

**APPENDIX A**  
**NURSING CARE PERFORMANCE MEASURES PROJECT COMMITTEE, TECHNICAL**  
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# APPENDIX B—STEERING COMMITTEE COMMENTARY

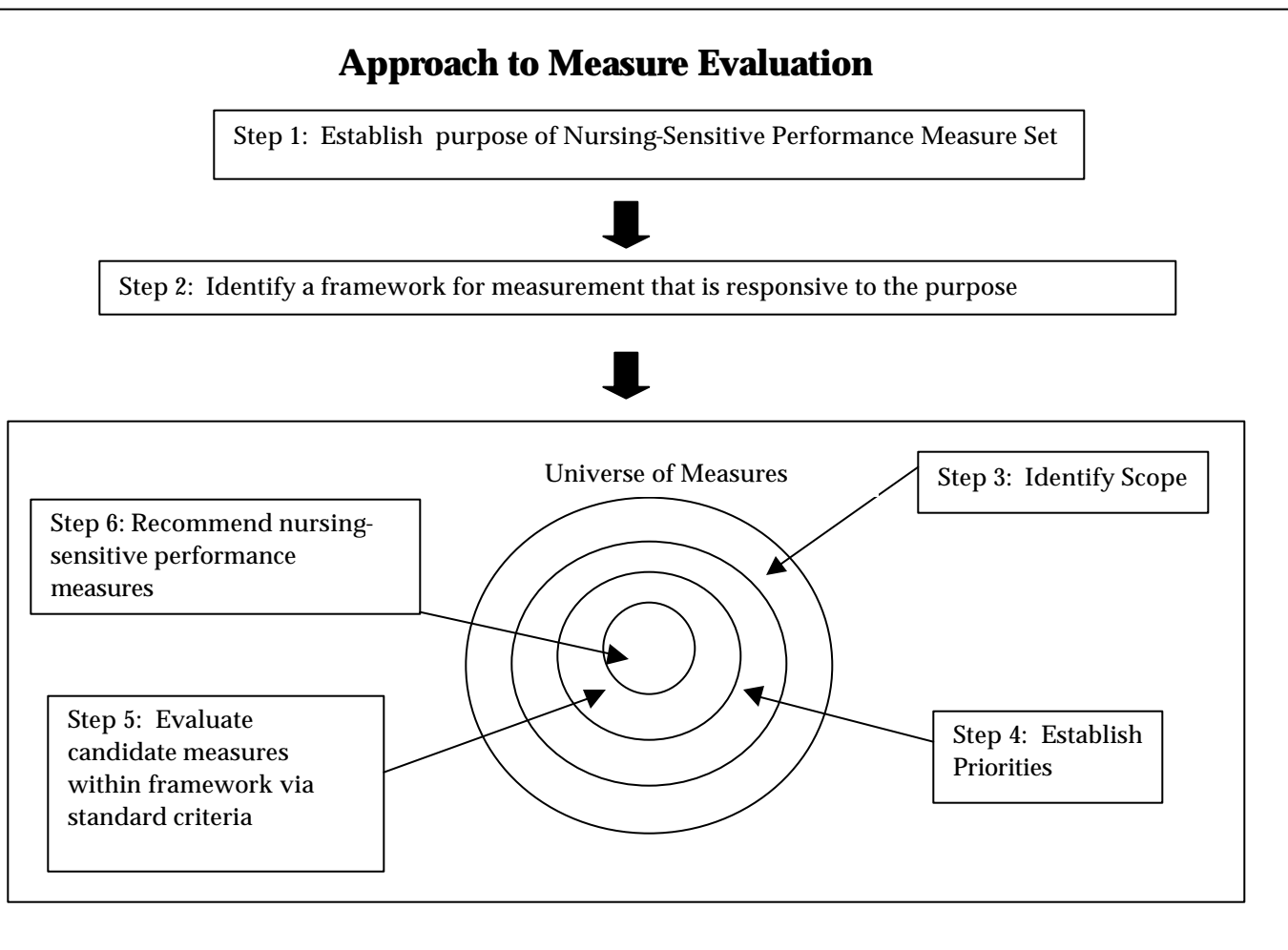
## INTRODUCTION

In February 2003, the National Quality Forum (NQF) initiated a project to achieve consensus on an initial set of nursing-sensitive performance measures. Additionally, the project's purposes were to identify a framework for how to measure nursing care performance, with particular attention to the performance of nurses as teams and their contributions to the overall healthcare team, and prioritize unresolved issues and research needs that would guide the research and measure development community.

