Advice=No)]

2a.4 Composite Denominator Statement:
All patients with an ICD implant surviving hospitalization who are eligible to receive any one of the two medication classes:

1) Eligiblility for ACE/ARB: Patients who have an ejection fraction (EF) of <40% AND do not have a documented contraindication to ACE/ARB documented

OR

2) Eligibility for beta blockers: Patients who do not have a documented contraindication to beta blocker therapy and have either:
a. EF of <40% OR
b. a previous myocardial infarction (MI)

2a.5 Target Population Gender ☒ Female ☒ Male
2a.6 Target Population Age range 18 years of age and older

2a.7 Denominator Time Window: 1 year

2a.8 Denominator Details: Denominator: Count of ICD implant patients with

[(EF<40) AND (ACE/ARB not contraindicated or blinded)] OR
[(EF<40) AND/OR (previous MI)] AND (beta blockers not contraindicated or blinded)]]

AND

[(Discharge status=alive) AND (Discharged against Medical Advice=No)]

Numerator: Count of ICD implant patients with

[(ACE/ARB=yes) AND [(EF<40) AND (ACE/ARB not contraindicated or blinded)]] AND

[[(Beta blocker=yes) AND [(EF<40) AND/OR (previous MI)]] AND (beta blockers not contraindicated or blinded)]

2a.9 Composite Denominator Exclusions: Discharge status of expired; not eligible for either ACE/ARB or beta blockers

2a.10 Denominator Exclusion Details: Medication prescribed at discharge coded as "contraindicated" or "blinded" for beta blocker or ACE/ARB. Discharge status=deceased.

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
N/A

2a.18 Type of Score: Non-weighted score/composite/scale **2a.19** If "Other", please describe:

2a.20 Interpretation of Score (*Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score*)
Better quality = Higher score

2a.42 Method of Scoring/Aggregation: all/any-or-none **2a.43 If "other" scoring method, describe:**

2a.44 Missing Component Scores (*Indicate how missing component scores are handled*): Patients who are eligible for a medication included in the measure but have missing values for the medication are excluded from eligibility for that measure in the same way that patients who are contraindicated or blinded are excluded.

2a.45 Weighting: ☒ **Equal** ☐ **Differential** **2a.46 If differential weighting, describe:**

2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps*)**:**
Denominator: Count of ICD implant patients with

[[(EF<40) AND (ACE/ARB not contraindicated or blinded)] OR
[[(EF<40) AND/OR (previous MI)] AND (beta blockers not contraindicated or blinded)]]

AND

[(Discharge status=alive) AND (Discharged against Medical Advice=No)]

Numerator: Count of ICD implant patients with

[(ACE/ARB=yes) AND [(EF<40) AND (ACE/ARB not contraindicated or blinded)]] AND

[[(Beta blocker=yes) AND [(EF<40) AND/OR (previous MI)]] AND (beta blockers not contraindicated or blinded)]

AND

[(Discharge status=alive) AND (Discharged Against Medical Advice=No)]

2a.22 Describe the method for discriminating performance (*e.g., significance testing*)**:**
Hospital performance for this measure will be benchmarked each quarter and annually against hospitals with similar procedural volume, as well as against the ICD Registry aggregate. These benchmarks identify superior performance and encourage poorer performers to improve. The methodology is a data-driven, peer-group performance feedback used to positively affect outcomes.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample (or conducting the survey) and guidance on minimum sample size (response rate)*:
N/A

2a.24 Data Source *Check all the source(s) used in the component measures.*

- ☐ Documentation of original self-assessment *(e.g., SF-36)*
- ☐ Electronic administrative data/ claims
- ☐ Electronic Clinical Data *(e.g., MDS)*
- ☐ Electronic Health/Medical Record
- ☐ External audit
- ☐ Lab data
- ☐ **M**anagement data
- ☐ Organizational policies and procedures
- ☐ Paper Medical Record/flowsheet
- ☐ Pharmacy data
- ☐ Public health data/vital statistics
- ☒ Registry data
- ☐ Survey-patient *(e.g., CAHPS)*
- ☐ Survey-provider
- ☐ Special or unique data, specify:

2a.25 Data source or collection instrument (*Identify the specific data source or data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.*): National Cardiovascular Data Registry (NCDR) ICD Registry

2a.26 Data source/data collection instrument attached ☐ **OR 2a.27 at web page URL:**
http://www.ncdr.com/WebNCDR/ICD/ELEMENTS.ASPX

2a.29 Data dictionary/code table attached ☐ **OR 2a.30 at web page URL:**
http://www.ncdr.com/WebNCDR/ICD/ELEMENTS.ASPX

2a.32 Level of Measurement/Analysis (*Check the level for which the measure is specified and tested*)

Clinicians: ☐ Individual ☐ Group ☐ Other
☒ Facility/Agency (e.g., hospital, nursing home)
☐ Health plan
☐ Integrated delivery system
☐ **M**ulti-site/corporate chain
Population: ☐ National ☐ Regional/network
☐ State ☐ Counties/Cities

☐ Prescription drug plan

Program: ☐ Disease management ☐ QIO
☐ Other

☐ Measured at all levels
☐ Other (*Please describe*):

2a.26 Care Settings (*Check the settings for which the measure is specified and tested; check all that apply*)
Ambulatory Care: ☐ Amb Surgery Center ☐ Office ☐ Clinic ☐ Emergency Dept ☒ Hospital Outpatient

☐ Assisted Living
☐ Behavioral health/psychiatric unit
☐ Dialysis Facility
☐ Emergency medical services/ambulance
☐ Group Home
☐ Home
☐ Hospice

☒ Hospital
☐ Long term acute care hospital
☐ Nursing home/ Skilled Nursing Facility (SNF)
☐ Rehabilitation Facility
☐ All settings
☐ Unspecified or "not applicable"
☐ Other (*Please describe*):

2a.38 Clinical Services (*Healthcare services being measured; all that apply.*)

Behavioral Health:
- ☐ Mental health
- ☐ Substance use treatment
- ☐ Other

Clinicians:
- ☐ Audiologist
- ☐ Chiropractor
- ☐ Dentist/Oral surgeon
- ☐ Dietician/Nutritional professional
- ☐ Nurses
- ☐ Optometrist
- ☒ PA/NP/Advanced Practice Nurse
- ☐ Pharmacist
- ☒ Physicians (MD/DO)
- ☐ Podiatrist
- ☐ Psychologist/LCSW
- ☐ PT/OT/Speech
- ☐ Respiratory Therapy
- ☐ Other

☐ Dialysis
☐ Home health
☐ Hospice/Palliative care
☐ Imaging services
☐ Laboratory
☐ Other

If the component measures are combined at the patient level and include outcomes, complete the following

2a.12 Risk Adjustment Type: ☒ No risk adjustment necessary ☐ analysis by subgroup ☐ case-mix adjustment ☐ paired data at patient level ☐ risk-adjustment devised specifically for this measure/condition ☐ risk adjustment method widely or commercially available
☐ Other (specify) **2a.13**

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**

2a.15 Detailed risk model attached ☐ **OR 2a.16 at web page URL:**

TESTING/ANALYSIS

2i. Component item/measure analysis to justify inclusion in composite

2i.1 Data/sample:

2i.2 Analytic Method:

2i.3 Results: This is an all-or-none approach to assessing whether patients receive all medications at discharge that they are eligible for following ICD placement. Correlation analyses are not needed to support this approach.

Comment [KP8]: 2i. Component item/measure analysis (e.g., various correlation analyses such as internal consistency reliability), demonstrates that the included component items/measures fit the conceptual construct;
OR
justification and results for alternative analyses are provided.

2j. Component item/measure analysis of contribution to variability in composite score

2j.1 Data/sample: 144,538 patient records from 1305 hospitals in the ICD registry from January 2009 to December 2009.

2j.2 Analytic Method: Distribution of performance by percentile to demonstrate variability across hospitals.

Comment [KP9]: 2j. Component item/measure analysis demonstrates that the included components contribute to the variation in the overall composite score;
OR
if not, justification for inclusion is provided.

2f.3. Measure Scores from Testing or Current Use (Description of scores, e.

2j.3 Results:
Beta blocker, LVSD:
Mean: 0.88
SD: 0.13
Quartile 1: 0.85
Median: 0.91
Quartile 3: 0.95
95%: 1.00

Beta blocker, Prior MI:
Mean: 0.874
SD: 0.137
Quartile 1: 0.833
Median: 0.903
Quartile 3: 0.955
95%: 1.00

ACE/ARB:
Mean: 0.77
SD: 0.17
Quartile 1: 0.71
Median: 0.79
Quartile 3: 0.87
95%: 1.00

2k. Analysis to support differential weighting of component scores

2k.1 Data/sample: N/A

2k.2 Analytic Method: N/A

2k.3 Results: N/A

2k.4 Describe how the method of scoring/aggregation achieves the stated purpose and represents the quality construct:

2k.5 Indicate if any alternative scoring/aggregation methods were tested and why not chosen:

2k
C☐
P☐
M☐
N☐

Comment [KP10]: 2k. The scoring/aggregation and weighting rules are consistent with the conceptual construct. (Simple, equal weighting is often preferred unless differential weighting is justified. Differential weights are determined by empirical analyses or a systematic assessment of expert opinion or values-based priorities.)

2l. Analysis of missing component scores

2l.1 Data/sample:

2l.2 Analytic Method:

2l.3 Results: Patients who are eligible for a medication included in the measure but have missing values for the medication are excluded from eligibility for that measure in the same way that patients who are contraindicated or blinded are excluded.

2l
C☐
P☐
M☐
N☐

Comment [KP11]: 2l. Analysis of missing component scores supports the specifications for scoring/aggregation and handling of missing component scores.

2b. Reliability testing of composite score

2b.1 Data/sample *(description of data/sample and size)***:** Reliability was established by validating the derivation cohort from 2009 data with a testing cohort from 2008 data. 130,593 patient records were analyzed from 1283 facilities.

2b.2 Analytic Method *(type of reliability & rationale, method for testing)***:** Reliability was established by validating the derivation cohort from 2009 data with a testing cohort from 2008 data.

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)***:** Results were consistent among the derivation cohort and the testing cohort. Specifically, the median for hospitals in

2b
C☐
P☐
M☐
N☐

Comment [KP12]: 2b. Reliability testing of the composite measure demonstrates the results are repeatable, producing the same results a high proportion of the time when assessed in the same population in the same time period.

the derivation cohort was 73.3% with the lowest decile 63.6% and highest decile 90.0%. This is similar to that observed in the testing cohort (median 72.2%, lowest decile 50.0%, highest decile 88.7%).

2c. Validity testing of composite score

2c.1 Data/sample *(description of data/sample and size)*: Face/content validity: review of relevant evidence and guidelines and expert panel consensus process.

2c.2 Analytic Method *(type of validity & rationale, method for testing)*: Face/content validity was established to ensure this measure represented an important aspect of cardiovascular care for which improvement is needed.

2c.3 Testing Results *(statistical results, assessment of adequacy in the context of norms for the test conducted)*: A review of the relevant evidence and guidelines and expert panel consensus process resulted in the conclusion that this is a valid measure of quality of cardiovascular care for patients with ICD placement where variation in practice exists.

Comment [KP13]: 2c. Validity testing of the composite measure demonstrates that the measure reflects the quality of care provided, adequately distinguishing good and poor quality. If face validity is the only validity addressed, it is systematically assessed.

2c
C☐
P☐
M☐
N☐

2f. Identification of Meaningful Differences in Performance Across Entities

2f.1 Data/sample from Testing or Current Use *(description of data/sample and size)*: 1475 facilities, 518,695 patients, 2009

2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance *(type of analysis & rationale)*: Distribution by quartile, mean, median, SD.

2f.3 Provide Measure Scores from Testing or Current Use *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)* :

Mean	71.09%
Std Deviation	17.81%
100%	100.00%
99%	100.00%
95%	100.00%
90%	90.00%
75% Q3	81.36%
50%	73.33%
25% Q1	63.64%
10%	50.00%
5%	40.00%
1%	0.00%
0% Min	0.00%

Comment [KP14]: 2f. Methods for scoring and analysis of the composite measure allow for identification of statistically significant and practically/ clinically meaningful differences in performance.

2f
C☐
P☐
M☐
N☐

2h. Disparities in Care

2h.1 If measure is stratified, provide stratified results *(scores by stratified categories/cohorts)*:

	Non-Safety Net	Safety Net
Mean	70.93%	71.25%
SD	17.45%	19.66%
100%	100.00%	100.00%
99%	100.00%	100.00%
95%	98.41%	100.00%
90%	89.66%	90.44%
75% Q3	80.91%	84.21%
50%	73.33%	73.33%
25% Q1	63.44%	64.19%
10%	50.00%	52.53%
5%	40.00%	27.27%
1%	0.00%	0.00%
0% Min	0.00%	0.00%

Comment [KP15]: 2h. If disparities in care have been identified, measure specifications, scoring, and analysis allow for identification of disparities through stratification of results (e.g., by race, ethnicity, socioeconomic status, gender);
OR
rationale/data justifies why stratification is not necessary or not feasible.

2h
C☐
P☐
M☐
N☐
NA☐

%White

	Q1	Q2	Q3	Q4
N	325	325	326	325
Mean	71.0%	71.0%	73.3%	69.0%
SD	17.3%	15.4%	13.0%	23.7%
100%	100.0%	100.0%	100.0%	100.0%
99%	100.0%	100.0%	100.0%	100.0%
95%	100.0%	94.0%	91.0%	100.0%
90%	90.4%	87.4%	88.9%	98.6%
75% Q3	80.3%	79.8%	82.7%	83.3%
50%	72.9%	72.2%	74.5%	74.2%
25% Q1	63.2%	63.9%	65.7%	60.5%
10%	51.1%	53.8%	55.6%	40.0%
5%	37.3%	42.9%	49.5%	0.0%
1%	14.5%	20.0%	40.3%	0.0%
0% Min	0.0%	0.0%	26.9%	0.0%

	Female	Male
N	1247	1293
Mean	71.4%	71.1%
SD	21.7%	18.7%
100%	100.0%	100.0%
99%	100.0%	100.0%
95%	100.0%	100.0%
90%	100.0%	91.0%
75% Q3	85.7%	82.4%
50%	74.5%	73.5%
25% Q1	61.5%	63.6%
10%	47.6%	50.0%
5%	29.2%	36.1%
1%	0.0%	0.0%
0% Min	0.0%	0.0%

2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:

If the component measures are combined at the patient level, complete 2d.

2d. Exclusions Justified

2d.1 Summary of Evidence supporting exclusion(s): Exclusions are based on expert consensus for appropriate contraindications for these medications.

2d.2 Citations for Evidence:

2d.3 Data/sample *(description of data/sample and size)*: 1475 facilities
518695 patients, 2009

2d.4 Analytic Method *(type analysis & rationale)*: Rate of exclusion coding.

2d.5 Testing Results *(e.g., frequency, variability, sensitivity analyses)*: Deceased 0.3%

If the component measures are combined at the patient level and include outcomes, complete 2e.

2e. Risk Adjustment

Comment [KP16]: 2d. Clinically necessary measure exclusions are identified and must be:
•supported by evidence of sufficient frequency of occurrence so that results are distorted without the exclusion;
AND
•a clinically appropriate exception (e.g., contraindication) to eligibility for the measure focus;
AND
•precisely defined and specified:
–if there is substantial variability in exclusions across providers, the measure is specified so that exclusions are computable and the effect on the measure is transparent (i.e., impact clearly delineated, such as number of cases excluded, exclusion rates by type of exclusion);
if patient preference (e.g., informed decision-making) is a basis for exclusion, there must be evidence that it strongly impacts performance on the measure and the measure must be specified so that the information about patient preference and the effect on the measure is transparent (e.g., numerator category computed separately, denominator exclusion category computed separately).

Comment [KP17]: 2e. For outcome measures and other measures (e.g., resource use) when indicated:
•an evidence-based risk-adjustment strategy (e.g., risk models, risk stratification) is specified and is based on patient clinical factors that influence the measured outcome (but not disparities in care) and are present at start of care; OR
rationale/data support no risk adjustment.

2e.1 **Data/sample** *(description of data/sample and size)*: N/A

2e.2 **Analytic Method** *(type of risk adjustment, analysis, & rationale)*:

2e.3 **Testing Results** *(risk model performance metrics)*:

2e.4 **If outcome or resource use measure is not risk adjusted, provide rationale:**

L☐ N☐ NA☐

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*

2

Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, **met?**
Rationale:

2
C☐ P☐ M☐ N☐

3. USABILITY

Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (composite measure evaluation criteria)

Eval

3a. Meaningful, Understandable, and Useful Information

3a.1 **Current Use:** ☐ In use ☒ Not in use

3a.2 **Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*):
ACCF plans to begin voluntary public reporting of NCDR measures, including this measure, by 2012. ACCF is currently evaluating public reporting options and finalizing decisions related to location and display of information to be reported as well as communication plans.

3a.3 **If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):**
This measure will be used in the ICD Registry for hospital benchmarking for quality improvement efforts within the next year.

Testing of Interpretability (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*)

3a.4 **Data/sample** *(description of data/sample and size)*: No data available.

3a.5 **Methods** *(methods, e.g., focus group, survey, QI project)*:

3a.6 **Results** *(qualitative and/or quantitative results and conclusions)*:

3a
C☐ P☐ M☐ N☐

3b/3c. Relation to other NQF-endorsed measures
Identify similar or related NQF-endorsed measures to components and/or composite

3b.1 **NQF # and Title of similar or related measures:**

(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**

3b. Harmonization

3b.2 **Are the component measure specifications harmonized, or if not, why?**
Yes, the component measures are harmonized with similar endorsed measures where possible.

3c. Distinctive or Additive Value

Comment [KP18]: 3a. Demonstration that information produced by the composite measure is meaningful, understandable, and useful to the intended audience(s) for both public reporting (e.g., focus group, cognitive testing) and informing quality improvement (e.g., quality improvement initiatives).

Comment [KP19]: 3b. The component measure specifications are harmonized.

Comment [KP20]: 3c. Review of existing endorsed measures and measure sets demonstrates that the composite measure provides a distinctive or additive value to existing NQF-endorsed measures (e.g., provides a more complete picture of quality for a particular condition or aspect of healthcare).

3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:
There is currently not an endorsed composite measure for medication prescribing at discharge following ICD implant.

5.1 Competing Measures If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), describe why it is a more valid or efficient way to measure quality:

C☐ P☐ M☐ N☐

Comment [k21]: 5. Demonstration that the measure is superior to competing measures – new submissions and/or endorsed measures (e.g., is a more valid or efficient way to measure).

3d. Decomposition of Composite
3d.1 Describe the information that is available from decomposing the composite into its components:
Please see calculation algorithm.

Comment [KP22]: 3d. Data detail is maintained such that the composite measure can be decomposed into its components to facilitate transparency and understanding.

3e. Achieved stated purpose
3e.1 Describe how the scores from testing or use reported in 2f demonstrate that the composite achieves the stated purpose: Current testing results of this measure demonstrate that there is a gap in performance for this measure.

Comment [KP23]: 3e. Demonstration (through pilot testing or operational data) that the composite measure achieves the stated purpose/objective.

C☐ P☐ M☐ N☐

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability*? **3**

Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **3**
Rationale:

C☐ P☐ M☐ N☐

4. FEASIBILITY

Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (composite measure evaluation criteria) **Eval**

4a. Data Generated as a Byproduct of Care Processes
4a.1 How are all the data elements that are needed to compute measure scores generated? (*Check all that apply*)
☒ Data are generated as a byproduct of care processes during care delivery (*Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition*)
☒ Coding/abstraction performed by someone other than person obtaining original information *(e.g., DRG, ICD-9 codes on claims; chart abstraction for quality measure, registry)*
☐ Survey
☐ Other *(e.g., patient experience of care surveys, provider surveys, observation)*, *Please describe*:

Comment [KP24]: 4a. For clinical composite measures, overall the required data elements are routinely generated concurrent with and as a byproduct of care processes during care delivery.

C☐ P☐ M☐ N☐

4b. Electronic Sources
4b.1 Are all the data elements available electronically? (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*)
☒ Yes ☐ No
4b.2 If no, specify the near-term path to achieve electronic capture by most providers.

Note: Measure stewards will be asked to specify the data elements for electronic health records at a later date

Comment [KP25]: 4b. The required data elements for the composite overall are available in electronic sources.

4b
C☐ P☐ M☐ N☐

4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences
4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.
Inaccuracies may occur if certified vendors export data incorrectly, in transmission of data from medical record to a paper form and then to the online data collection tool. Some sites may overcode medication exclusions.

A vendor certification process has been established to ensure high quality data collection and submission.
The NCDR audit program is in place to assess reliability of data abstraction. All elements required to capture this measure will be added upon NQF endorsement.

Comment [KP26]: 4d. Susceptibility to inaccuracies, errors, or unintended consequences and the ability to audit the data items to detect such problems are identified.

4d
C☐ P☐ M☐ N☐

4e. Data Collection Strategy/Implementation
4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the composite/component measures regarding data collection, availability of data/missing data, timing/frequency of

Comment [KP27]: 4e. Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, etc.) for obtaining all component measures can be implemented (e.g., already in operational use, or testing demonstrates that it is ready to put into operational use).

data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues: M☐ N☐

Beta testing with a set of registry participants takes place with each new registry version to identify errors in the data collection tool.

The Data Quality Report (DQR) program has been developed to ensure data are valid and complete. The DQR is a process for submitting data files to the NCDR®. Participants use their data collection tool software to create a submission file which is uploaded to the NCDR website. After uploading, the data in the file is automatically checked for errors and completeness. Passing the DQR ensures well-formed data and a statistically significant submission. Types of errors detected by the DQR include:

Schema:Structure doesn't match NCDR requirements Dates: Inconsistent dates

Selection: Missing or mismatched data; Can be a parent/child errors where a field requests more data.

Outlier: Anomalies or exceptions; Data exceeds the possible limits. For example: 1,000mm length lesion.

Counter: errors deal with Closure Methods, Lesions, and Intracoronary Devices. Each one has a counter, when more than one is used

List: Missing data in the Medications or either Device lists.

4.2 **Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:**

ICD registry participants pay a fee of $3,480/year (as of 2010) to enroll in the registry. Staff resources are needed for data collection and submission at the participating institution. Registry site managers/data collectors undergo (non-mandatory) training offered by the NCDR.

4e.3 **Evidence for costs:**

http://www.ncdr.com/WebNCDR/ncdrdocuments/B08352N%20ICD%20Registry%20Enrollment%20Packet%20Complete.pdf

4e.4 **Business case documentation:**

If the component measures are combined at the patient level, complete 4c.

4c
H☐
M
L
N
N

4c. Exclusions

4c.1 **Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** ☒ No ☐ Yes ►**If yes, provide justification**

Comment [KP28]: 4c. Exclusions should not require additional data sources beyond what is required for scoring the measure (e.g., numerator and denominator) unless justified as supporting measure validity.

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility*? **4**

Steering Committee: Overall, to what extent was the criterion, *Feasibility*, **met?** **4**
Rationale:
C☐
P☐
M☐
N☐

RECOMMENDATION

Steering Committee: Do you recommend for endorsement?
Comments:
Y☐
N☐
A☐

CONTACT INFORMATION

Co.1 **Measure Steward (Intellectual Property Owner)**
Organization: American College of Cardiology Foundation (ACCF)
Street Address: 2400 N St NW **City:** Washington **State:** DC **ZIP:** 20037

Co.2 **Point of Contact: First Name:** Kristyne **Last Name:** McGuinn **Credentials (MD, MPH, etc.):** MHS
Email: kmcguinn@acc.org **Telephone:** 202-375-6529 ext:

Co.3 **Measure Developer If different from Measure Steward**
Organization:
Street Address: **City:** **State:** **ZIP:**

Co.4 **Point of Contact: First Name:** **Last Name:** **Credentials (MD, MPH, etc.):**
Email: **Telephone:** ext:

Co.5 **Submitter**
Organization: ☒ Measure Steward ☐ Measure Developer

First Name: Kristyne **Last Name:** McGuinn **Credentials (MD, MPH, etc.):** MHS
Email: kmcguinn@acc.org **Telephone:** 202-375-6529 ext:

Co.6 List any additional organizations that sponsored/participated in measure development:

ADDITIONAL INFORMATION

Ad.1 Workgroup/Expert Panel involved in measure development
Provide a list of workgroup/panel member names and organizations. Describe the group's role in measure development.

ICD Registry Steering Committee:
Mark S. Kremers, MD, FACC, FHRS Chair
Stephen C. Hammill, MD, FACC, FHRS Ex-Officio
Sana M. Al-Khatib, MD, FACC
Charles I. Berul, MD, FACC
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Public Reporting Workgroup:
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Christopher White MD, FACC
Carl Tommaso, MD, FACC, FAHA, FSCAI
Sunil Rao, MD, FACC, FSCAI
Andrea Russo, MD, FACC, FHRS
Debabrata Mukherjee MD, FAC

Ad.2 If adapted, name of original measure:
Ad.3 If adapted, original specifications ☐ attachment or Ad.4 web page URL:

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 Year the measure was first released: 2011
Ad.7 Month and Year of most recent revision: March, 2011
Ad.8 What is the frequency for review/update of this measure? Annually
Ad.9 When is the next scheduled review/update for this measure? 2012

Ad.10 Copyright statement/disclaimers:

Ad.11 Additional Information ☒ attachment or web page URL:

I have checked that the submission is complete and all the information needed to evaluate the measure is provided in the form; any blank fields indicate that no information is provided. ☒

Date of Submission (*MM/DD/YY*)**:** 3/30/2011

ICD Registry Composite Measure Specifications

Therapy with ACE/ARB and beta blocker at discharge following ICD implantation in eligible patients Description: Patients with an ICD implant who receive prescriptions for all medications (ACE/ARB and beta blockers) for which they are eligible for at discharge	
Numerator	Patients who receive <u>all</u> medications <u>for which they are eligible</u>. 1. ACE/ARB prescribed at discharge (if eligible for ACE/ARB as described in denominator) AND 2. Beta blockers prescribed at discharge (if eligible for beta blockers as described in denominator)
Denominator	All patients with an ICD implant surviving hospitalization who are eligible to receive any one of the two medication classes: 1) <u>Eligiblility for ACE/ARB:</u> Patients who have an ejection fraction (EF) of <40% AND do not have a documented contraindication to ACE/ARB documented <u>OR</u> 2) <u>Eligibility for beta blockers:</u> Patients who do not have a documented contraindication to beta blocker therapy and have: a. EF of <40% **<u>OR</u>** b. a previous myocardial infarction (MI)
Inclusion Criteria	Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Discharge status of expired

Population	Patients with an ICD implant

Micro-specifications:

Key:
Y (yes) =Eligible and prescribed at discharge
N (no) =Eligible but not prescribed at discharge
Other = Not eligible

Eligibility and measure counts

	ACE	ARB	B Blocker	EF <40	Prev MI		Measure Eligibility (denominator)		Composite (numerator)
1	y	y	y	y	y		Yes		Yes
2	y	y	y	y	n		Yes		Yes
3	y	y	y	n	y		Yes		Yes
4	y	y	y	n	n		No		
5	y	y	n	y	y		Yes		No
6	y	y	n	y	n		Yes		No
7	y	y	n	n	y		Yes		No
8	y	y	n	n	n		No		
9	y	y	o	y	y		Yes		Yes
10	y	y	o	y	n		Yes		Yes
11	y	y	o	n	y		No		
12	y	y	o	n	n		No		
13	y	n	y	y	y		Yes		Yes
14	y	n	y	y	n		Yes		Yes
15	y	n	y	n	y		Yes		Yes
16	y	n	y	n	n		No		
17	y	n	n	y	y		Yes		No
18	y	n	n	y	n		Yes		No
19	y	n	n	n	y		Yes		No
20	y	n	n	n	n		No		
21	y	n	o	y	y		Yes		Yes
22	y	n	o	y	n		Yes		Yes

23	y	n	o	n	y		No	
24	y	n	o	n	n		No	
25	y	o	y	y	y		Yes	Yes
26	y	o	y	y	n		Yes	Yes
27	y	o	y	n	y		Yes	Yes
28	y	o	y	n	n		No	
29	y	o	n	y	y		Yes	No
30	y	o	n	y	n		Yes	No
31	y	o	n	n	y		Yes	No
32	y	o	n	n	n		No	
33	y	o	o	y	y		Yes	Yes
34	y	o	o	y	n		Yes	Yes
35	y	o	o	n	y		No	
36	y	o	o	n	n		No	
37	n	y	y	y	y		Yes	Yes
38	n	y	y	y	n		Yes	Yes
39	n	y	y	n	y		Yes	Yes
40	n	y	y	n	n		No	
41	n	y	n	y	y		Yes	No
42	n	y	n	y	n		Yes	No
43	n	y	n	n	y		Yes	No
44	n	y	n	n	n		No	
45	n	y	o	y	y		Yes	Yes
46	n	y	o	y	n		Yes	Yes
47	n	y	o	n	y		No	
48	n	y	o	n	n		No	
49	n	n	y	y	y		Yes	No
50	n	n	y	y	n		Yes	No
51	n	n	y	n	y		Yes	Yes
52	n	n	y	n	n		No	
53	n	n	n	y	y		Yes	No
54	n	n	n	y	n		Yes	No
55	n	n	n	n	y		Yes	No
56	n	n	n	n	n		No	
57	n	n	o	y	y		Yes	No
58	n	n	o	y	n		Yes	No
59	n	n	o	n	y		No	
60	n	n	o	n	n		No	

61	n	o	y	y	y		Yes	No
62	n	o	y	y	n		Yes	No
63	n	o	y	n	y		Yes	Yes
64	n	o	y	n	n		No	
65	n	o	n	y	y		Yes	No
66	n	o	n	y	n		Yes	No
67	n	o	n	n	y		Yes	No
68	n	o	n	n	n		No	
69	n	o	o	y	y		Yes	No
70	n	o	o	y	n		Yes	No
71	n	o	o	n	y		No	
72	n	o	o	n	n		No	
73	o	y	y	y	y		Yes	Yes
74	o	y	y	y	n		Yes	Yes
75	o	y	y	n	y		Yes	Yes
76	o	y	y	n	n		No	
77	o	y	n	y	y		Yes	No
78	o	y	n	y	n		Yes	No
79	o	y	n	n	y		Yes	No
80	o	y	n	n	n		No	
81	o	y	o	y	y		Yes	Yes
82	o	y	o	y	n		Yes	Yes
83	o	y	o	n	y		No	
84	o	y	o	n	n		No	
85	o	n	y	y	y		Yes	No
86	o	n	y	y	n		Yes	No
87	o	n	y	n	y		Yes	Yes
88	o	n	y	n	n		No	
89	o	n	n	y	y		Yes	No
90	o	n	n	y	n		Yes	No
91	o	n	n	n	y		Yes	No
92	o	n	n	n	n		No	
93	o	n	o	y	y		Yes	No
94	o	n	o	y	n		Yes	No
95	o	n	o	n	y		No	
96	o	n	o	n	n		No	
97	o	o	y	y	y		Yes	Yes
98	o	o	y	y	n		Yes	Yes

99	o	o	y	n	y		Yes		Yes
100	o	o	y	n	n		No		
101	o	o	n	y	y		Yes		No
102	o	o	n	y	n		Yes		No
103	o	o	n	n	y		Yes		No
104	o	o	n	n	n		No		
105	o	o	o	y	y		No		
106	o	o	o	y	n		No		
107	o	o	o	n	y		No		
108	o	o	o	n	n		No		

Therapy with ACE/ARB and beta blocker at discharge following ICD implantation in eligible patients- Testing Sample

Exclusions	Patient Stays		Patients		Facilities	
Total	**533188**	**100.0**	**518695**	**100.0**	**1475**	**100.0**
Discharge not in 2009	388650	72.9	375042	72.3	170	11.5
Remaining	**144538**	**27.1**	**143653**	**27.7**	**1305**	**88.5**
Died during hospital	457	0.3	455	0.3	0	0.0
Remaining	**144081**	**99.7**	**143198**	**99.7**	**1305**	**100.0**
Not eligible to the composite measure	18336	12.7	18188	12.7	4	0.3
Study Cohort	**125745**	**87.3**	**125010**	**87.3**	**1301**	**99.7**
The composite measure at discharge	92961	73.93	92502	74.00	1279	98.31

ICD Composite Measure Testing Results (ACC)

	DEFINITION								
	ACE	ARB	EF <40	B Blocker	Prev MI	Measure Eligibility (denominator)	Composite (numerator)	ACEARB	BB
1	y	y	y	y	y	Yes	Yes	Yes	Yes
2	y	y	y	y	n	Yes	Yes	Yes	Yes
3	y	y	n	y	y	Yes	Yes	N/A	Yes
4	y	y	n	y	n	No		N/A	N/A
5	y	y	y	n	y	Yes	No	Yes	No
6	y	y	y	n	n	Yes	No	Yes	No
7	y	y	n	n	y	Yes	No	N/A	No
8	y	y	n	n	n	No		N/A	N/A
9	y	y	y	o	y	Yes	Yes	Yes	Other
10	y	y	y	o	n	Yes	Yes	Yes	Other
11	y	y	n	o	y	No		N/A	Other
12	y	y	n	o	n	No		N/A	N/A
13	y	n	y	y	y	Yes	Yes	Yes	Yes
14	y	n	y	y	n	Yes	Yes	Yes	Yes
15	y	n	n	y	y	Yes	Yes	N/A	Yes
16	y	n	n	y	n	No		N/A	N/A
17	y	n	y	n	y	Yes	No	Yes	No
18	y	n	y	n	n	Yes	No	Yes	No
19	y	n	n	n	y	Yes	No	N/A	No
20	y	n	n	n	n	No		N/A	N/A
21	y	n	y	o	y	Yes	Yes	Yes	Other
22	y	n	y	o	n	Yes	Yes	Yes	Other
23	y	n	n	o	y	No		N/A	Other
24	y	n	n	o	n	No		N/A	N/A
25	y	o	y	y	y	Yes	Yes	Yes	Yes
26	y	o	y	y	n	Yes	Yes	Yes	Yes
27	y	o	n	y	y	Yes	Yes	N/A	Yes
28	y	o	n	y	n	No		N/A	N/A
29	y	o	y	n	y	Yes	No	Yes	No
30	y	o	y	n	n	Yes	No	Yes	No
31	y	o	n	n	y	Yes	No	N/A	No
32	y	o	n	n	n	No		N/A	N/A
33	y	o	y	o	y	Yes	Yes	Yes	Other
34	y	o	y	o	n	Yes	Yes	Yes	Other
35	y	o	n	o	y	No		N/A	Other
36	y	o	n	o	n	No		N/A	N/A
37	n	y	y	y	y	Yes	Yes	Yes	Yes
38	n	y	y	y	n	Yes	Yes	Yes	Yes
39	n	y	n	y	y	Yes	Yes	N/A	Yes
40	n	y	n	y	n	No		N/A	N/A
41	n	y	y	n	y	Yes	No	Yes	No

42	n	y	y	n	n		Yes		No	Yes	No
43	n	y	n	n	y		Yes		No	N/A	No
44	n	y	n	n	n		No			N/A	N/A
45	n	y	y	o	y		Yes		Yes	Yes	Other
46	n	y	y	o	n		Yes		Yes	Yes	Other
47	n	y	n	o	y		No			N/A	Other
48	n	y	n	o	n		No			N/A	N/A
49	n	n	y	y	y		Yes		No	No	Yes
50	n	n	y	y	n		Yes		No	No	Yes
51	n	n	n	y	y		Yes		Yes	N/A	Yes
52	n	n	n	y	n		No			N/A	N/A
53	n	n	y	n	y		Yes		No	No	No
54	n	n	y	n	n		Yes		No	No	No
55	n	n	n	n	y		Yes		No	N/A	No
56	n	n	n	n	n		No			N/A	N/A
57	n	n	y	o	y		Yes		No	No	Other
58	n	n	y	o	n		Yes		No	No	Other
59	n	n	n	o	y		No			N/A	Other
60	n	n	n	o	n		No			N/A	N/A
61	n	o	y	y	y		Yes		No	No	Yes
62	n	o	y	y	n		Yes		No	No	Yes
63	n	o	n	y	y		Yes		Yes	N/A	Yes
64	n	o	n	y	n		No			N/A	N/A
65	n	o	y	n	y		Yes		No	No	No
66	n	o	y	n	n		Yes		No	No	No
67	n	o	n	n	y		Yes		No	N/A	No
68	n	o	n	n	n		No			N/A	N/A
69	n	o	y	o	y		Yes		No	No	Other
70	n	o	y	o	n		Yes		No	No	Other
71	n	o	n	o	y		No			N/A	Other
72	n	o	n	o	n		No			N/A	N/A
73	o	y	y	y	y		Yes		Yes	Yes	Yes
74	o	y	y	y	n		Yes		Yes	Yes	Yes
75	o	y	n	y	y		Yes		Yes	N/A	Yes
76	o	y	n	y	n		No			N/A	N/A
77	o	y	y	n	y		Yes		No	Yes	No
78	o	y	y	n	n		Yes		No	Yes	No
79	o	y	n	n	y		Yes		No	N/A	No
80	o	y	n	n	n		No			N/A	N/A
81	o	y	y	o	y		Yes		Yes	Yes	Other
82	o	y	y	o	n		Yes		Yes	Yes	Other
83	o	y	n	o	y		No			N/A	Other
84	o	y	n	o	n		No			N/A	N/A
85	o	n	y	y	y		Yes		No	No	Yes

86	o	n	y	y	n		Yes		No	No	Yes
87	o	n	n	y	y		Yes		Yes	N/A	Yes
88	o	n	n	y	n		No			N/A	N/A
89	o	n	y	n	y		Yes		No	No	No
90	o	n	y	n	n		Yes		No	No	No
91	o	n	n	n	y		Yes		No	N/A	No
92	o	n	n	n	n		No			N/A	N/A
93	o	n	y	o	y		Yes		No	No	Other
94	o	n	y	o	n		Yes		No	No	Other
95	o	n	n	o	y		No			N/A	Other
96	o	n	n	o	n		No			N/A	N/A
97	o	o	y	y	y		Yes		Yes	Other	Yes
98	o	o	y	y	n		Yes		Yes	Other	Yes
99	o	o	n	y	y		Yes		Yes	N/A	Yes
100	o	o	n	y	n		No			N/A	N/A
101	o	o	y	n	y		Yes		No	Other	No
102	o	o	y	n	n		Yes		No	Other	No
103	o	o	n	n	y		Yes		No	N/A	No
104	o	o	n	n	n		No			N/A	N/A
105	o	o	y	o	y		No			Other	Other
106	o	o	y	o	n		No			Other	Other
107	o	o	n	o	y		No			N/A	Other
108	o	o	n	o	n		No			N/A	N/A

Reference 1. ACEIARB

LVEFLT40	ACEI	ARB	ACEIARB	#	%
No	No	No	N/A	3739	2.97
No	No	Yes	N/A	1692	1.35
No	No	Other	N/A	4	0.00
No	Yes	No	N/A	6408	5.10
No	Yes	Yes	N/A	283	0.23
No	Yes	Other	N/A	27	0.02
No	Other	No	N/A	149	0.12
No	Other	Yes	N/A	85	0.07
No	Other	Other	N/A	155	0.12
No	No/Yes/Other	No/Yes/Other	N/A	12542	9.97
Yes	No	No	No	21345	16.97
Yes	No	Yes	Yes	15320	12.18
Yes	No	Other	No	91	0.07
Yes	Yes	No	Yes	67942	54.03
Yes	Yes	Yes	Yes	2676	2.13
Yes	Yes	Other	Yes	413	0.33
Yes	Other	No	No	1770	1.41
Yes	Other	Yes	Yes	1149	0.91
Yes	Other	Other	Other	2497	1.99

* Other includes missing, conindicated, blinded.

Reference 2. BB

LVEFLT40	PREVMI	BB	#	%
No	Yes	No	1977	1.57
No	Yes	Yes	10565	8.40
Yes	No	No	5479	4.36
Yes	No	Yes	45966	36.55
Yes	No	Other	501	0.40
Yes	Yes	No	6109	4.86
Yes	Yes	Yes	54523	43.36
Yes	Yes	Other	625	0.50

* Other includes missing, conindicated, blinded.

Reference 2. Composite Measure (CM)

ACEIARB	BB	CM	#	%
No	No	No	3987	3.17
No	Yes	No	18917	15.04
No	Other	No	302	0.24
Yes	No	No	7421	5.90
Yes	Yes	Yes	79255	63.03
Yes	Other	Yes	824	0.66
Other	No	No	180	0.14
Other	Yes	Yes	2317	1.84
N/A	No	No	1977	1.57
N/A	Yes	Yes	10565	8.40

* Other includes missing, conindicated, blinded.