As with other NQF consensus projects, a Steering Committee representing key healthcare constituencies—including consumers, providers, purchasers, and research and quality improvement organizations—was convened, and in September 2003 it recommended a set of measures that was forwarded to NQF Members and the public for comment in accordance with NQF's Consensus Development Process (CDP). This appendix summarizes the deliberations supporting the recommended measures and additional recommendations of the Steering Committee.

## APPROACH TO MEASURE SCREENING AND EVALUATION

The Steering Committee's overall approach to measure screening and evaluation followed a 6-step process. This process entailed establishing specific decision rules—or thresholds—to screen candidate measures. This process is visually illustrated in the following diagram:



49 The application of these decision rules narrowed the inventory of measures from an extensive  
50 collection of all potential, candidate measures (“universe”) to those that met the established  
51 boundaries.

## 52 53 ESTABLISHING THE PURPOSE OF THE INITIAL SET

54 Before identifying candidate measures, the Steering Committee articulated specific purpose  
55 statements that would inform the measure selection and prioritization process. Specifically, measures  
56 that met one or more of the purposes would be considered for inclusion whereas measures that might  
57 be adequate in other ways, but that did not satisfy one or more purposes, were considered beyond the  
58 intent of the project. As articulated by the Steering Committee, the primary purpose of measuring  
59 nursing care delivered in US hospitals is to:

60 1. Achieve the highest levels of patient safety and healthcare outcomes in acute care.

61 Additionally, endorsed, standardized nursing-sensitive performance measures will:

62 2. Enhance the clinical practice of nurses, nursing teams, and patient care teams today and in  
63 future;

64 3. Promote public accountability, including, but not limited to, public reporting and financial  
65 incentives, to distinguish and reward the relationship between nursing and quality outcomes;

66 4. Facilitate the identification of priority areas for needed research in measuring nursing care  
67 that will lead to improved patient safety and healthcare outcomes;

68 5. Stimulate enhancements to the education of the current and future workforce;

69 6. Support benchmarking and sharing of best nursing care practices; and,

70 7. Promote the translation of the state of the science of nursing care into the practice of nurses  
71 and delivery of nursing care.

## 72 IDENTIFYING THE FRAMEWORK FOR MEASUREMENT

73 After determining the purpose of the measure set, the Steering Committee constructed a  
74 conceptual model that served as the basis for measure selection. In determining its framework, the  
75 Steering Committee reviewed general research on organizing frameworks for healthcare quality as  
76 well as nursing-specific literature to determine whether existing frameworks might be adaptable to  
77 this purpose.

78 Based on this review of existing frameworks, the following principles were adopted to drive  
79 the development of a framework for nursing-sensitive performance measurement:

80 • Adopt a framework that recognizes that a subset of and/or separate measures is appropriate  
81 for public accountability.

82 • Base the framework for nursing-sensitive performance measures on three categories of  
83 measures:

84 ○ patient-centered outcome measures;

85 ○ nursing-centered intervention measures; and,

86 ○ system-centered measures.

87 • Incorporate the NQF aim areas into the framework for nursing-sensitive performance  
88 measurement as the components of patient-centered outcomes.

89 • Establish a framework that recognizes that every measure need not be applicable to all patient  
90 populations, but that, collectively, at least some measures must apply to all patient  
91 populations.

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- Adopt a framework that easily adapts to non-hospital settings and facilitates the stratification and/or segmentation of results by key factors such as nursing unit type, patient condition, and demographic population.
  - Establish a framework that enables a focus on positive outcomes rather than negative ones.
  - Adopt a framework that permits the incorporation of key elements, assuming they meet other established scope, priority, and evaluation criteria thresholds, such as:
    - setting-specific elements such as hospital size, geographic location, teaching status;
    - nursing team/multidisciplinary team elements such as nursing’s contribution to these teams; and,
    - nursing delivery models such as primary nursing, team nursing, functional nursing, patient-centered/focused care.

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104 A visual representation of these principles follows including a display of the 13 measures

105 recommended by the Steering Committee within this framework.

106

<p><b>1. Patient-centered outcome measures</b></p> <p>Focused on the outcomes of care delivered to patients by nurses.</p> <p>Based on and organized by the NQF aims: safe, beneficial, patient-centered, timely, efficient, equitable.</p> <p>For those measures intended for public accountability, refer to the existing, endorsed framework for hospital care evaluation.</p>	<p><b>2. Nurse-centered intervention measures</b></p> <p>Focused on aspects of nursing intervention and processes of care provided by nurses.</p> <p>Based on the organization, nature, and quality of nursing care processes.</p>	<p><b>3. System-centered org measures (individual, team, organization)</b></p> <p>Focused on system-level organizational effectiveness and efficiency that influences and is influenced by nursing care and performance.</p> <p>Based on structural, organizational, work process, and work design related elements of the work environment.</p>
<u><b>MEASURES</b></u>	<u><b>MEASURES</b></u>	<u><b>MEASURES</b></u>
<u><b>EXISTING MEASURES</b></u>	<u><b>MEASURES</b></u>	<u><b>MEASURES</b></u>

Measures for quality improvement

Measures for accountability

Refer to A Comprehensive Framework for Hospital Performance Evaluation

1. Failure to rescue
2. Pressure ulcer prevalence
3. Pneumonia (hospital-acquired) prevalence
4. Falls prevalence
5. Restraint prevalence
6. Urinary tract infection (UTI) prevalence
7. Urinary catheter-associated UTI for ICU patients
8. Central line catheter-associated BSI for ICU and HRN patients
9. Ventilator-associated pneumonia for ICU and HRN patients

10. Smoking cessation counseling for AMI, HF, and pneumonia inpatients

11. Skill mix
12. Nursing care hours per patient day
13. Practice Environment Scale-Nursing Work Index

**Recommended Measures**

## 106 IDENTIFYING THE SCOPE OF THE INITIAL SET

107 Establishing the scope of the nursing-sensitive performance measure set required the Steering  
108 Committee to set boundaries in order to limit the evaluation of candidate measures to those that were  
109 most appropriate to the needs of the overall NQF Nursing Care Performance Measures project. The  
110 scope for this initial effort was defined as measures that:

- 111 • are fully open source;
- 112 • are fully developed (e.g., precisely specified, tested, and in current use);
- 113 • are patient-centered outcome, nurse-centered intervention, or system-centered measures;
- 114 • apply to the set of personnel, or the mix of personnel who deliver nursing services in acute  
115 care settings (e.g., RNs, LPNs, and nurse assistants);
- 116 • focus on the care of patients with acute care needs with priority given to those measures  
117 that address nursing care delivered across settings and patients' needs across the  
118 continuum of care;
- 119 • apply to acute inpatient and/or hospital emergency care (note: to remain consistent with  
120 the NQF-endorsed Hospital Care Performance Measures); and
- 121 • reflect those aspects of care influenced by, but not necessarily controlled by, nursing  
122 personnel.

## 124 ESTABLISHING PRIORITIES FOR MEASUREMENT

125 Within the defined scope, the Steering Committee agreed to limit the measure set further by  
126 identifying priorities for measurement. By establishing priorities, the Steering Committee  
127 acknowledged that not all measures deserve equal consideration as candidates, particularly given the  
128 pressing need for measures in some areas and the undeveloped state of nursing-sensitive  
129 performance measurement. In the absence of quantitative mechanisms for determining priorities for  
130 nursing-sensitive performance measurement (e.g., logic maps or clinical algorithms), priorities were  
131 identified through Steering Committee discussion and consensus. As a result, the following general  
132 principles were adopted by the Steering Committee to drive measure prioritization:

- 133 • Measures that address nursing care delivered across multiple healthcare settings and that  
134 address people's needs across the continuum of care including those that focus on  
135 integrated care, care coordination, and access to care;
- 136 • Measures that address the six NQF aim areas (safe, beneficial, patient-centered, timely,  
137 efficient, and equitable);
- 138 • Measures that are consistent with NQF-endorsed measures and/or practices;
- 139 • Measures that address clinical priority areas as identified by the IOM in its 2003 report,  
140 Priority Areas for National Action: Transforming Health Care Quality;
- 141 • Measures that reflect priorities and areas for measurement as reflected in AHRQ's  
142 National Report on Health Care Quality and National Report on Healthcare Disparities;
- 143 • Measures that are evidence-based and in common, widespread use and/or required for  
144 other purposes (e.g., JCAHO, Magnet status);
- 145 • For those measures intended for public reporting, measures that are useable to the  
146 consumer/public;
- 147 • Measures that promote the highest quality and safety of healthcare rather than focusing on  
148 the negative consequences of adverse events;

- 149
- At least some measures that apply to all nursing personnel; and
- 150
- At least some measures that apply to all hospital patients.
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152 While the Steering Committee adopted these priority thresholds, as it began its selection of  
153 candidate measures for evaluation based on the universe identified, Committee members were  
154 inclined to include measures that did not meet the established priorities. As a result, the Committee  
155 considered whether its established priorities warranted refinement. For this purpose, the Committee  
156 considered additional priorities:

- 157
- high-risk, high volume, high-cost, or problem-prone inpatient conditions;
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- functions that are unique to nurses (e.g., assessment, prevention, patient education);
- 159
- nurses’ dependent, independent, and interdependent functions;
- 160
- human resource measures and clinical outcomes;
- 161
- critical patient safety issues;
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- specific populations (e.g., pediatric, elderly); and,
- 163
- continuum of care (prevention, diagnosis, treatment).
- 164

165 In their review, the Committee affirmed the established priorities, but agreed that the  
166 additional areas were aligned with and more specific examples of these priorities. For example, the  
167 Steering Committee’s priority of “measures that address the six NQF aim areas (safe, beneficial,  
168 patient-centered, timely, efficient, and equitable)” included and could be further articulated as  
169 “critical patient safety issues” and priorities addressing “specific populations.” As a result, the  
170 Steering Committee opted not to change the priorities it had previously identified, but it did adopt  
171 NQF staff’s additional suggestions (above) as narrative explanations for the established priorities in  
172 the consensus report.

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## 174 IDENTIFYING CANDIDATE MEASURES

175 Once the scope and priorities of the measure set were established, the Steering Committee  
176 used multiple and varied approaches to identify the universe of potential candidate measures:

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- A literature review was conducted based on specific search parameters: published within the  
178 last 10 years, containing key words/phrases (e.g., nursing-sensitive, nursing performance,  
179 productivity, efficiency, staffing, nurse quality/performance measures, care teams, patient  
180 focused teams, interdisciplinary teams, outcomes, nursing care, etc.), and/or authored by a  
181 known researcher in the field of nursing performance. This search resulted in the  
182 identification of nearly 300 articles and other publications.
- 183
- Members of professional organizations and experts in the field were interviewed to determine  
184 relevant activities and research in this area (i.e., American Nurses Association (ANA),  
185 National Institute of Nursing Research (NINR), Joint Commission on Accreditation of  
186 Healthcare Organizations (JCAHO), Institute of Medicine (IOM), Centers for Medicare and  
187 Medicaid Services (CMS)).
- 188
- Through discussions with the project’s funder (Robert Wood Johnson Foundation), the extent  
189 that other, related activities should be considered (e.g., RWJF projects in idealized design of  
190 nursing units) were discussed and identified.
- 191
- NQF-endorsed measures and other related, ongoing NQF consensus work were reviewed to  
192 identify nursing-sensitive measures within these other efforts.