ICD Composite Measure Testing Results (ACC)

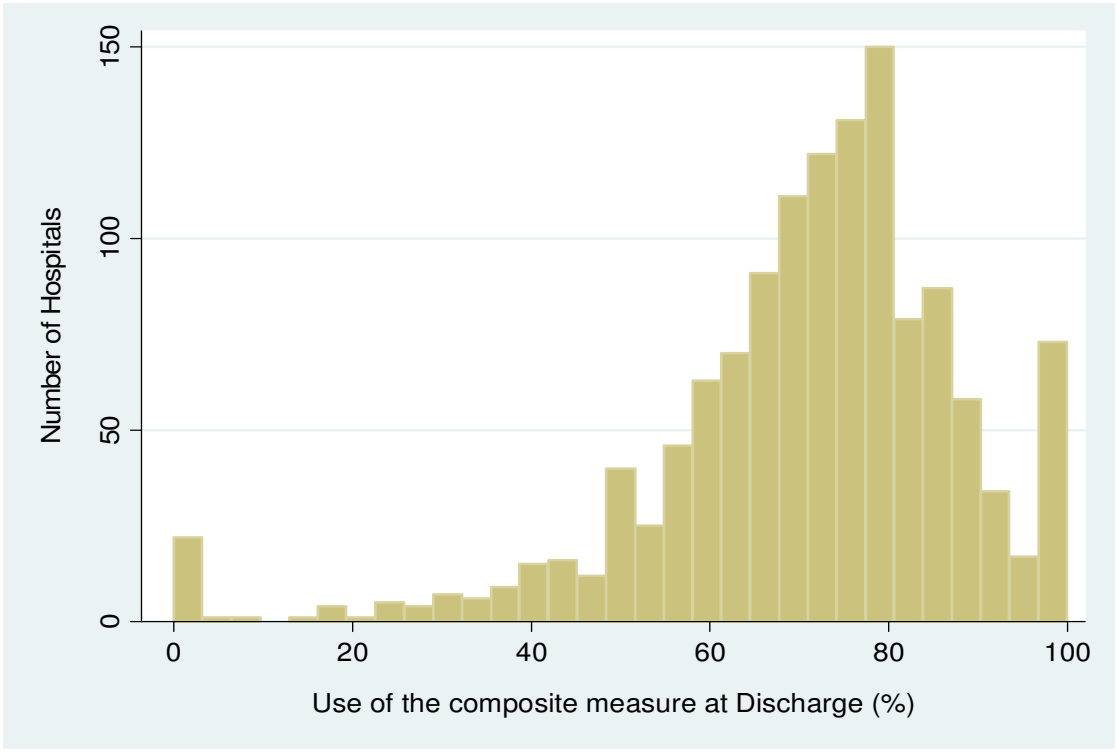
ROW	DACEI	DARB	LVEFLT40	DBB	PREVMI	DCM	DACEIARB	COUNT	PERCENT
55	0	0	0	0	1	0	3	832	0.66
51	0	0	0	1	1	1	3	2907	2.31
54	0	0	1	0	0	0	0	1870	1.49
53	0	0	1	0	1	0	0	1998	1.59
50	0	0	1	1	0	0	0	7685	6.11
49	0	0	1	1	1	0	0	9694	7.71
58	0	0	1	2	0	0	0	36	0.03
57	0	0	1	2	1	0	0	62	0.05
43	0	1	0	0	1	0	3	241	0.19
39	0	1	0	1	1	1	3	1451	1.15
42	0	1	1	0	0	0	1	744	0.59
41	0	1	1	0	1	0	1	848	0.67
38	0	1	1	1	0	1	1	6565	5.22
37	0	1	1	1	1	1	1	7001	5.57
46	0	1	1	2	0	1	1	77	0.06
45	0	1	1	2	1	1	1	85	0.07
67	0	2	0	0	1	0	3	2	0.00
63	0	2	0	1	1	1	3	2	0.00
66	0	2	1	0	0	0	0	6	0.00
65	0	2	1	0	1	0	0	4	0.00
62	0	2	1	1	0	0	0	34	0.03
61	0	2	1	1	1	0	0	33	0.03
70	0	2	1	2	0	0	0	7	0.01
69	0	2	1	2	1	0	0	7	0.01
19	1	0	0	0	1	0	3	807	0.64
15	1	0	0	1	1	1	3	5601	4.45
18	1	0	1	0	0	0	1	2480	1.97
17	1	0	1	0	1	0	1	2784	2.21
14	1	0	1	1	0	1	1	28532	22.69
13	1	0	1	1	1	1	1	33586	26.71
22	1	0	1	2	0	1	1	237	0.19
21	1	0	1	2	1	1	1	323	0.26
7	1	1	0	0	1	0	3	57	0.05
3	1	1	0	1	1	1	3	226	0.18
6	1	1	1	0	0	0	1	228	0.18
5	1	1	1	0	1	0	1	262	0.21
2	1	1	1	1	0	1	1	1019	0.81
1	1	1	1	1	1	1	1	1147	0.91
10	1	1	1	2	0	1	1	12	0.01
9	1	1	1	2	1	1	1	8	0.01
27	1	2	0	1	1	1	3	27	0.02
30	1	2	1	0	0	0	1	4	0.00
29	1	2	1	0	1	0	1	13	0.01
26	1	2	1	1	0	1	1	172	0.14
25	1	2	1	1	1	1	1	208	0.17
34	1	2	1	2	0	1	1	8	0.01
33	1	2	1	2	1	1	1	8	0.01
91	2	0	0	0	1	0	3	12	0.01
87	2	0	0	1	1	1	3	137	0.11
90	2	0	1	0	0	0	0	43	0.03
89	2	0	1	0	1	0	0	66	0.05
86	2	0	1	1	0	0	0	615	0.49
85	2	0	1	1	1	0	0	856	0.68
94	2	0	1	2	0	0	0	89	0.07

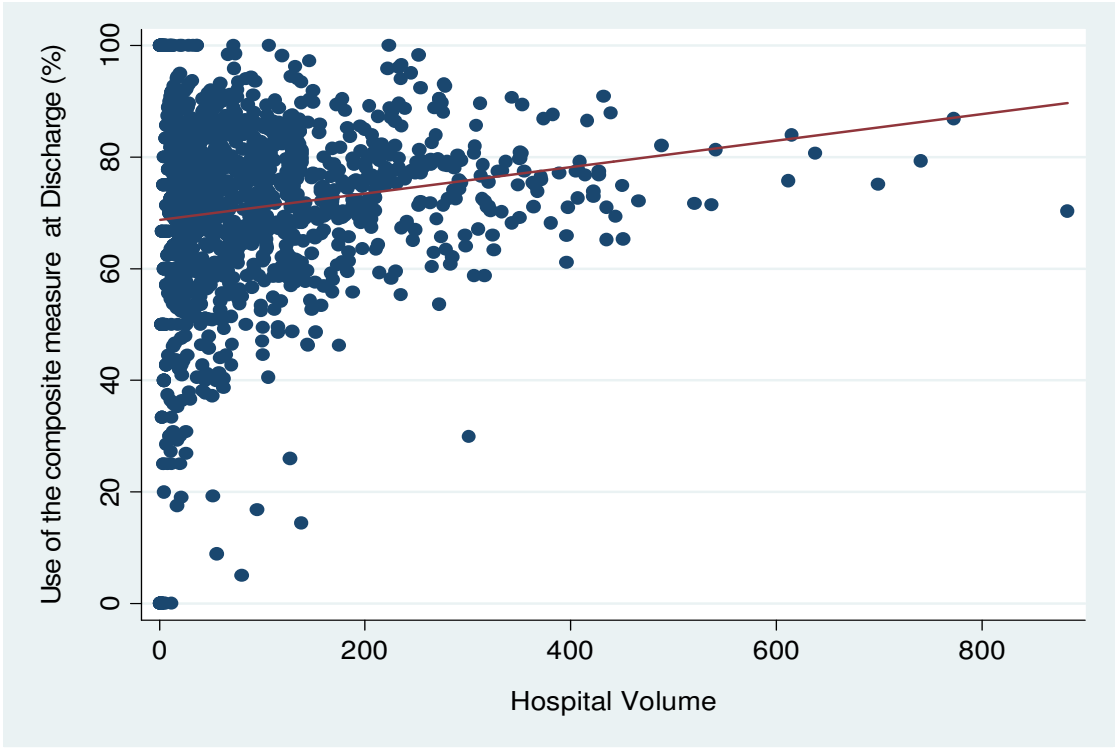
93	2	0	1	2	1	0	0	101	0.08
79	2	1	0	0	1	0	3	10	0.01
75	2	1	0	1	1	1	3	75	0.06
78	2	1	1	0	0	0	1	27	0.02
77	2	1	1	0	1	0	1	31	0.02
74	2	1	1	1	0	1	1	456	0.36
73	2	1	1	1	1	1	1	569	0.45
82	2	1	1	2	0	1	1	35	0.03
81	2	1	1	2	1	1	1	31	0.02
103	2	2	0	0	1	0	3	16	0.01
99	2	2	0	1	1	1	3	139	0.11
102	2	2	1	0	0	0	2	77	0.06
101	2	2	1	0	1	0	2	103	0.08
98	2	2	1	1	0	1	2	888	0.71
97	2	2	1	1	1	1	2	1429	1.14

Distribution of ICD Composite Measure at Discharge

Description	**Volume**	**DCM**
N	1301	1301
Mean	96.65	0.7109
Std Deviation	107.55	0.1781
100% Max	883	1.0000
99%	450	1.0000
95%	314	1.0000
90%	241	0.9000
75% Q3	131	0.8136
50% Median	60	0.7333
25% Q1	21	0.6364
10%	7	0.5000
5%	3	0.4000
1%	1	0.0000
0% Min	1	0.0000

ICD Composite Measure Testing Results (ACC)



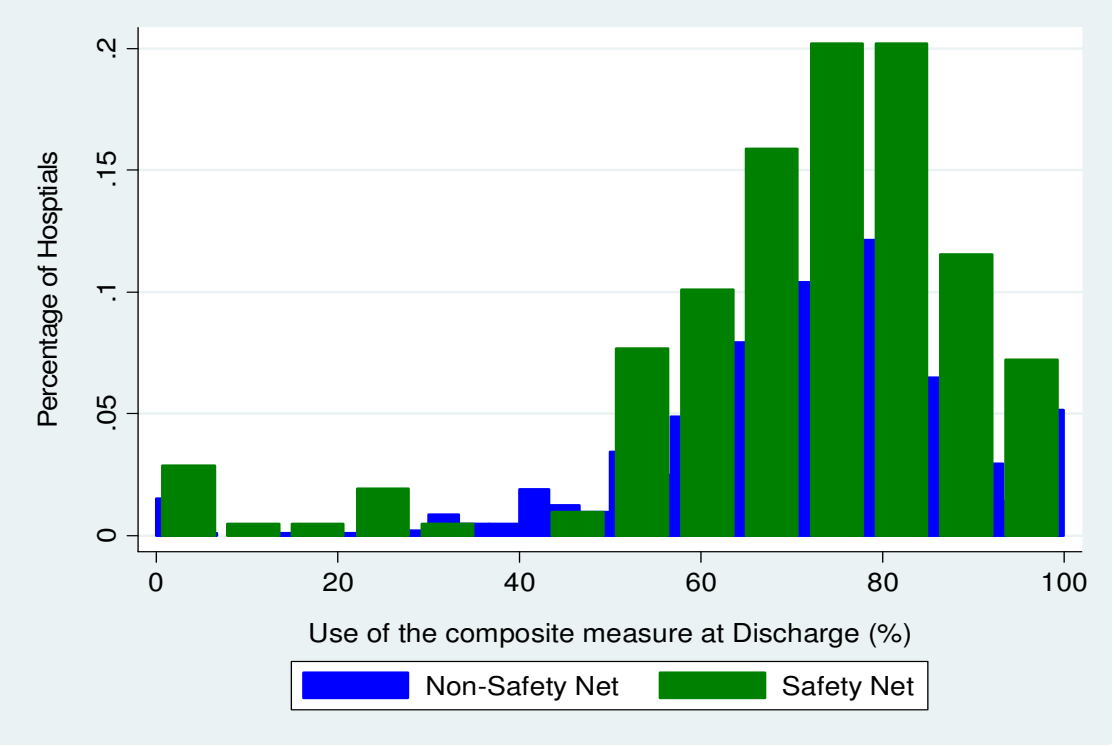


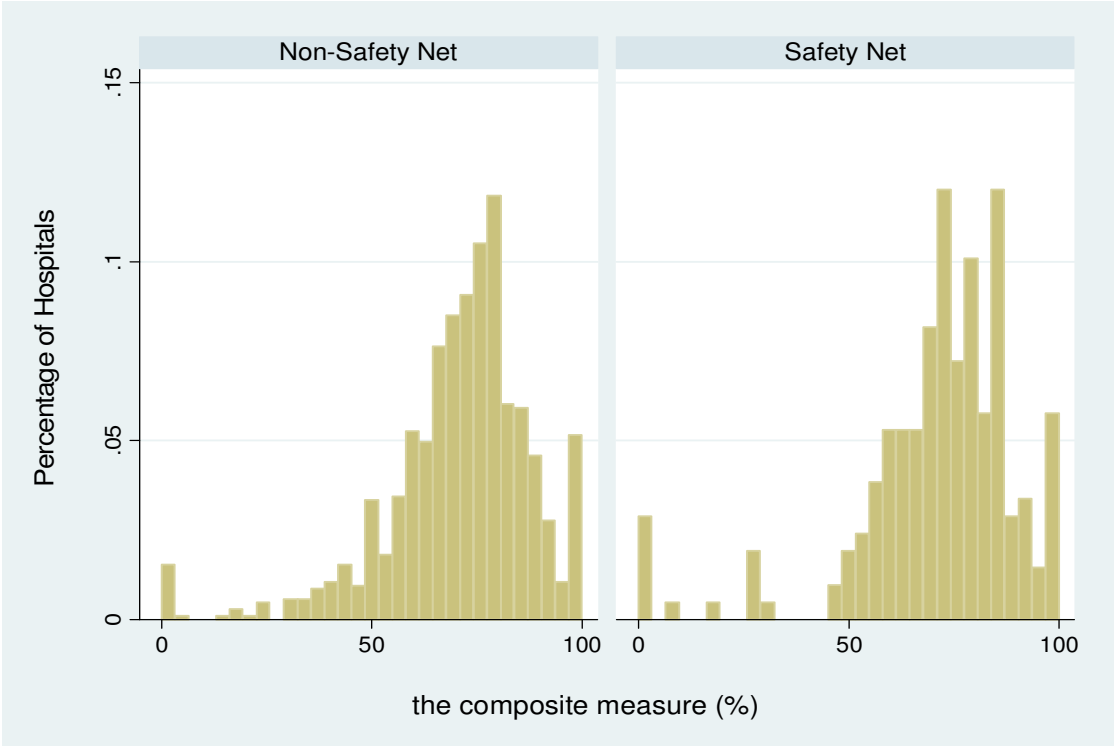
Distribution of ICD Composite Measure at Discharge Stratified by Safety Net Status

Description	Safety Net Status*			
	No		Yes	
	Volume	DCM	Volume	DCM
N	1047	1047	208	208
Mean	98.25	0.7093	90.38	0.7125
Std Deviation	107.95	0.1745	105.65	0.1966
100% Max	883	1.0000	612	1.0000
99%	450	1.0000	408	1.0000
95%	307	0.9841	319	1.0000
90%	241	0.8966	268	0.9044
75% Q3	134	0.8091	126	0.8421
50% Median	62	0.7333	48.5	0.7333
25% Q1	23	0.6344	19	0.6419
10%	7	0.5000	6	0.5253
5%	3	0.4000	3	0.2727
1%	1	0.0000	1	0.0000
0% Min	1	0.0000	1	0.0000

* Defined as government hospitals or non-government hosptials with high medicaid caseload using AHA 2008 Data.

ICD Composite Measure Testing Results (ACC)

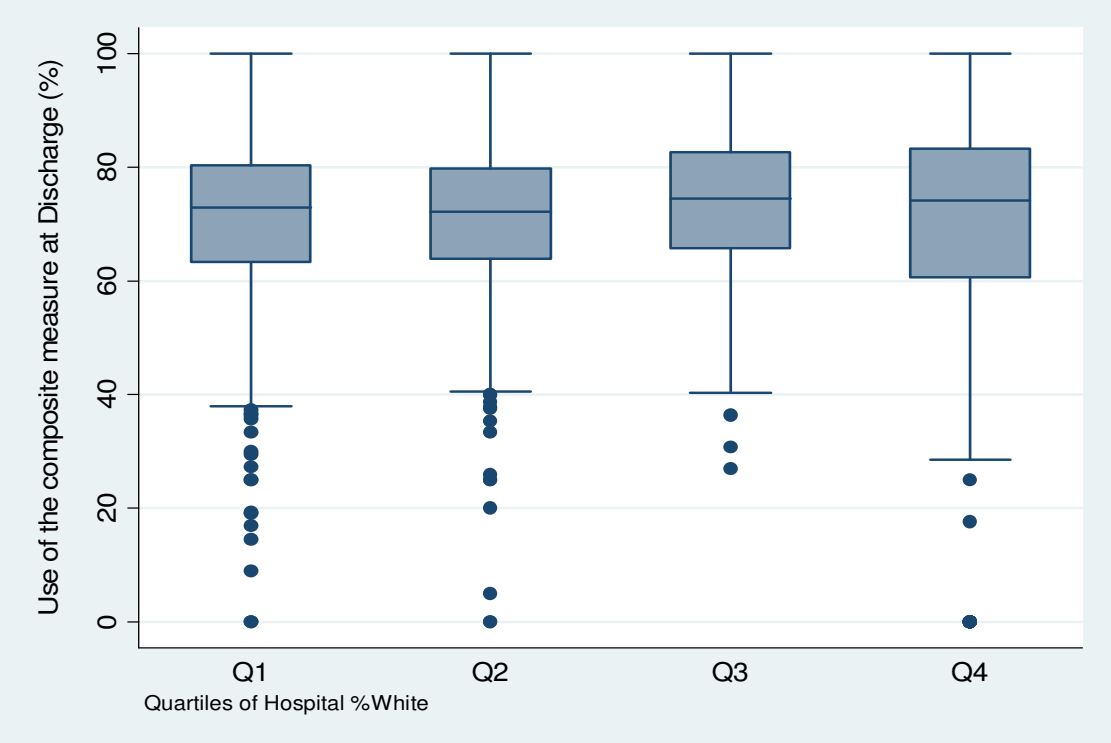




Distribution of The Composite Measure at Discharge Stratified by Hospital %White

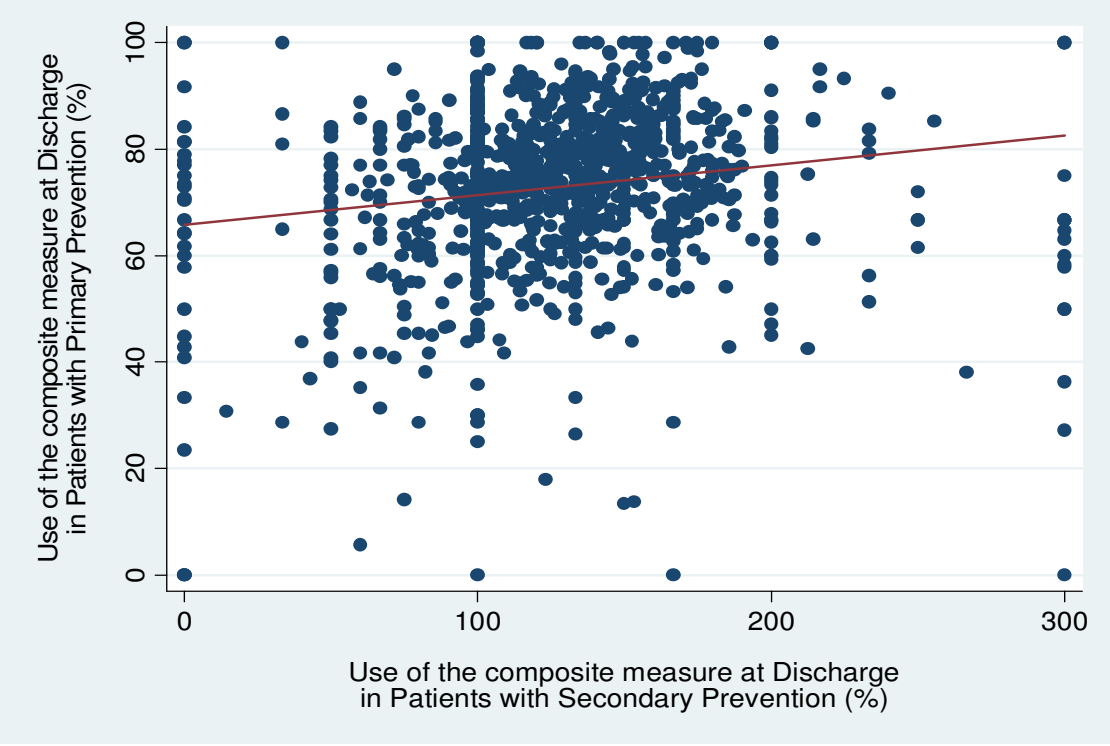
Description	%White	%White Q1		Q2		Q3		Q4	
		Volume	DCM	Volume	DCM	Volume	DCM	Volume	DCM
N	1301	325	325	325	325	326	326	325	325
Mean	0.8162	91.09	0.7103	124.50	0.7105	107.72	0.7332	63.26	0.6897
SD	0.2013	114.56	0.1725	120.70	0.1540	103.23	0.1295	77.33	0.2365
100% Max	1.0000	773	1.0000	699	1.0000	883	1.0000	520	1.0000
99%	1.0000	537	1.0000	451	1.0000	427	1.0000	312	1.0000
95%	1.0000	316	1.0000	368	0.9403	306	0.9097	230	1.0000
90%	1.0000	239	0.9045	310	0.8740	241	0.8889	166	0.9865
75% Q3	0.9608	123	0.8034	169	0.7977	149	0.8268	94	0.8333
50% Median	0.8837	50	0.7290	92	0.7215	73.5	0.7452	33	0.7419
25% Q1	0.7403	17	0.6324	34	0.6389	38	0.6569	7	0.6050
10%	0.5370	7	0.5106	12	0.5385	19	0.5556	2	0.4000
5%	0.3897	4	0.3725	8	0.4286	14	0.4950	1	0.0000
1%	0.0000	1	0.1449	4	0.2000	10	0.4032	1	0.0000
0% Min	0.0000	1	0.0000	4	0.0000	9	0.2692	1	0.0000

ICD Composite Measure Testing Results (ACC)

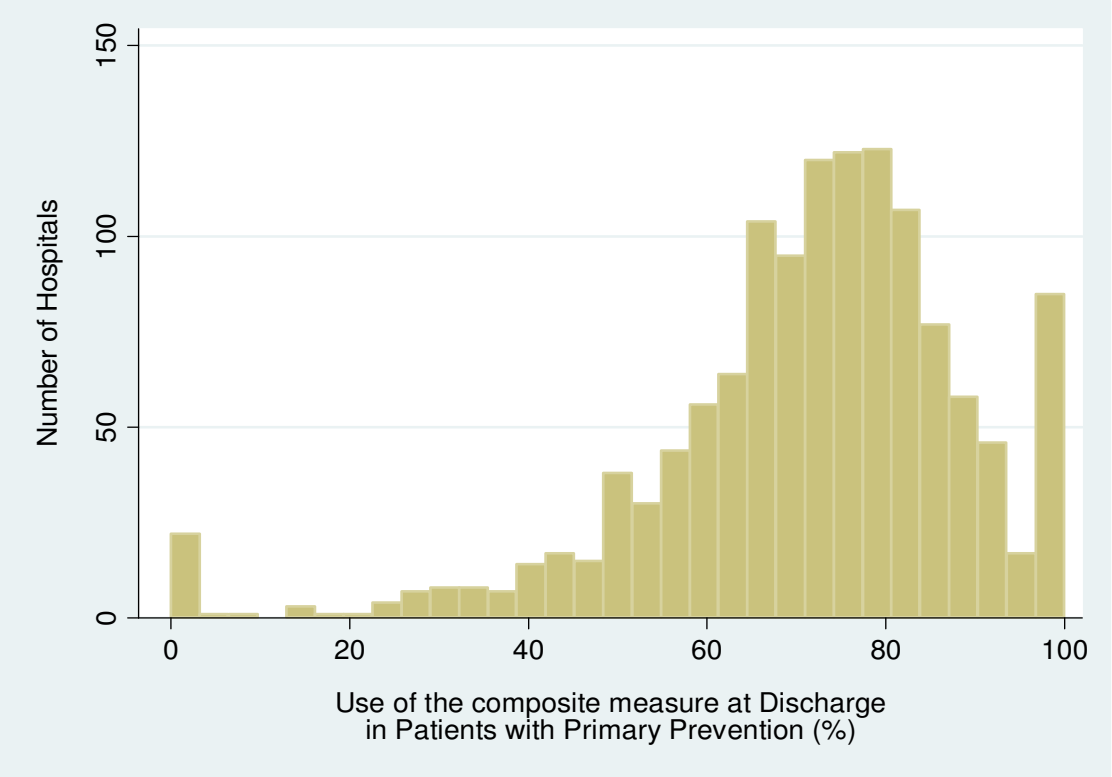


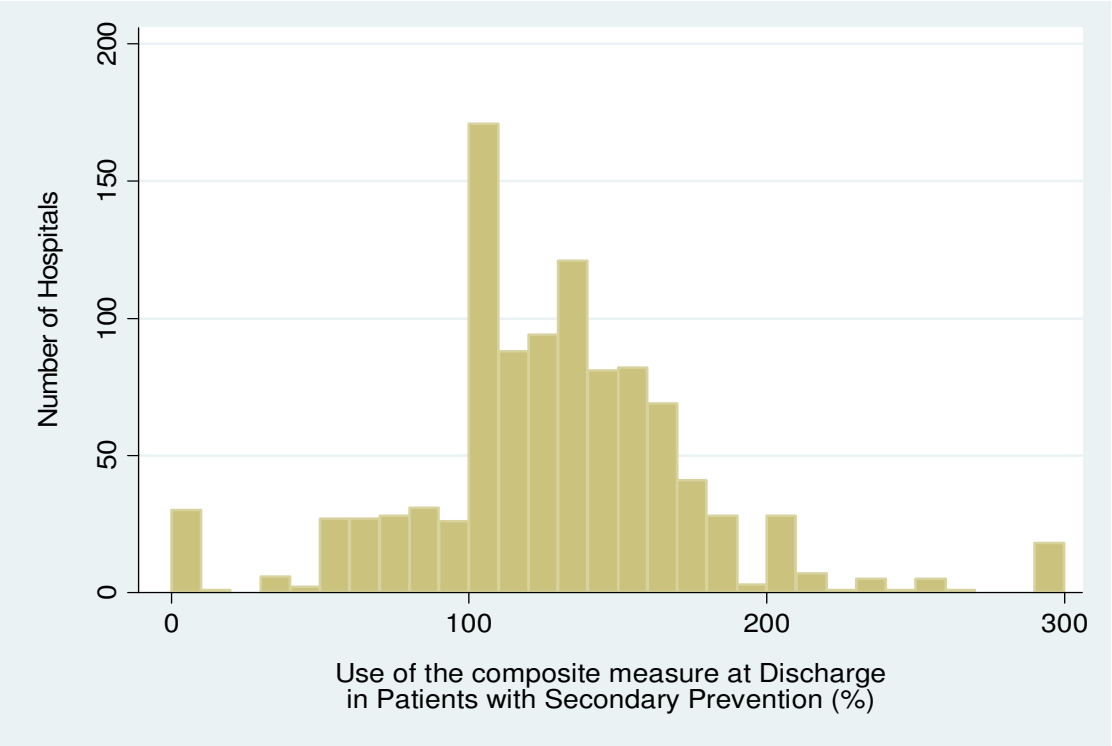
Distribution of The Composite Measure at Discharge Stratified by ICD Indication

Description	ICD Indication			
	Primary Prevention		Secondary Prevention	
	Volume	DCM	Volume	DCM
N	1295	1295	1022	1022
Mean	77.72	0.7146	24.56	1.2728
Std Deviation	83.39	0.1827	35.55	0.4867
100% Max	591	1.0000	661	3.0000
99%	370	1.0000	142	3.0000
95%	251	1.0000	82	2.0000
90%	190	0.9149	59	1.7778
75% Q3	110	0.8258	32	1.5165
50% Median	50	0.7394	14	1.2706
25% Q1	18	0.6329	5	1.0000
10%	6	0.5000	2	0.7500
5%	3	0.4000	1	0.5000
1%	1	0.0000	1	0.0000
0% Min	1	0.0000	1	0.0000



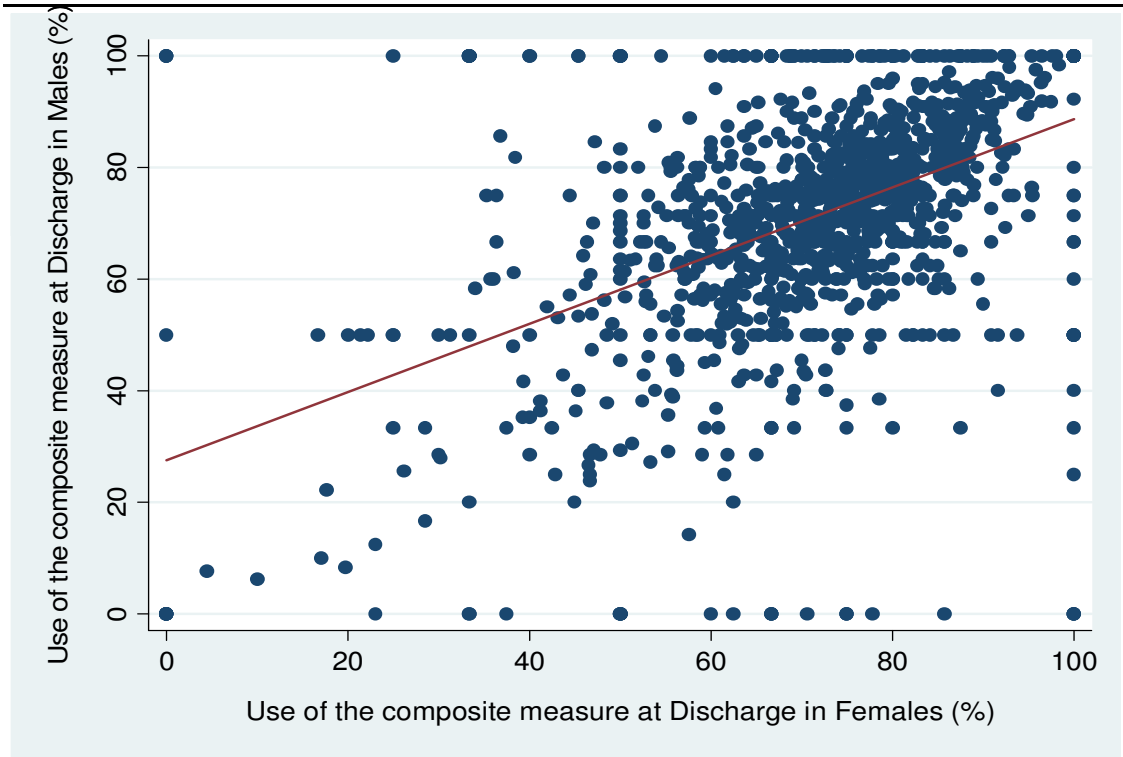
ICD Composite Measure Testing Results (ACC)



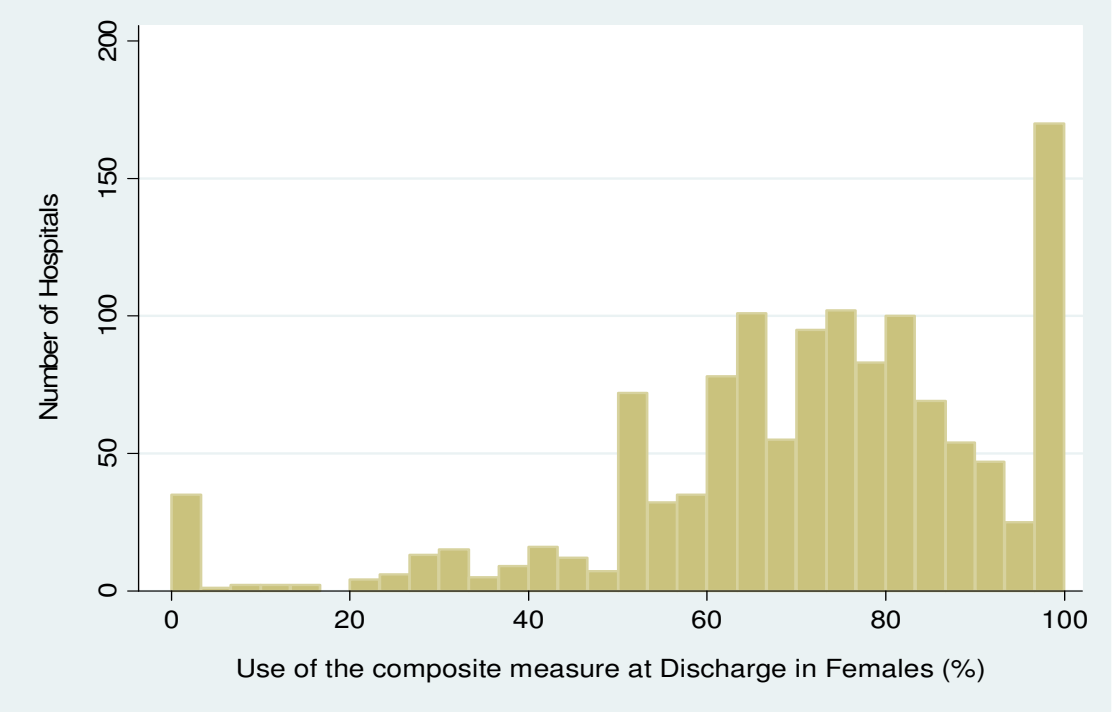


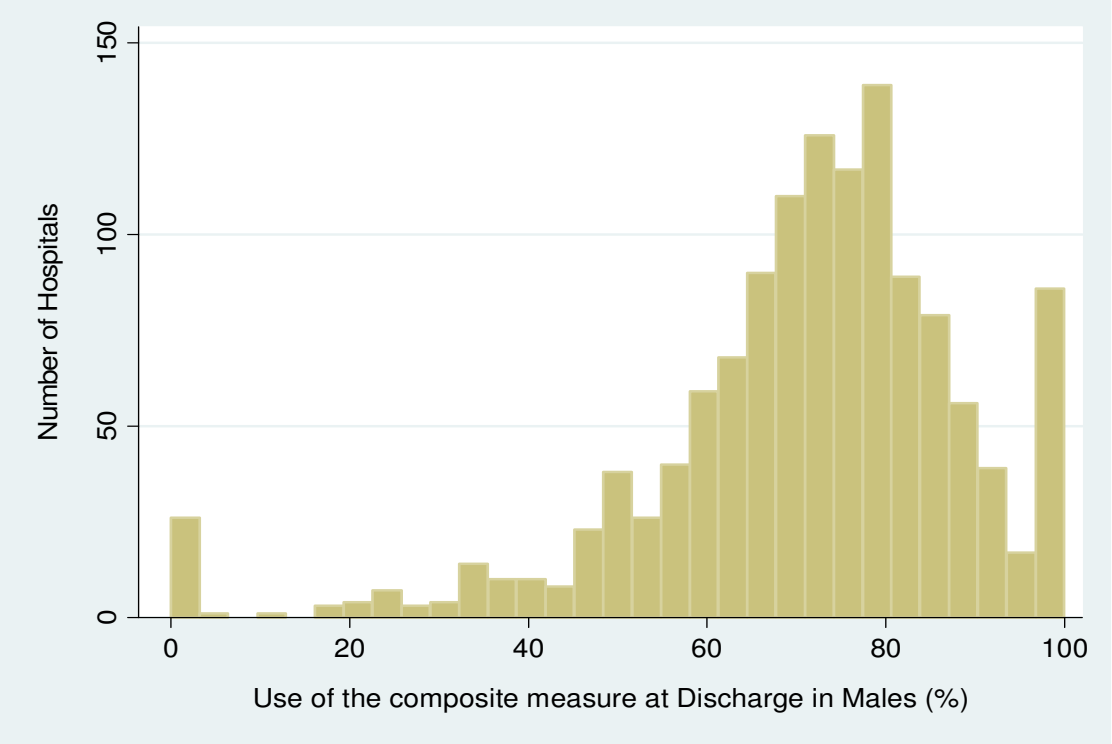
Distribution of The Composite Measure at Discharge

Description	Female			
	Yes		No	
	Volume	DCM	Volume	DCM
N	1247	1247	1293	1293
Mean	25.34	0.7142	72.81	0.7112
Std Deviation	27.17	0.2172	81.40	0.1867
100% Max	194	1.0000	701	1.0000
99%	123	1.0000	355	1.0000
95%	80	1.0000	235	1.0000
90%	61	1.0000	183	0.9098
75% Q3	35	0.8571	99	0.8235
50% Median	16	0.7452	45	0.7353
25% Q1	6	0.6154	16	0.6364
10%	2	0.4762	6	0.5000
5%	1	0.2917	2	0.3611
1%	1	0.0000	1	0.0000
0% Min	1	0.0000	1	0.0000



ICD Composite Measure Testing Results (ACC)