- 193 • A “call for measures” was undertaken to solicit possible measures for review and evaluation.  
194 This “call” included a web site posting, email communication to NQF members and more  
195 than 800 other interested individuals and organizations, and correspondence with relevant  
196 nursing organizations and specialty societies. NQF received more than two dozen responses  
197 to the “call” which resulted in approximately four dozen measures—including some that met  
198 the Steering Committee’s purposes, framework, scope, and priorities.
- 199 • Steering Committee members were encouraged to circulate the list of candidate measures  
200 within their organizations to determine if additions could be made.
- 201 • Presentations by NQF staff at industry meetings to acquaint others with the project and  
202 encourage participation through measure submission (i.e., NQF Member Meeting,  
203 AcademyHealth, National Business Coalition on Health) resulted in the identification of  
204 additional candidate measures.  
205

206 Together, these efforts resulted in more than 100 measures, in total, that underwent further  
207 review.  
208

## 209 MEASURE SCREENING, EVALUATION, AND SELECTION

210 Once measures were identified, they were examined for relevance to the purpose, framework,  
211 scope, and priorities. Some candidate measures were excluded by the Steering Committee because  
212 they did not meet the established thresholds. For example, measures that were under development or  
213 which were proprietary were excluded from further consideration.  
214

215 After initial these preliminary exclusions were made, the Steering Committee reviewed detailed  
216 evaluations of each remaining measure. Measures were evaluated based on the criteria endorsed by  
217 the NQF<sup>1</sup>, as derived from the work of the Strategic Framework Board<sup>2</sup> (SFB)—i.e., importance,  
218 scientific acceptability, usefulness, and feasibility. These criteria were operationalized for purposes of  
219 conducting consistent, comprehensive measure reviews:

- 220 • Comprehensive evaluations based on the agreed upon criteria were conducted for 57  
221 measures selected by the Steering Committee for evaluation. For each measure, evidence,  
222 documentation, citations, and other published references from the measure developer as well  
223 as published practice guidelines, published evidence, and published research which  
224 supplemented what was supplied by the measure developer were used to assess the  
225 measure’s strength relative to each evaluation criterion. Together, this information constituted  
226 the information that supported each individual evaluation. Once gathered, the evidence was  
227 reviewed and each measure was rated for each criterion. The extent that evidence was found  
228 in support of the relationship of the measure to nursing care was noted.
- 229 • Once each measure had been evaluated for each criterion, a simple classification system was  
230 employed to rate each measure for its appropriateness for inclusion in the nursing-sensitive  
231 performance measure set. The following describes each of the classifications:
- 232 Class Ia—Precisely specified, identifiable link to nursing care, feasible for implementation (i.e.,  
233 scored “high” for feasibility), and scientifically supported (“high” or “medium” validity and  
234 reliability);
- 235 Class Ib—Precisely specified, identifiable link to nursing care, feasible for implementation, but  
236 lack scientific support (“low” or “unknown” for reliability and validity);

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<sup>1</sup> National Quality Forum. *A Comprehensive Framework for Hospital Care Performance Evaluation*. Washington, DC: National Quality Forum. 2003.

<sup>2</sup> “The Strategic Framework Board’s Design for a National Quality Measurement and Reporting System.” *Medical Care*. 2003;41(1)suppl:I-1—I-89.

237 Class II—Precisely specified but concerns about feasibility or no evidence of identifiable link  
238 to nursing care; and,

239 Class III—Not precisely specified nor feasible or measures with serious methodological  
240 concerns (e.g., risk adjustment inadequacies, unresolved proprietary considerations).

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#### 242 *Measures Recommended by the Steering Committee*

243 Based on the deliberations, the Steering Committee recommended 13 measures that they  
244 concluded clearly met the evaluation criteria. Of the 13, two (identified below) were recommended  
245 by a plurality rather than a majority of Committee members.

246 A list of the 13 measures recommended follows, including any measure-specific concerns  
247 raised during the deliberations.