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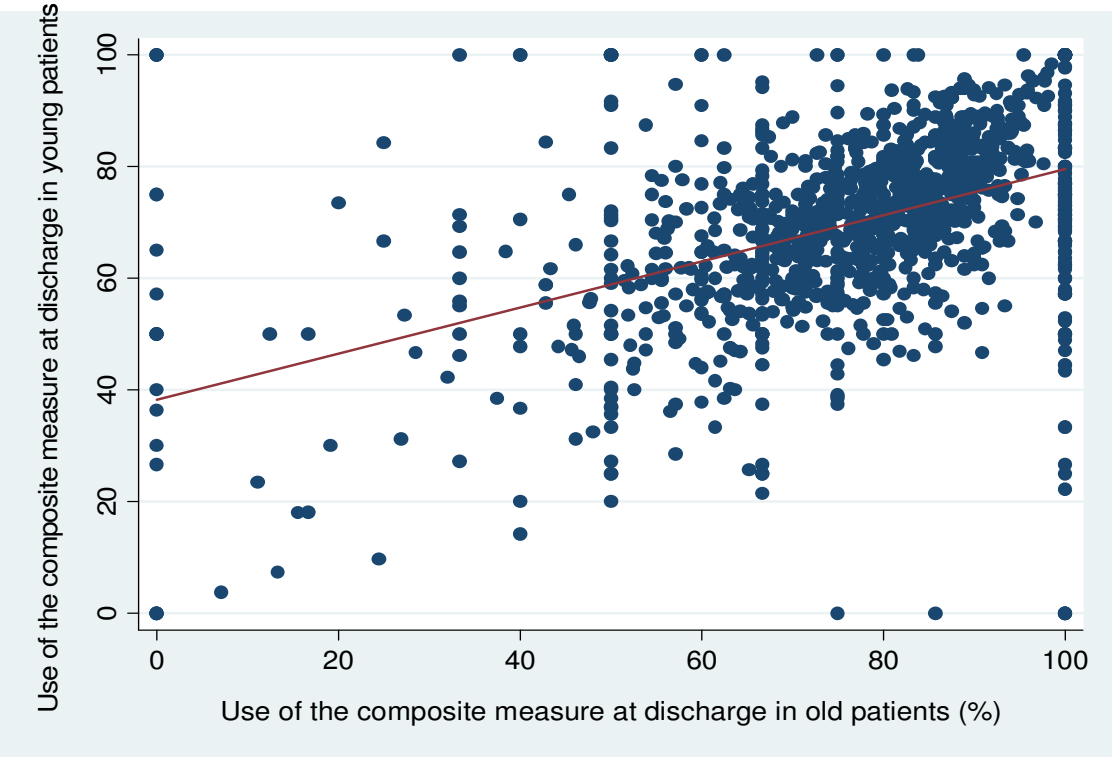
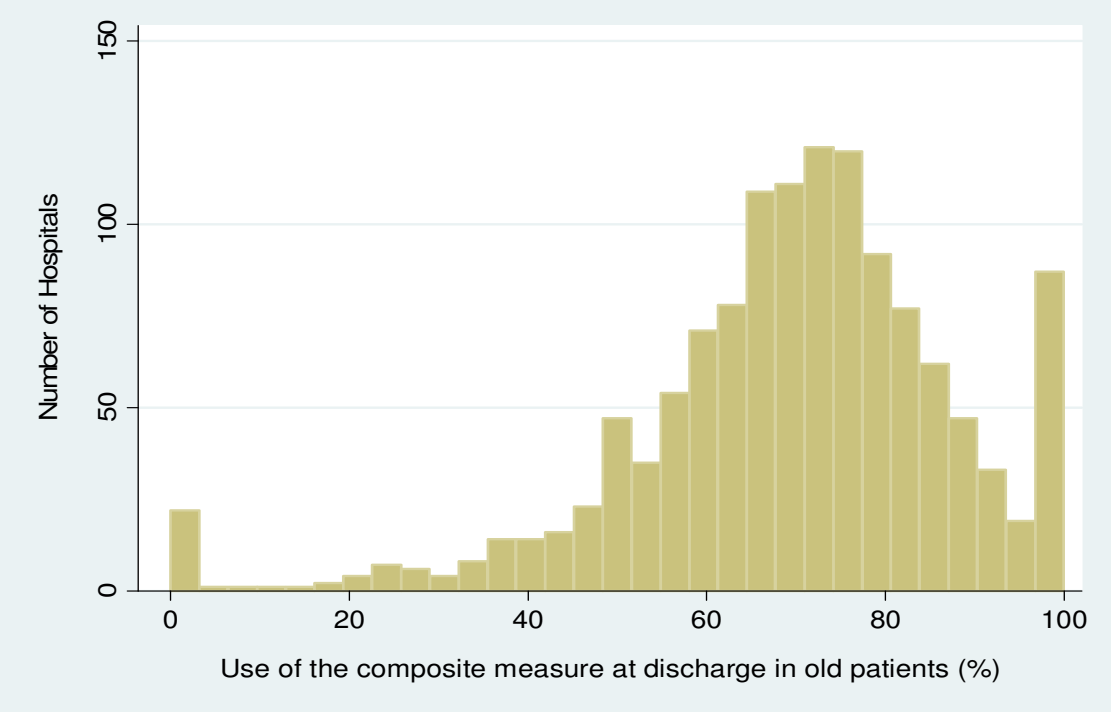
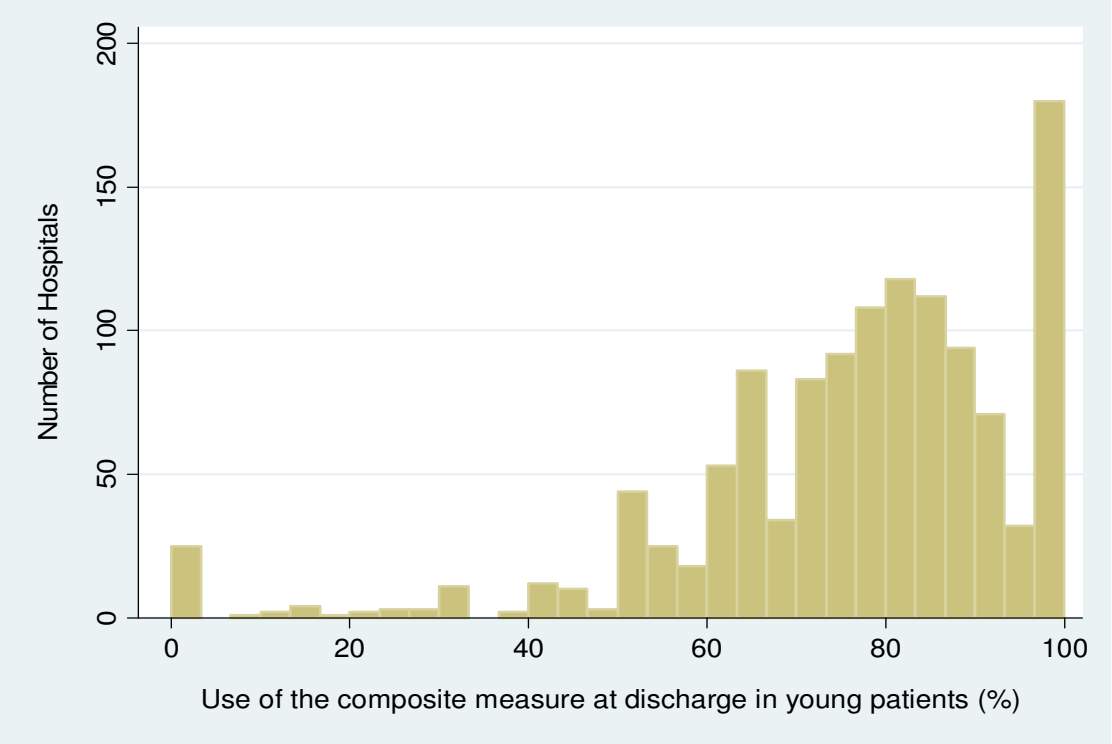
Distribution of The Composite Measure at Discharge

Description	Age >= 65			
	Yes		No	
	Volume	DCM	Volume	DCM
N	1287	1287	1229	1229
Mean	65.25	0.69558	33.99	0.76377
Std Deviation	71.26	0.18546	39.96	0.19630
100% Max	647	1.00000	286	1.00000
99%	316	1.00000	184	1.00000
95%	208	1.00000	118	1.00000
90%	157	0.91089	85	1.00000
75% Q3	90	0.80769	45	0.88889
50% Median	42	0.71429	20	0.79433
25% Q1	14	0.60448	7	0.67442
10%	5	0.50000	3	0.52632
5%	2	0.37500	1	0.40000
1%	1	0.00000	1	0.00000
0% Min	1	0.00000	1	0.00000



ICD Composite Measure Testing Results (ACC)

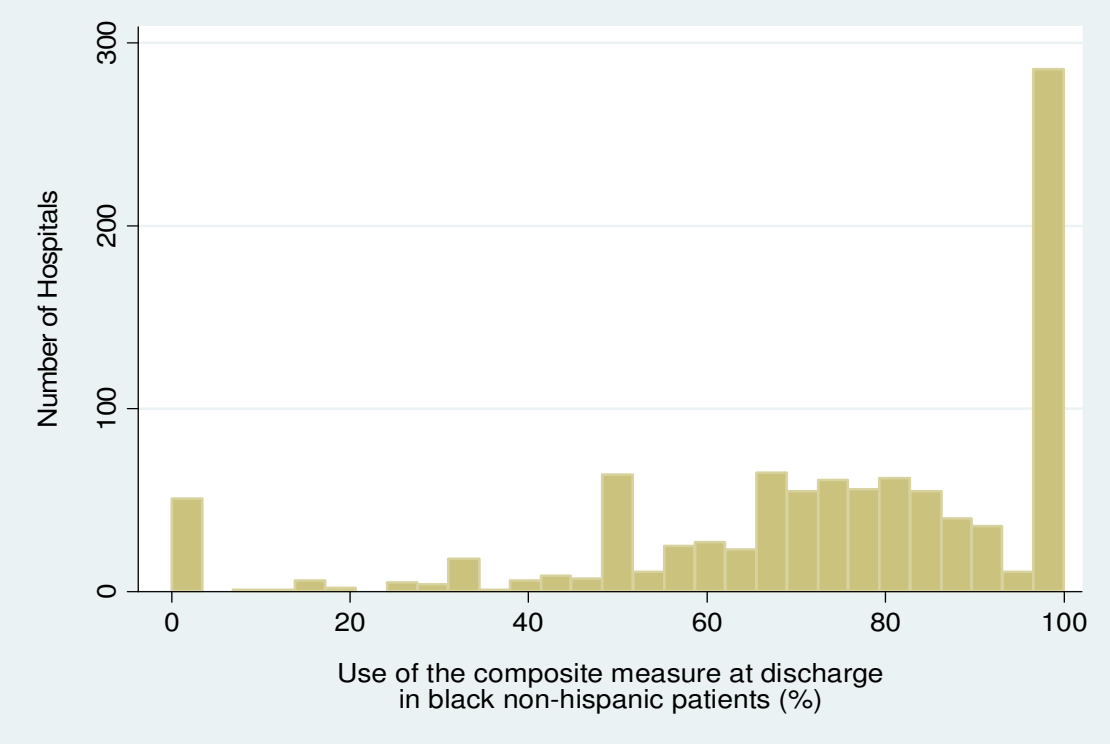


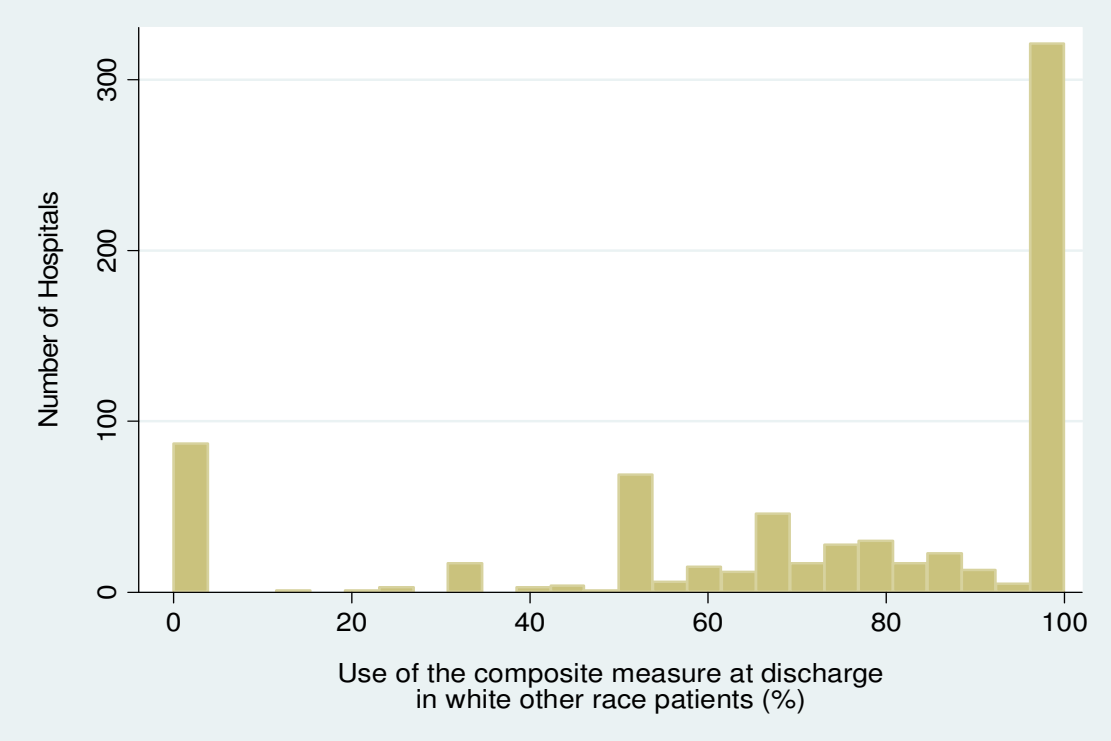


Distribution of The Composite Measure at Discharge Stratified by Race

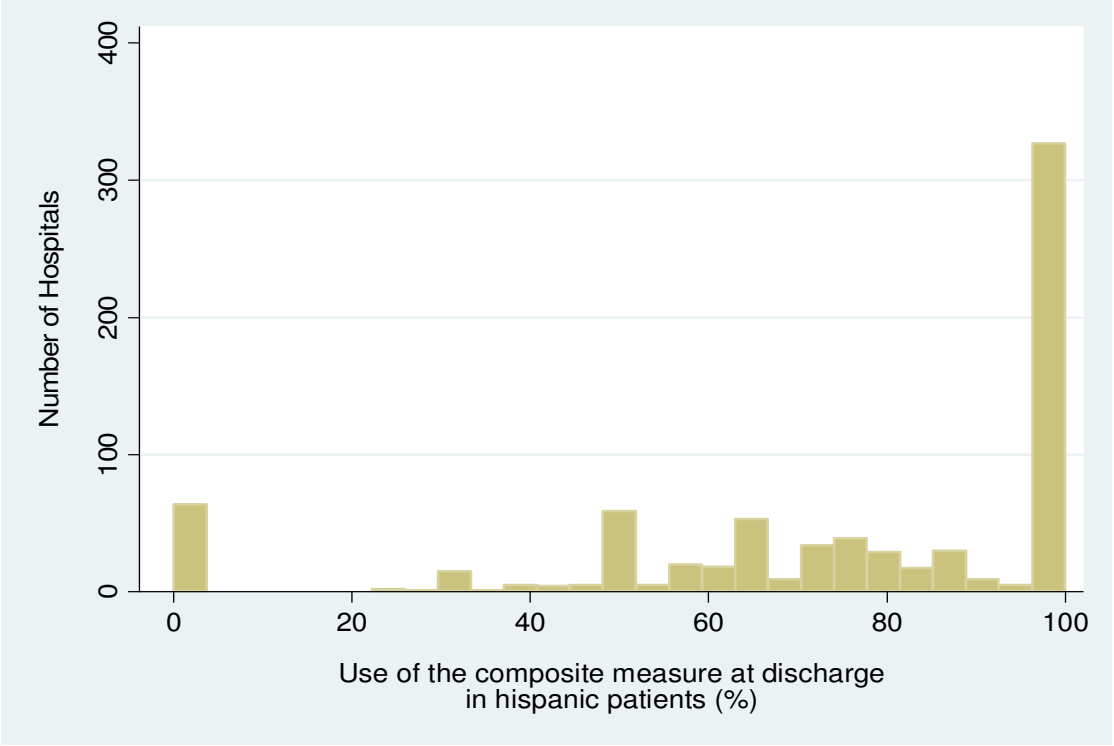
Description	Race							
	Hispanic		White non-hispani		Black non-Hispanic		Other	
	Volume	DCM	Volume	DCM	Volume	DCM	Volume	DCM
N	751	751	1284	1284	988	988	719	719
Mean	8.42	0.7521	77.51	0.7035	15.92	0.7436	5.80	0.7282
SD	15.14	0.3007	88.83	0.1921	25.04	0.2608	11.12	0.3342
100% Max	155	1.0000	778	1.0000	208	1.0000	135	1.0000
99%	87	1.0000	368	1.0000	128	1.0000	66	1.0000
95%	30	1.0000	263	1.0000	65	1.0000	20	1.0000
90%	20	1.0000	197	0.9091	42	1.0000	13	1.0000
75% Q3	9	1.0000	106	0.8153	18	1.0000	6	1.0000
50% Mediar	3	0.8333	45	0.7275	7	0.7876	2	0.8571
25% Q1	1	0.6000	16	0.6250	2	0.6348	1	0.5000
10%	1	0.3333	5	0.4915	1	0.4286	1	0.0000
5%	1	0.0000	2	0.3333	1	0.0000	1	0.0000
1%	1	0.0000	1	0.0000	1	0.0000	1	0.0000
0% Min	1	0.0000	1	0.0000	1	0.0000	1	0.0000

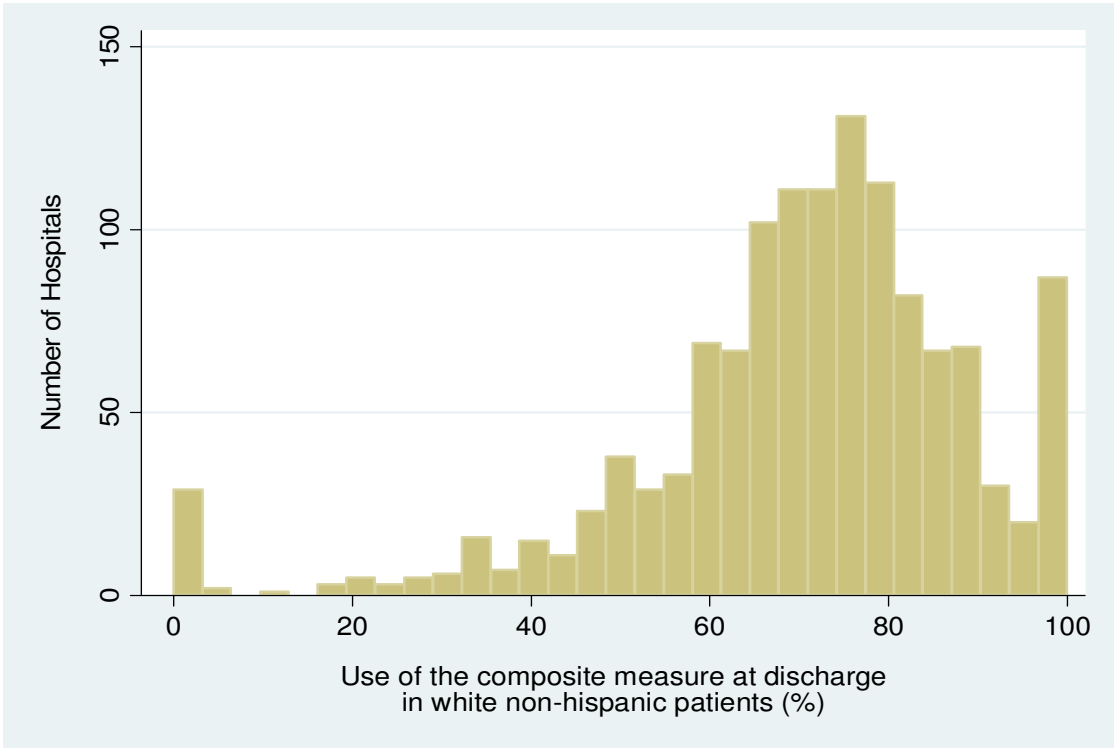
ICD Composite Measure Testing Results (ACC)





ICD Composite Measure Testing Results (ACC)





Study Cohort

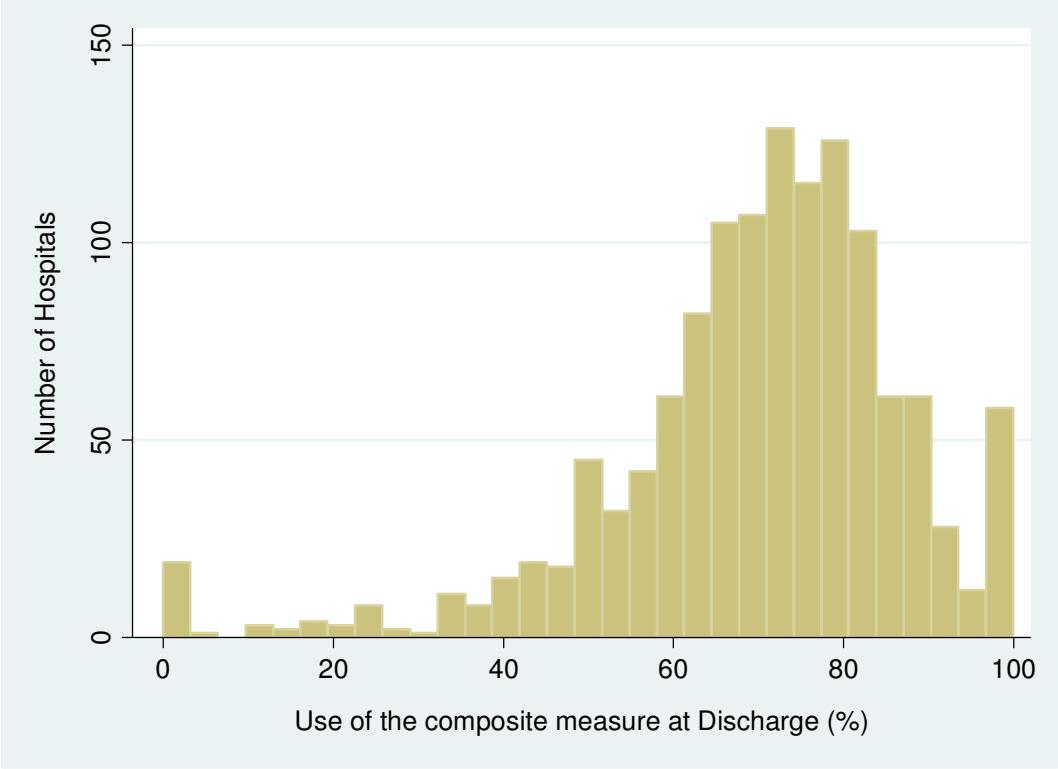
Exclusions	Patient Stays		Patients		Facilities	
Total	**533188**	**100.0**	**518695**	**100.0**	**1475**	**100.0**
Discharge not in 2008	401817	75.4	388102	74.8	192	13.0
Remaining	**131371**	**24.6**	**130593**	**25.2**	**1283**	**87.0**
Died during hospital	500	0.4	494	0.4	0	0.0
Remaining	**130871**	**99.6**	**130099**	**99.6**	**1283**	**100.0**
Not eligible to the composite measure	14702	11.2	14589	11.2	2	0.2
Study Cohort	**116169**	**88.8**	**115510**	**88.8**	**1281**	**99.8**
The composite measure at discharge	84267	72.54	83882	72.62	1262	98.52