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#### 1. **Failure to rescue (DHHS version recommended; AHRQ PSI also reviewed)**

- 249 ○ Because the research reviewed supported failure to rescue (FTR) as a “nursing  
250 sensitive” measure to major surgical patients only (versus medical patients), the  
251 Steering Committee agreed it should be recommended for the surgical subpopulation.
- 252 ○ The Steering Committee believed that the public would not easily understand “failure  
253 to rescue” and suggested that this be noted along with the measure when it is  
254 recommended.
- 255 ○ Further investigation should be conducted concerning this measure’s relationship to  
256 nursing for non-surgical populations.
- 257 ○ Concerns were raised regarding the DHHS risk adjustment methodology and the  
258 likelihood that resources would be available to update the risk adjustment. Additional  
259 concerns were raised that the AHRQ PSI version of the measure requires statistical  
260 software for risk adjustment and the knowledge to use such software.
- 261 ○ In considering the two versions of the measure, the Steering Committee believed that  
262 because the US Department of Health and Human Services (DHHS) was supported by  
263 strong and consistent evidence and due to the feasibility issues of the AHRQ PSI  
264 measure, the DHHS measure was preferable.

265

#### 2. **Pressure ulcer prevalence (various versions reviewed)**

- 266 ○ In their review, the Steering Committee considered five different versions of pressure  
267 ulcer. Generally, the Steering Committee favored the inclusion of a pressure ulcer  
268 measure because of its clear relationship to nursing care and the widespread use of the  
269 measure in major national initiatives (e.g., CalNOC, ANA-NDNQL, MilNOD,  
270 VANOD); however, there were pros and cons of recommending each version. For  
271 example, while the ANA/CalNOC version was considered burdensome because of its  
272 reliance on a 1-day prevalence study, it was considered to be more valid than a  
273 measure based on administrative data (e.g., AHRQ PSI).
- 274 ○ Concerns were raised that the measure be specific to hospital-acquired ulcers and  
275 exclude those pressure ulcers acquired in long term care facilities or non-hospital  
276 settings.
- 277 ○ Concerns were also raised about the extent that different definitions of pressure ulcer  
278 were relevant and different staging mechanisms were applied in the measure  
279 specifications.
- 280 ○ In the end, the Steering Committee agreed to include the ANA/CalNOC version of  
281 pressure ulcer.

282

#### 3. **Pneumonia (hospital-acquired) (DHHS)**

- 284 ○ While concerns were raised that the measure included pre-existing pneumonias, it was  
285 clarified that the specifications narrowed the numerator to exclude, to the extent  
286 possible, community-acquired pneumonias.

- 287           o The measure was seen as strongly related to nursing care.  
288           o This measure was recommended by a plurality rather than a majority.  
289  
290   **4. Falls and falls with injury (ANA/CalNOC)**  
291           o As a previously endorsed NQF hospital performance measure, the key consideration  
292           was the extent research supported it as a nursing measure. (NOTE: The Steering  
293           Committee found adequate science to support it as a “nursing sensitive” measure.)  
294  
295   **5. Restraint prevalence (CalNOC)**  
296           o The Steering Committee acknowledged the improved reliability of this measure if  
297           calculated based on observational studies.  
298           o NQF staff shared the concerns with this measure that were raised during the ‘Hospital  
299           Care Performance Measures’ Project—namely that the measure is relatively  
300           burdensome because of its reliance on a 1-day prevalence study and the lack of  
301           consistency of side-rails as a restraint.  
302           o The Committee acknowledged the critical importance of this measure especially as it  
303           relates to the public and, in the end, recommended it for inclusion.  
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305   **6. Urinary tract infection (DHHS)**  
306           o It was acknowledged that this measure is more relevant to all inpatients as compared  
307           to the urinary catheter-associated UTI for ICU patients measure (CDC) that was also  
308           recommended for inclusion.  
309           o Because of the concerns related to the definition of UTI, standardization of the measure  
310           was seen as a positive step in performance measurement.  
311           o Testing of this measure was conducted on a large number of inpatient discharge  
312           abstracts from close to 800 hospitals in 11 states supporting its validity as a nurse-  
313           sensitive measure.  
314           o This measure was recommended by a plurality rather than a majority.  
315  
316   **7. Urinary catheter-associated urinary track infection (UTI) for ICU patients (CDC)**  
317           o As a previously endorsed NQF hospital performance measure, the key consideration  
318           was the extent research supported it as a nursing measure. (NOTE: The Steering  
319           Committee found adequate science to support it as a “nursing sensitive” measure.)  
320           o Concerns were raised that because it apply only to the ICU population, it may not be as  
321           relevant as a more general UTI measure.  
322  
323   **8. Central line catheter-associated blood stream infection (BSI) for intensive care unit**  
324   **(ICU) patients (CDC)**  
325           o As a previously endorsed NQF hospital performance measure, the key consideration  
326           was the extent research supported it as a nursing measure. (NOTE: The Steering  
327           Committee found adequate science to support it as a “nursing sensitive” measure.)  
328           o It was suggested that smaller hospitals might be challenged by tracking central line  
329           use, suggesting feasibility issues.  
330           o The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) intends  
331           to include this measure in their ICU measure set.  
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335   **9. Ventilator-associated pneumonia for ICU patients and for high-risk nursery patients**  
336   **(CDC)**