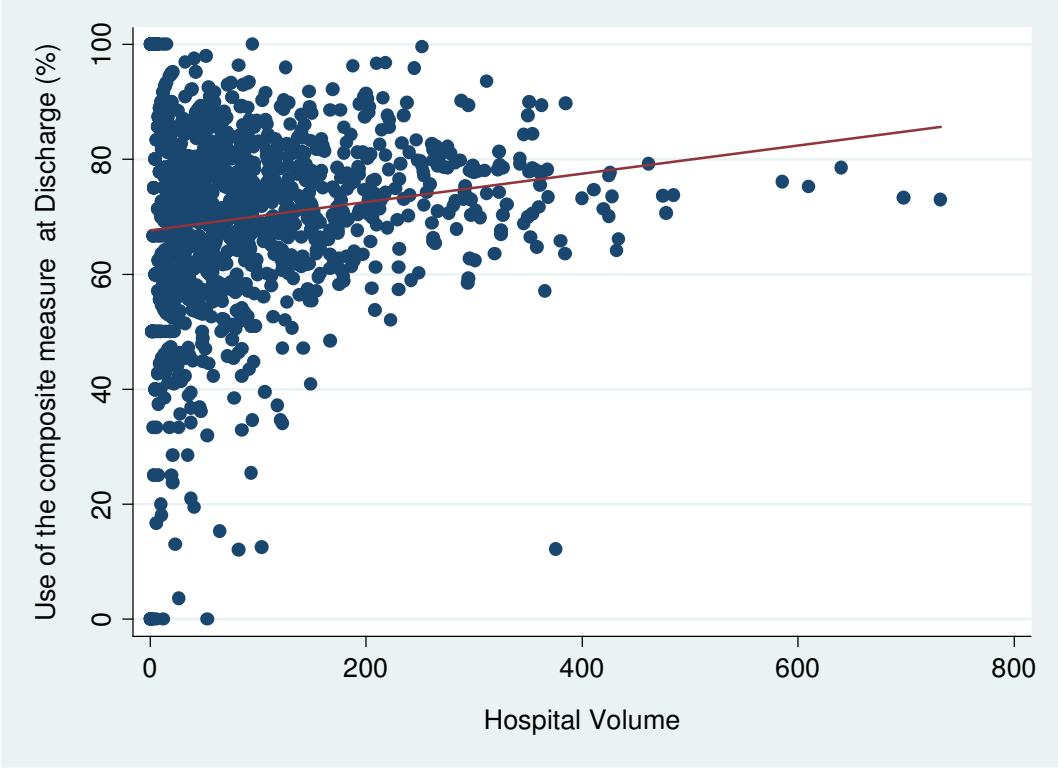
0

The Composite Measure at Discharge- Validation Sample

Description	Volume	DCM
N	1281	1281
Mean	90.69	0.6991
Std Deviation	98.39	0.1766
100% Max	732	1.0000
99%	426	1.0000
95%	298	0.9524
90%	221	0.8871
75% Q3	126	0.8065
50% Median	57	0.7222
25% Q1	21	0.6250
10%	6	0.5000
5%	4	0.3962
1%	1	0.0000
0% Min	1	0.0000

ICD Composite Measure Testing Results (ACC)

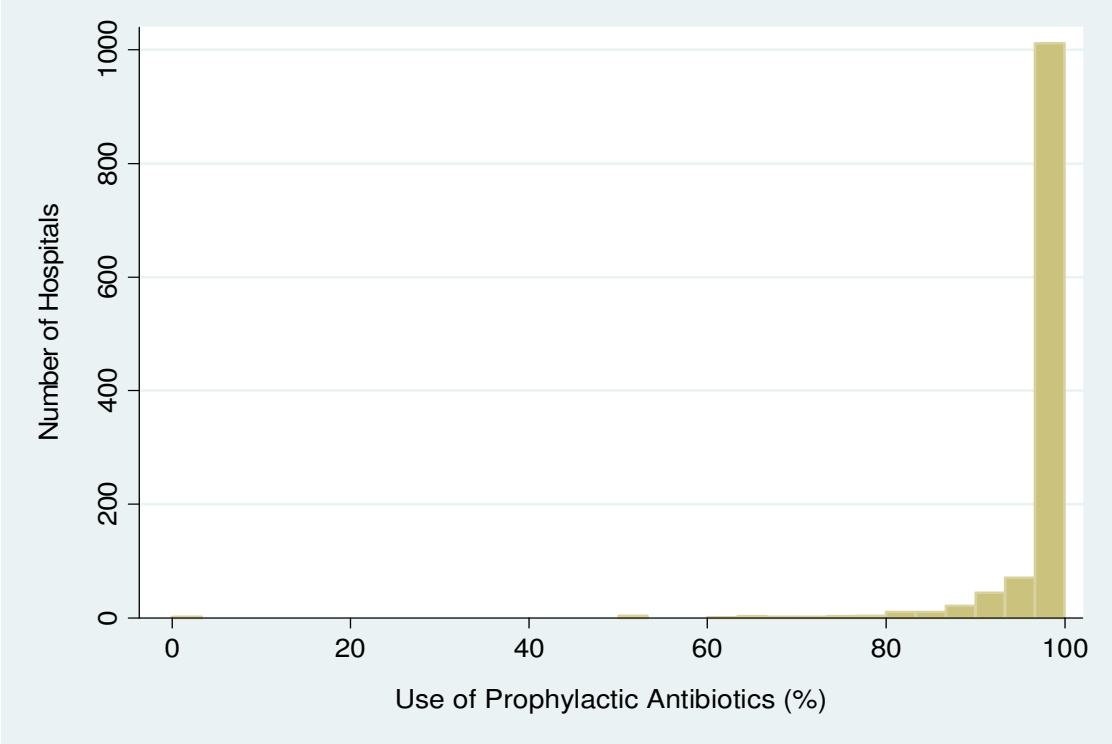


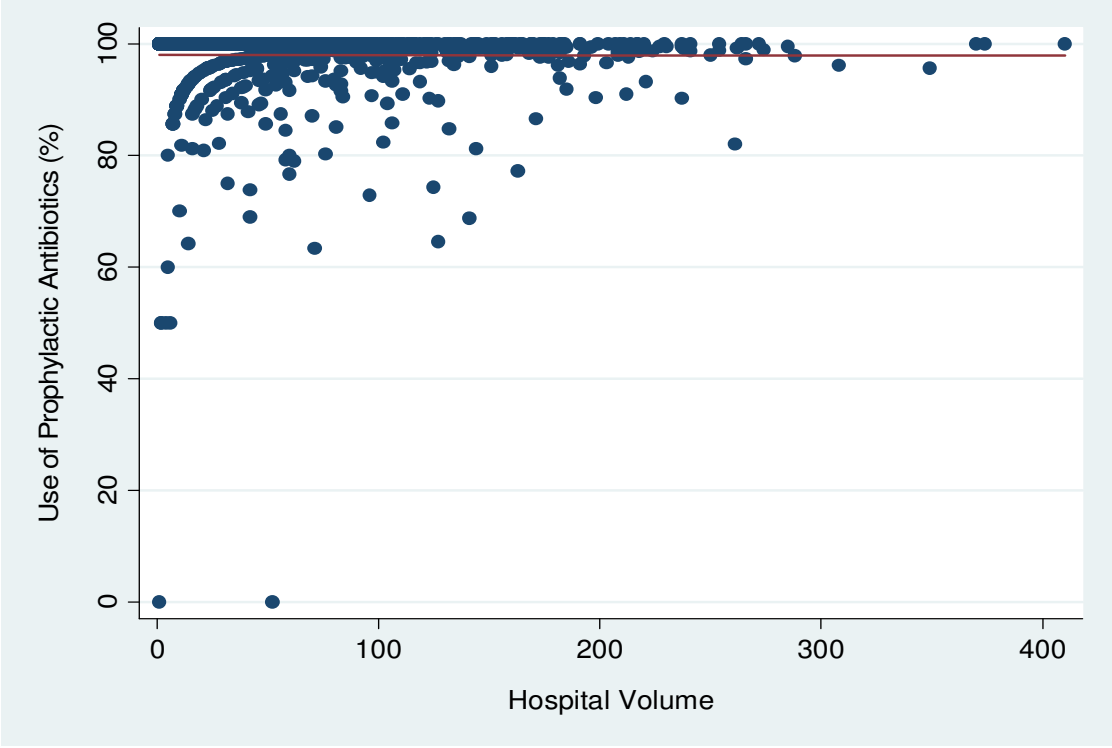


Distribution of The Use of Prophylactic Antibioti

Description	Volume	DPA
N	1188	1188
Mean	57.82	0.9799
Std Deviation	59.05	0.0661
100% Max	410	1.0000
99%	264	1.0000
95%	182	1.0000
90%	138	1.0000
75% Q3	81	1.0000
50% Median	39	1.0000
25% Q1	15	0.9889
10%	6	0.9412
5%	3	0.8942
1%	1	0.6905
0% Min	1	0.0000

ics

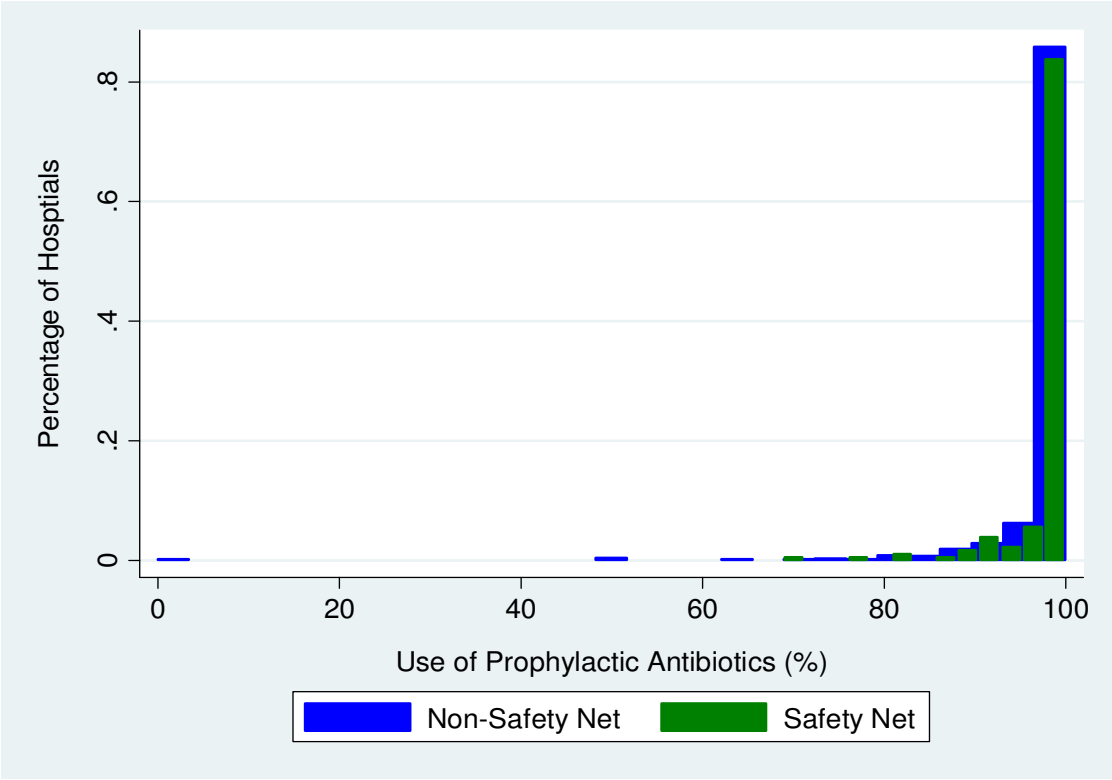

Number of Hospitals
0
200
400
600
800
1000
0
20
40
60
80
100
Use of Prophylactic Antibiotics (%)

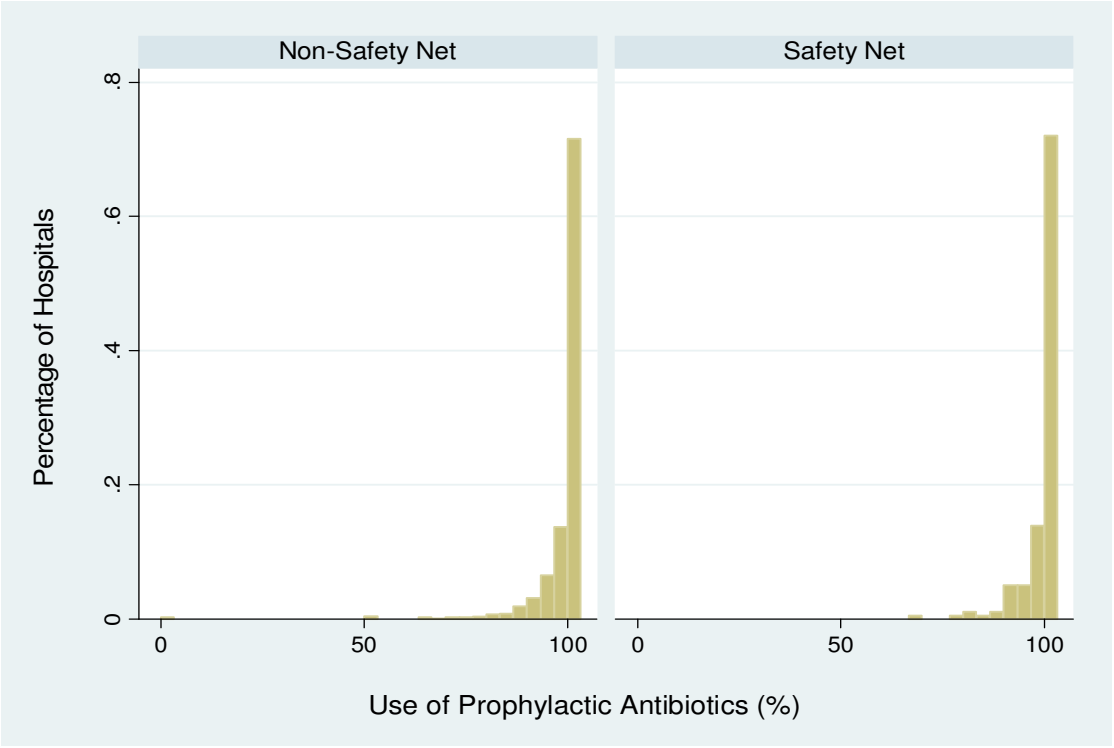

Use of Prophylactic Antibiotics (%)
0
20
40
60
80
100
0
100
200
300
400
Hospital Volume

Distribution of Use of Prophylactic Antibiotics Stratified by Safety Net Status

Description	Safety Net Status*			
	No		Yes	
	Volume	DPA	Volume	DPA
N	971	971	179	179
Mean	58.48	0.9802	55.92	0.9838
Std Deviation	58.92	0.0681	59.93	0.0415
100% Max	410	1.0000	374	1.0000
99%	266	1.0000	250	1.0000
95%	182	1.0000	181	1.0000
90%	136	1.0000	144	1.0000
75% Q3	83	1.0000	76	1.0000
50% Median	40	1.0000	34	1.0000
25% Q1	16	0.9899	14	0.9875
10%	7	0.9429	6	0.9355
5%	3	0.8947	3	0.9048
1%	1	0.7000	1	0.7730
0% Min	1	0.0000	1	0.6879

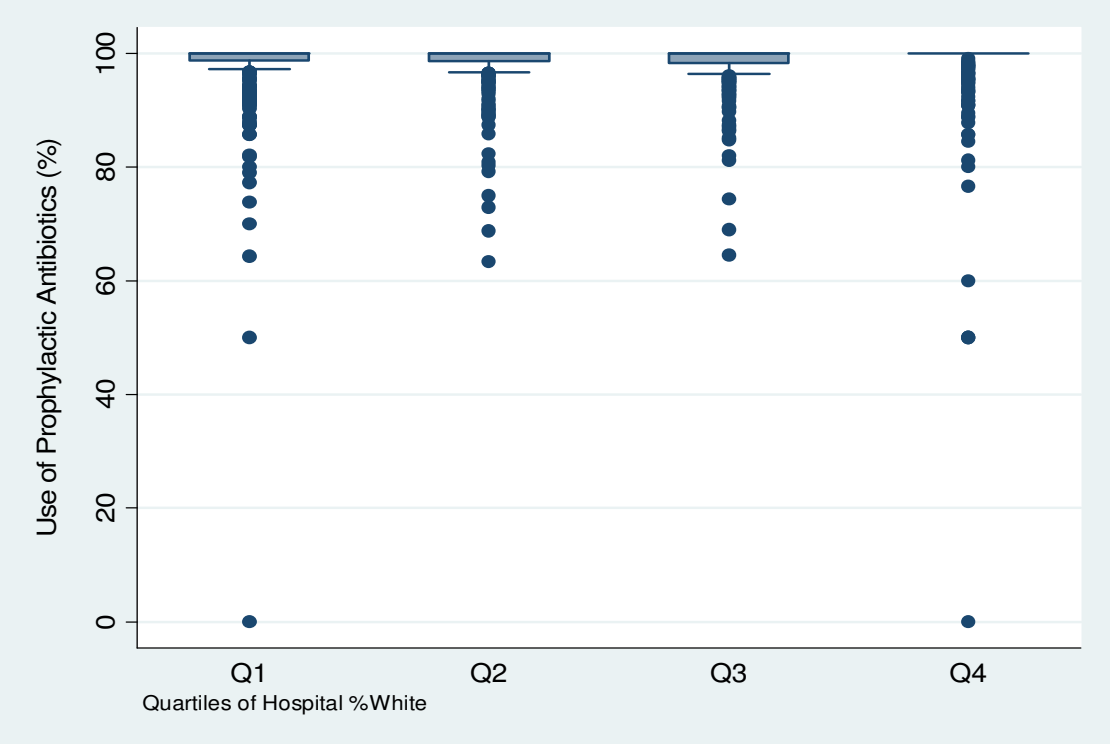
* Defined as government hospitals or non-government hosptials with high medicaid caseload using AHA 2008 Data.


Percentage of Hospitals
0
.2
.4
.6
.8
0
20
40
60
80
100
Use of Prophylactic Antibiotics (%)
Non-Safety Net
Safety Net


Non-Safety Net
Safety Net
Percentage of Hospitals
0
.2
.4
.6
.8
0
50
100
0
50
100
Use of Prophylactic Antibiotics (%)

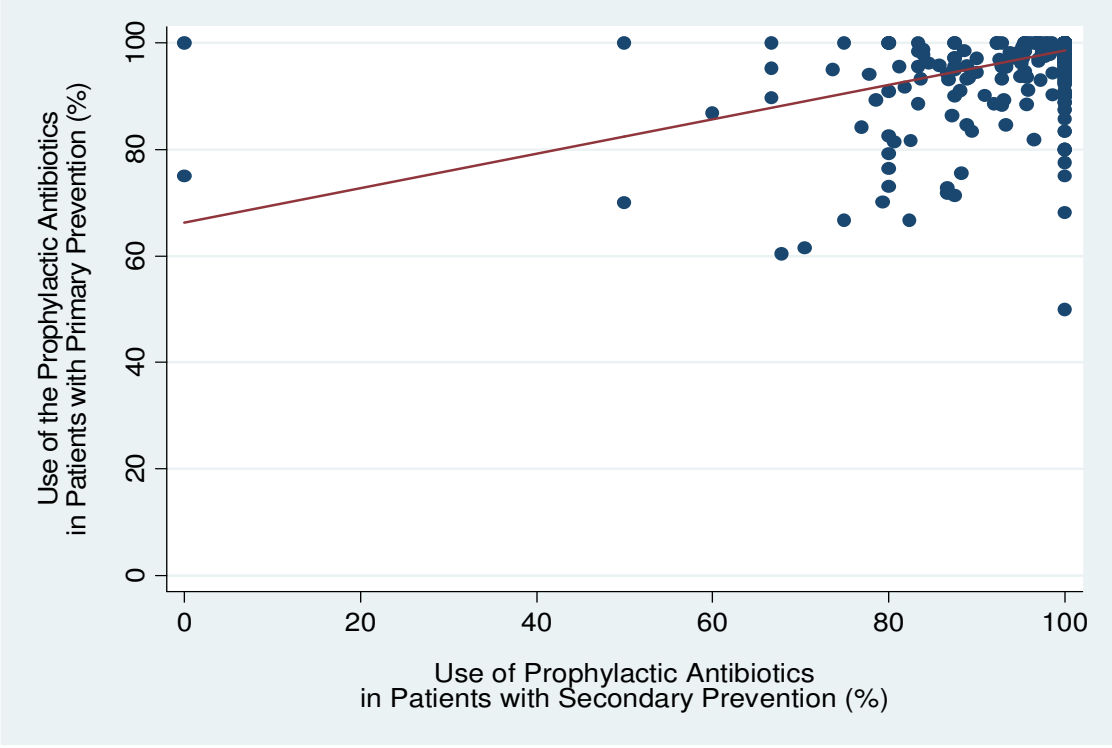
Distribution of Use of Prophylactic Antibiotics Stratified by Hospital %White

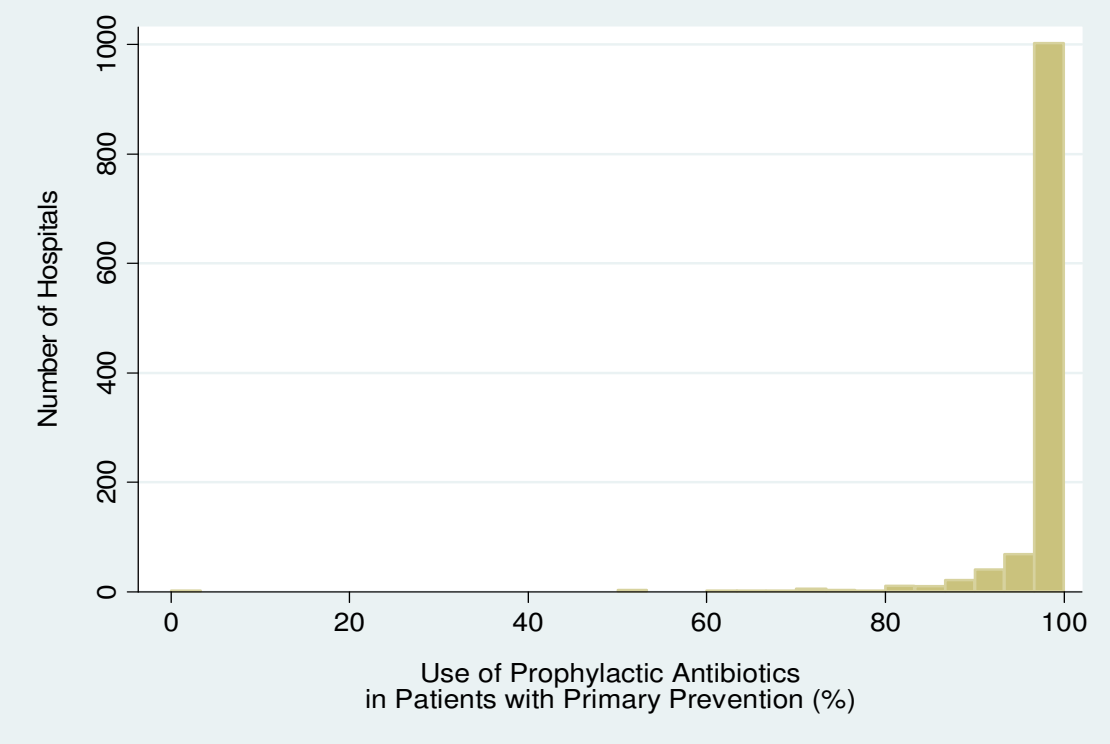
Description	%White	%White Q1		Q2		Q3		Q4	
		Volume	DPA	Volume	DPA	Volume	DPA	Volume	DPA
N	1188	296	296	297	297	299	299	296	296
Mean	0.8557	57.74	0.9759	75.47	0.9814	72.49	0.9824	25.36	0.9798
Std Deviatio	0.1776	64.22	0.0794	65.74	0.0469	54.72	0.0427	30.87	0.0849
100% Max	1.0000	410	1.0000	374	1.0000	288	1.0000	241	1.0000
99%	1.0000	274	1.0000	308	1.0000	264	1.0000	141	1.0000
95%	1.0000	191	1.0000	215	1.0000	183	1.0000	88	1.0000
90%	1.0000	156	1.0000	177	1.0000	146	1.0000	63	1.0000
75% Q3	0.9848	77	1.0000	102	1.0000	97	1.0000	34	1.0000
50% Median	0.9167	35	1.0000	56	1.0000	58	1.0000	13.5	1.0000
25% Q1	0.7917	13	0.9881	27	0.9866	31	0.9841	5	1.0000
10%	0.6364	6	0.9231	13	0.9464	20	0.9444	2	0.9545
5%	0.5000	4	0.8750	9	0.8942	16	0.9048	1	0.8947
1%	0.2000	2	0.6429	6	0.7292	13	0.7440	1	0.5000
0% Min	0.0000	1	0.0000	5	0.6338	12	0.6457	1	0.0000

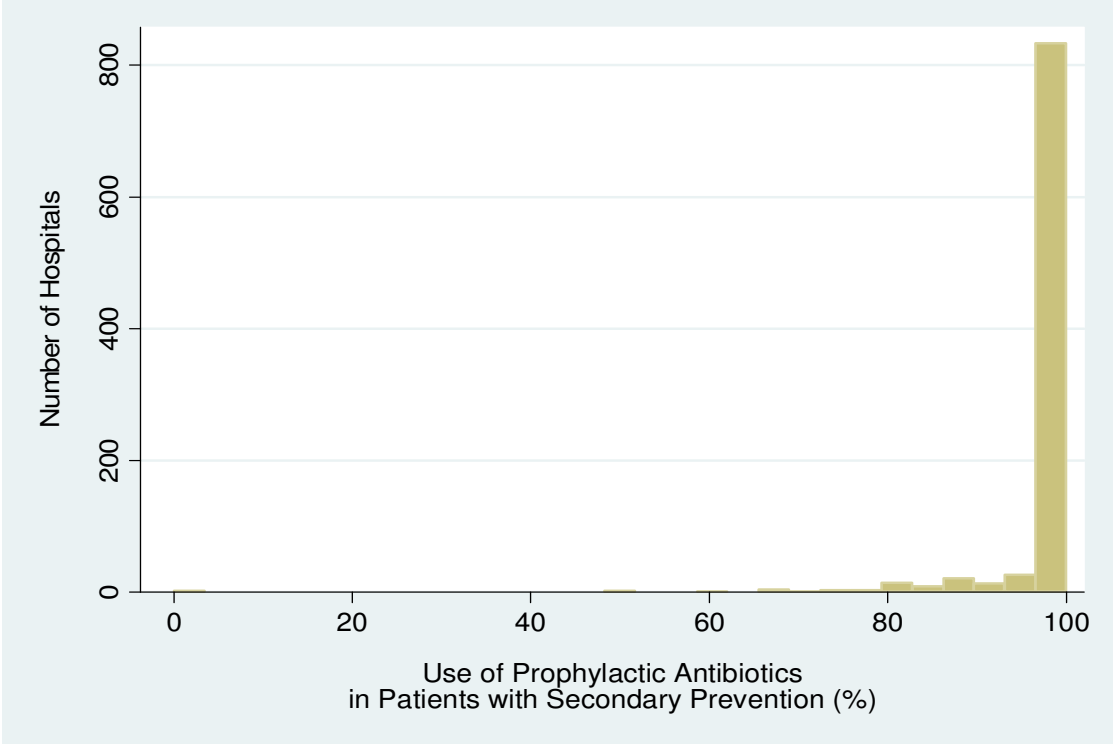

Use of Prophylactic Antibiotics (%)
0
20
40
60
80
100
Q1
Q2
Q3
Q4
Quartiles of Hospital %White

Distribution of Use of Prophylactic Antibiotics Stratified by ICD Indication

Description	ICD Indication			
	Primary Prevention		Secondary Prevention	
	Volume	DPA	Volume	DPA
N	1178	1178	932	932
Mean	45.24	0.9791	16.52	0.9827
Std Deviation	44.78	0.0682	19.38	0.0695
100% Max	326	1.0000	172	1.0000
99%	194	1.0000	87	1.0000
95%	140	1.0000	54	1.0000
90%	109	1.0000	41	1.0000
75% Q3	62	1.0000	22.5	1.0000
50% Median	31	1.0000	10	1.0000
25% Q1	13	0.9907	3	1.0000
10%	6	0.9412	1	0.9545
5%	2	0.8889	1	0.8750
1%	1	0.6905	1	0.7045
0% Min	1	0.0000	1	0.0000

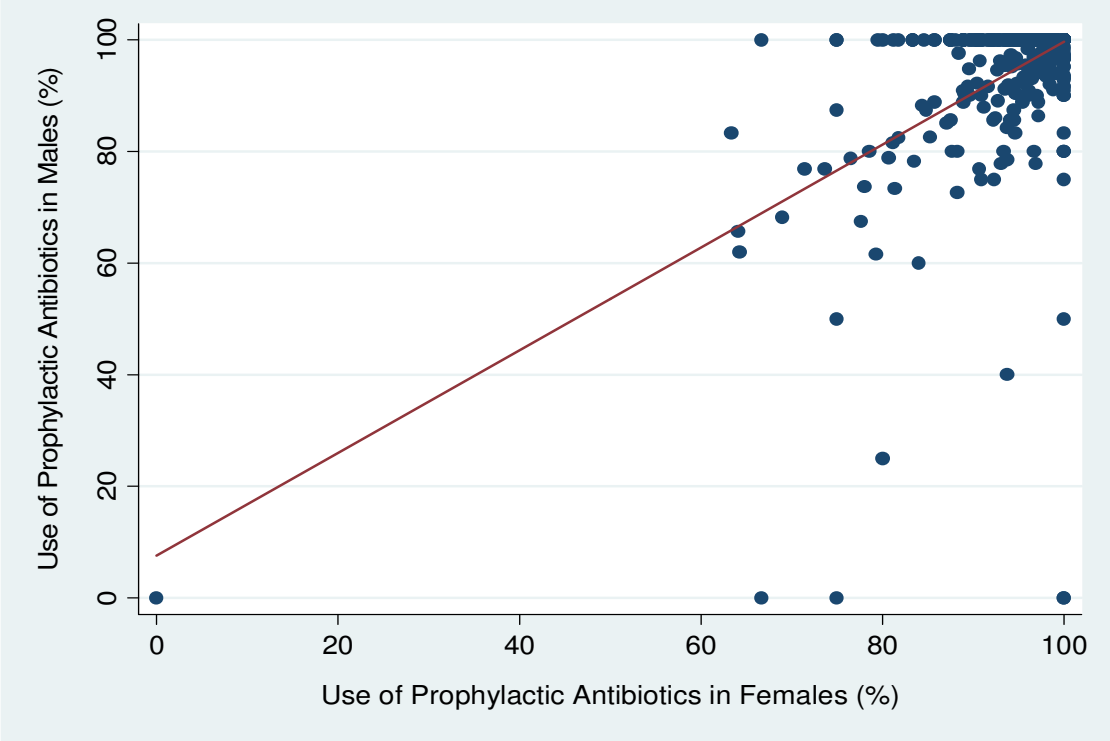


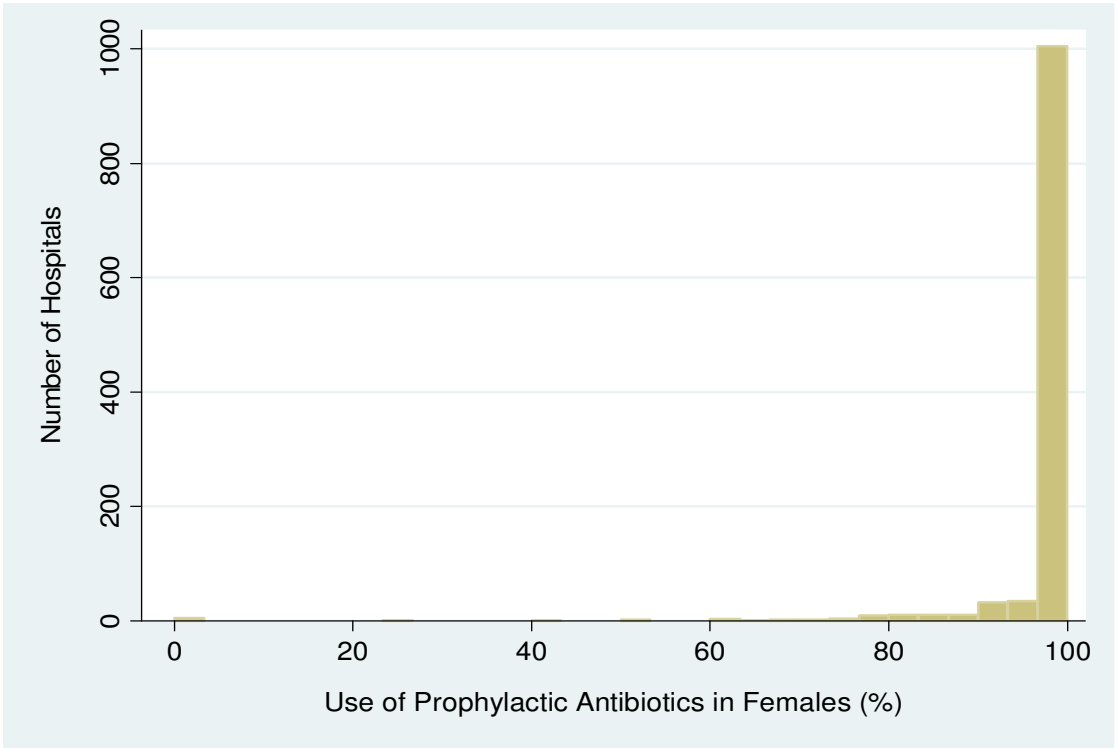

Number of Hospitals
0
200
400
600
800
1000
0
20
40
60
80
100
Use of Prophylactic Antibiotics
in Patients with Primary Prevention (%)

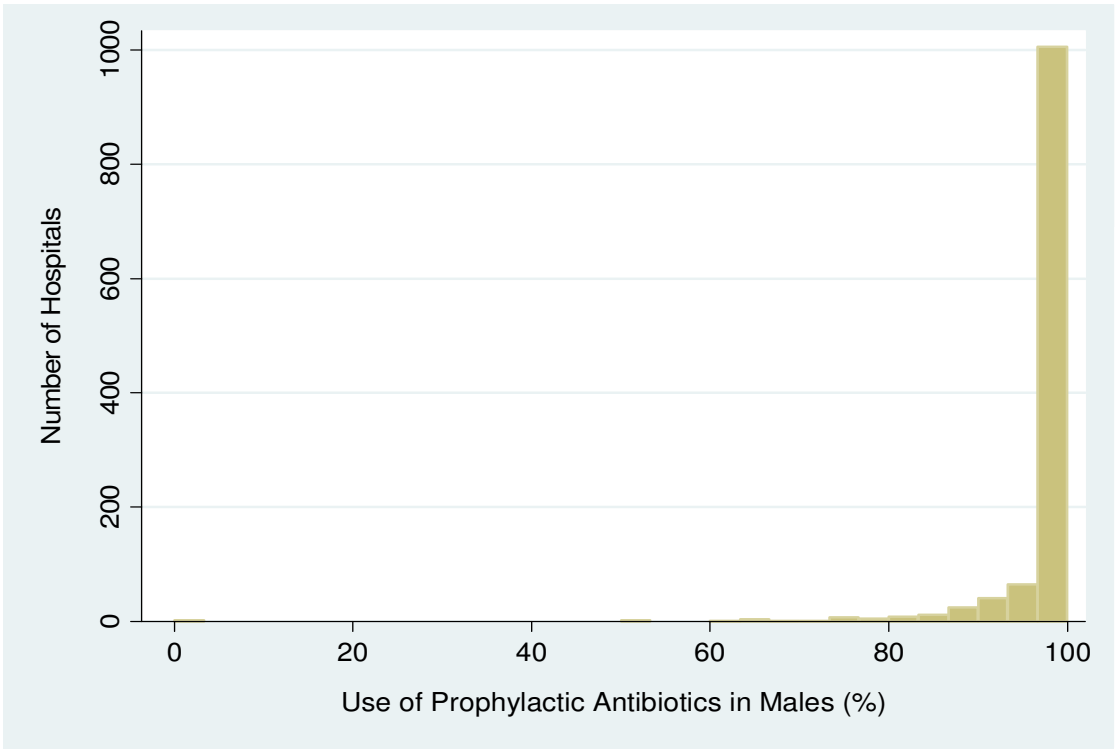

Number of Hospitals
0
200
400
600
800
0
20
40
60
80
100
Use of Prophylactic Antibiotics
in Patients with Secondary Prevention (%)

Distribution of The Composite Measure at Discharge

Description	Female			
	Yes		No	
	Volume	DCM	Volume	DCM
N	1132	1132	1179	1179
Mean	16.45	0.9795	42.46	0.9800
Std Deviation	16.59	0.0877	43.14	0.0645
100% Max	110	1.0000	306	1.0000
99%	75	1.0000	198	1.0000
95%	52	1.0000	134	1.0000
90%	39	1.0000	104	1.0000
75% Q3	22	1.0000	60	1.0000
50% Median	11	1.0000	28	1.0000
25% Q1	5	1.0000	11	0.9914
10%	2	0.9545	5	0.9375
5%	1	0.8824	2	0.8889
1%	1	0.6207	1	0.7368
0% Min	1	0.0000	1	0.0000



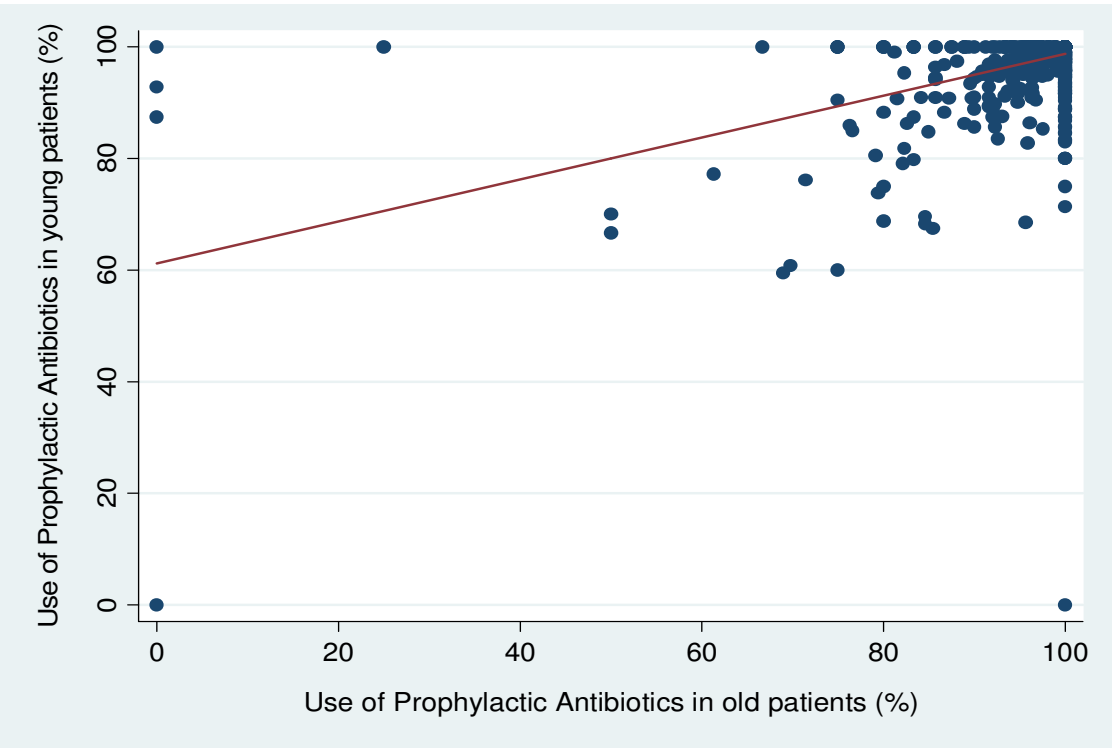

Number of Hospitals
0
200
400
600
800
1000
0
20
40
60
80
100
Use of Prophylactic Antibiotics in Females (%)

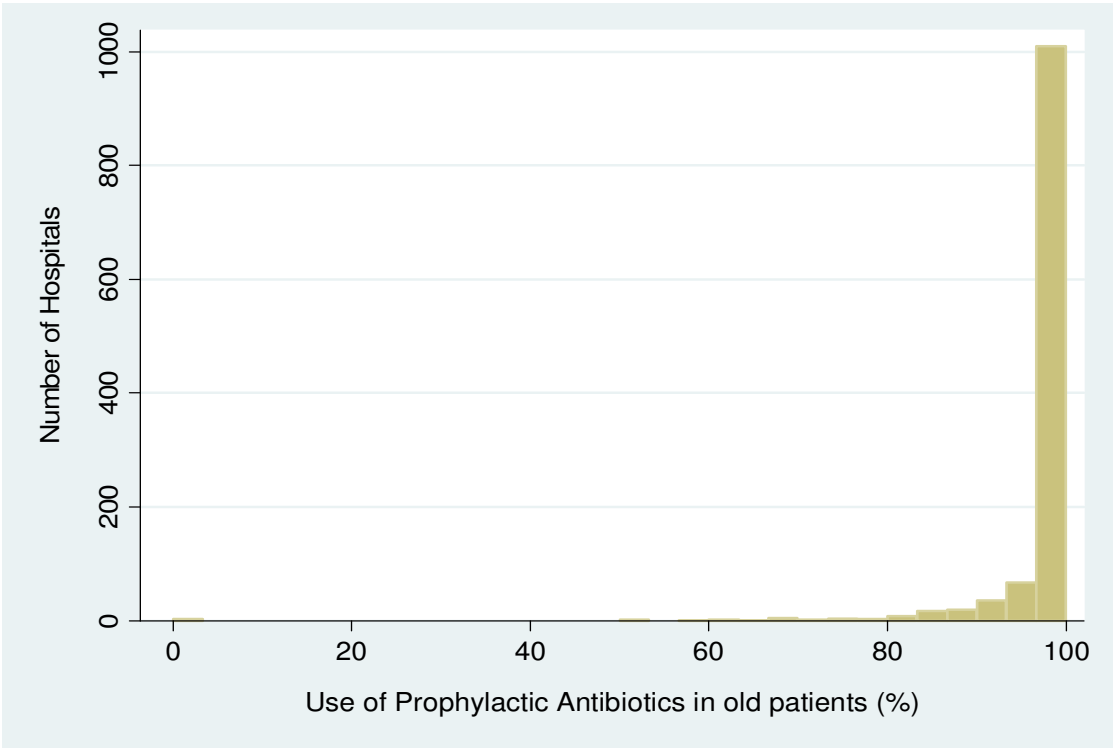

Number of Hospitals
0
200
400
600
800
1000
0
20
40
60
80
100
Use of Prophylactic Antibiotics in Males (%)

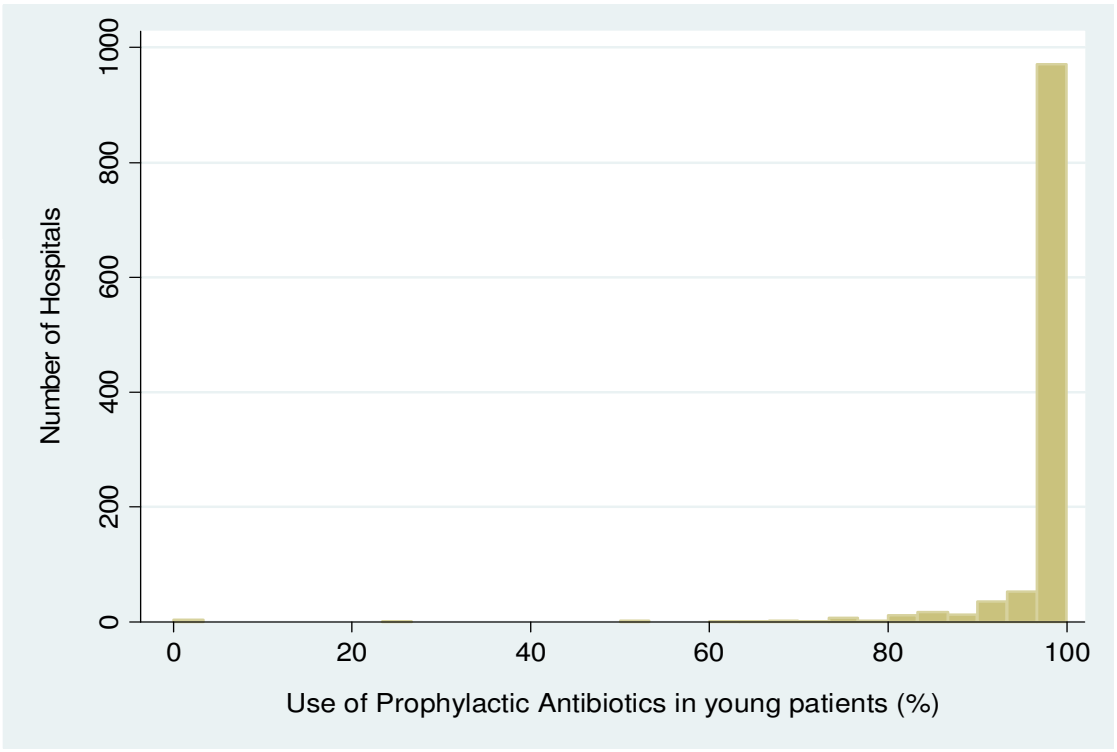
\

Distribution of The Composite Measure at Discharge

Description	Age >= 65			
	Yes		No	
	Volume	DCM	Volume	DCM
N	1179	1179	1121	1121
Mean	37.09	0.9800	22.26	0.9800
Std Deviation	36.50	0.0716	24.92	0.0793
100% Max	228	1.0000	201	1.0000
99%	167	1.0000	116	1.0000
95%	116	1.0000	74	1.0000
90%	89	1.0000	52	1.0000
75% Q3	52	1.0000	30	1.0000
50% Median	25	1.0000	14	1.0000
25% Q1	10	1.0000	5	1.0000
10%	4	0.9452	2	0.9474
5%	2	0.8889	1	0.8889
1%	1	0.6857	1	0.7143
0% Min	1	0.0000	1	0.0000

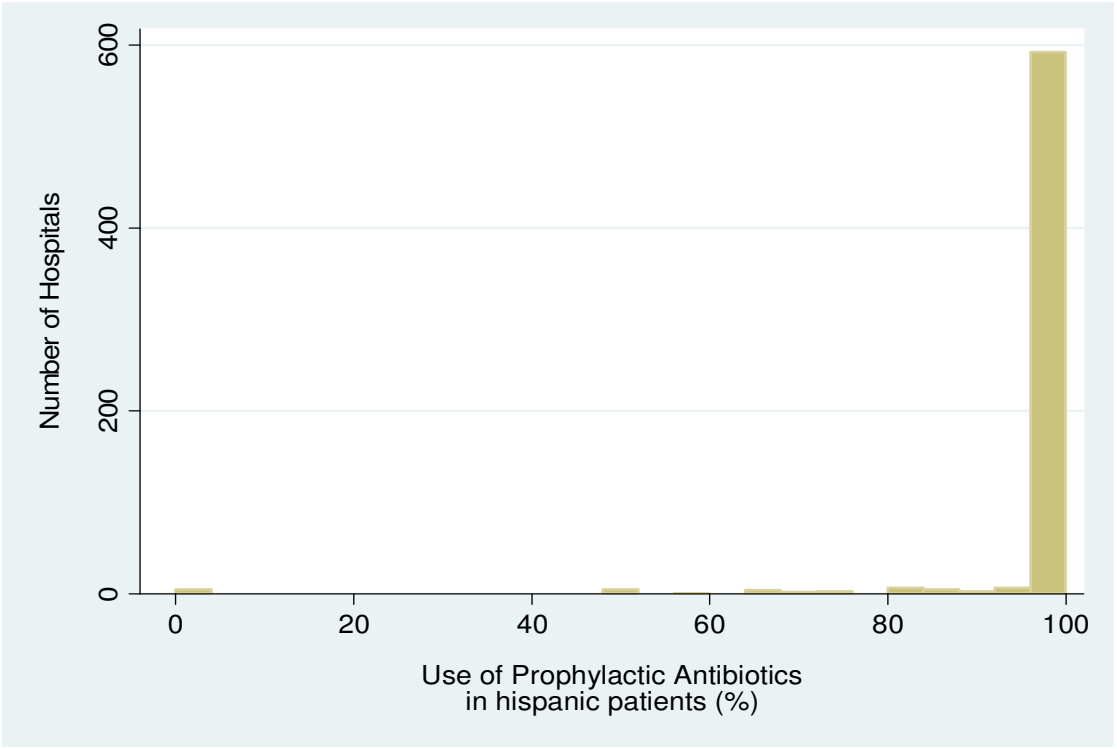


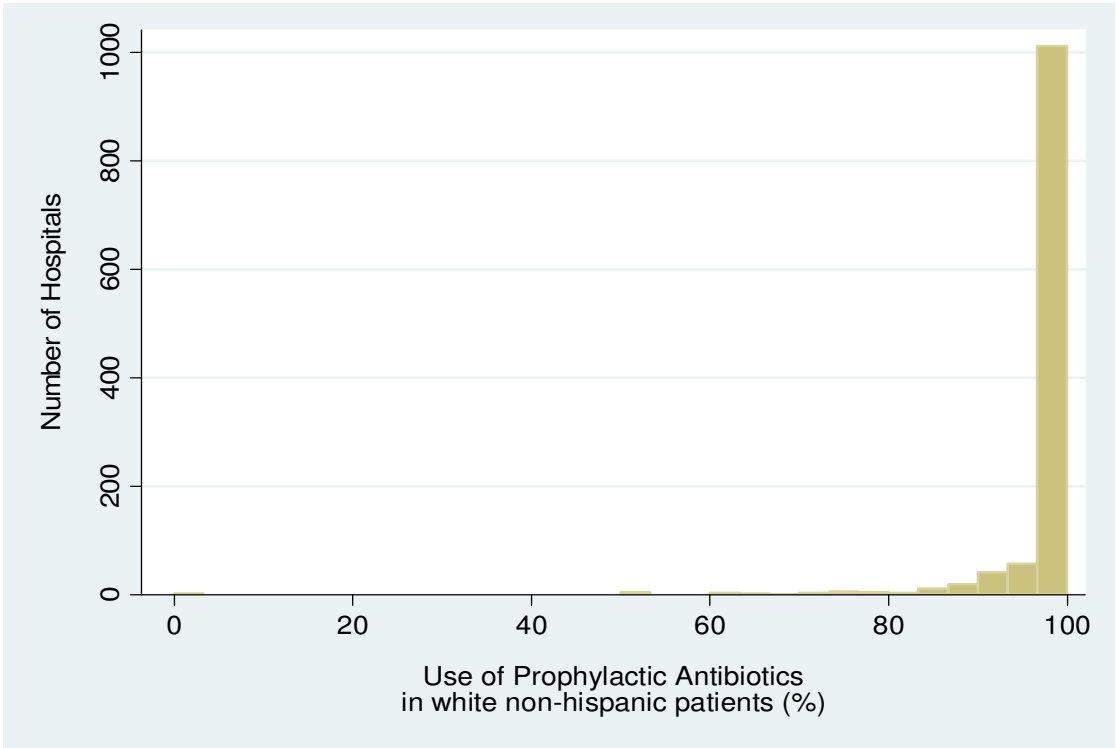

Number of Hospitals
0
200
400
600
800
1000
0
20
40
60
80
100
Use of Prophylactic Antibiotics in old patients (%)

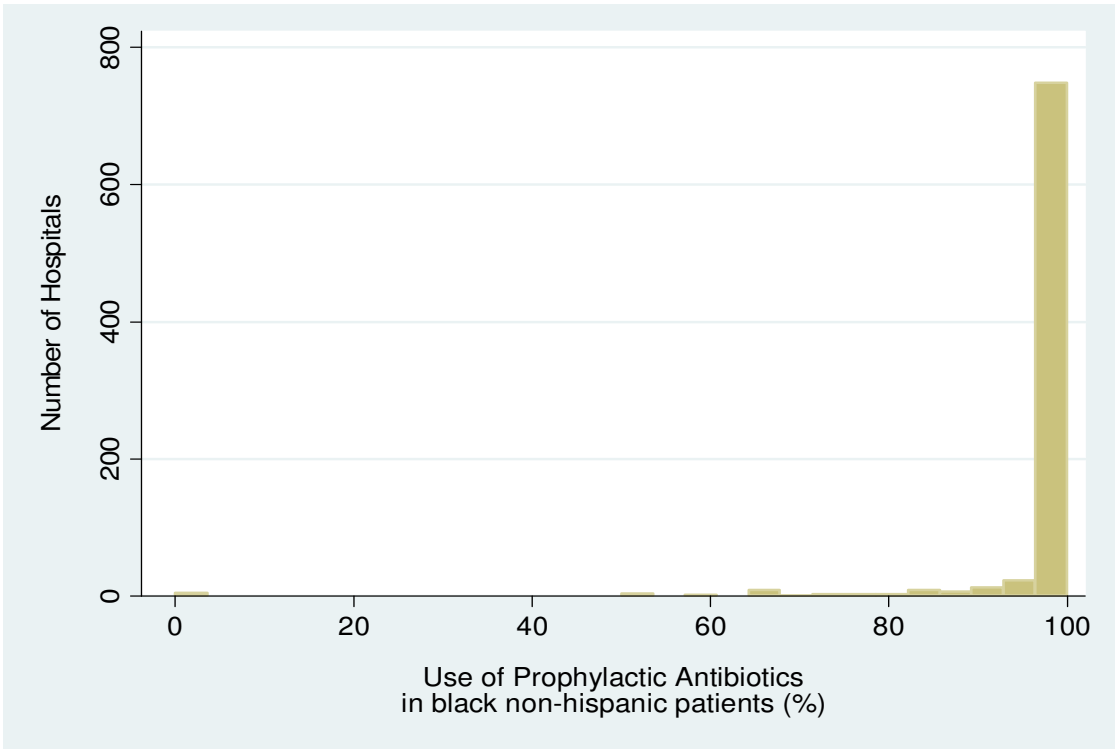

Number of Hospitals
0
200
400
600
800
1000
0
20
40
60
80
100
Use of Prophylactic Antibiotics in young patients (%)

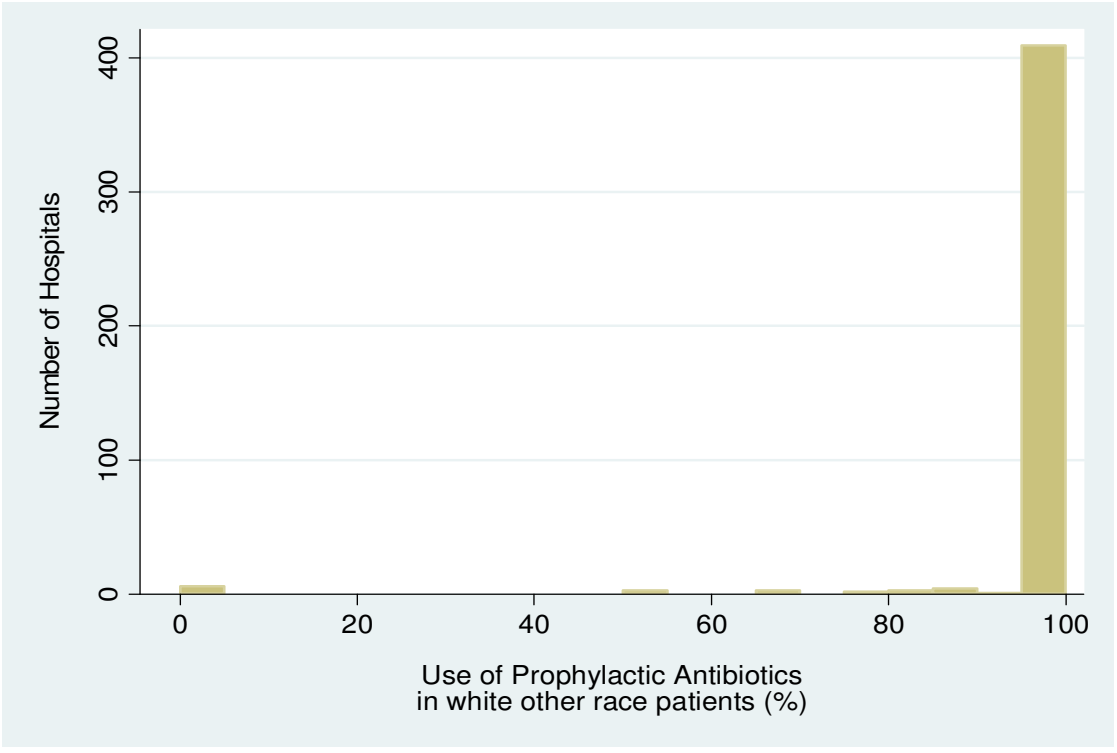
Distribution of The Composite Measure at Discharge Stratified by Race

Description	Race							
	Hispanic		White non-hispanic		Black non-Hispanic		Other	
	Volume	DCM	Volume	DCM	Volume	DCM	Volume	DCM
N	635	635	1171	1171	830	830	431	431
Mean	5.51	0.9789	47.39	0.9799	10.09	0.9783	3.08	0.9765
Std Deviation	9.05	0.1077	49.53	0.0690	14.09	0.0986	6.49	0.1288
100% Max	75	1.0000	328	1.0000	105	1.0000	99	1.0000
99%	52	1.0000	215	1.0000	68	1.0000	23	1.0000
95%	22	1.0000	151	1.0000	39	1.0000	8	1.0000
90%	13	1.0000	117	1.0000	25.5	1.0000	6	1.0000
75% Q3	6	1.0000	65	1.0000	12	1.0000	3	1.0000
50% Median	2	1.0000	30	1.0000	5	1.0000	2	1.0000
25% Q1	1	1.0000	12	0.9928	2	1.0000	1	1.0000
10%	1	1.0000	4	0.9474	1	0.9680	1	1.0000
5%	1	0.8750	2	0.8919	1	0.8750	1	0.9259
1%	1	0.5000	1	0.6667	1	0.5000	1	0.0000
0% Min	1	0.0000	1	0.0000	1	0.0000	1	0.0000


Number of Hospitals
0
200
400
600
0
20
40
60
80
100
Use of Prophylactic Antibiotics
in hispanic patients (%)


Number of Hospitals
0
200
400
600
800
1000
0
20
40
60
80
100
Use of Prophylactic Antibiotics
in white non-hispanic patients (%)


Number of Hospitals
0
200
400
600
800
0
20
40
60
80
100
Use of Prophylactic Antibiotics
in black non-hispanic patients (%)


Number of Hospitals
0
100
200
300
400
0
20
40
60
80
100
Use of Prophylactic Antibiotics
in white other race patients (%)

Study Cohort

Exclusions	Patient Visits		Patient Stays		Patients		Facilities	
Total	**71808**	**100.0**	**71286**	**100.0**	**70775**	**100.0**	**1189**	**100.0**
Discharge not in 2010 Q2 or Q3	0	0.0	0	0.0	0	0.0	0	0.0
Remaining	**71808**	**100.0**	**71286**	**100.0**	**70775**	**100.0**	**1189**	**100.0**
Procedure type: Lead only	2462	3.4	1964	2.8	1543	2.2	0	0.0
Remaining	**69346**	**96.6**	**69322**	**97.2**	**69232**	**97.8**	**1189**	**100.0**
Prophylactic Antibiotics: not given, medical reason documented; or Missing	660	1.0	659	1.0	654	0.9	1	0.1
Study Cohort	**68686**	**99.0**	**68663**	**99.0**	**68578**	**99.1**	**1188**	**99.9**
Prophylactic Antibiotics	67300	97.98	67277	97.98	67196	97.98	1186	99.83

0