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- As a previously endorsed NQF hospital performance measure, the key consideration was the extent research supported it as a nursing measure. (NOTE: The Steering Committee found adequate science to support it as a “nursing sensitive” measure.)
  - There was general agreement that a growing body of evidence continues to support this measure’s relationship to nursing care. Research conducted by VHA Inc., MilNOD (unpublished), and the Institute for Healthcare Improvement (IHI) supports its relationship to nursing.
- 10. Smoking cessation counseling for AMI, pneumonia, and HF patients (JCAHO, CMS).**
- It was noted that these are JCAHO core measure, CMS QIO measures (7th Scope of Work) and NQF-endorsed measures.
  - There was general agreement that the measure is influenced by nurses as well as other professionals who offer smoking cessation counseling (respiratory therapists, physicians).
  - Because of the meta-analysis summarized by NQF staff and reviewed by the Steering Committee that supports nurse-directed counseling having a positive impact, it was generally agreed this is a nurse-sensitive performance measure.
- 11. Skill mix (ANA/CalNOC)**
- 12. Nursing care hours per patient day (ANA/CalNOC)**
- While evaluated separately, these measures were discussed by the Steering Committee together.
  - The Steering Committee acknowledged the possible negative effect the measure could have—namely enabling hospitals to reduce nurse staffing.
  - Furthermore, it was acknowledged that these are proxy measures for quality; evidence supports their relationship to patient outcomes.
  - Furthermore, while a relationship exists, measurement of both staffing level and mix do not necessarily inform hospital leadership about what immediate steps to take to resolve any unintended negative consequences.
  - The NQF-endorsed safe practices report<sup>3</sup> includes specification of a protocol to ensure an adequate level of nursing care based on the patient mix and experience/training of staff. The Steering Committee acknowledged that recommending this measure was consistent with the NQF practice.
  - It was acknowledged that the relationship to patient outcomes was so well recognized that to exclude the measure would be a significant oversight.
  - Clarification was made that the Steering Committee was recommending the measure but not a specific staffing ratio.
  - The Steering Committee viewed this measure as one in a larger set—agreeing that no single measure should be used to evaluate nursing performance.
- 13. Practice Environment Scale-Nursing Work Index (PES-NWI) and subscales (literature)**
- This measure was discovered by staff as an alternative to “Magnet status” (a measure that had proprietary concerns and that was excluded as a result).
  - The Steering Committee viewed this as a work environment measure and, as a result, of critical importance for standardization.
  - The instrument has been well tested and validated in the literature.
  - It was recognized that the measure has feasibility issues, as it relies on a multi-item survey. While concerns were raised about the implementation of this tool (e.g., response rate, raising expectations of action steps resulting from the survey), the Steering Committee recognized it could not dictate use once standardized.

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<sup>3</sup> National Quality Forum. *Safe Practices for Better Healthcare*. Washington DC: National Quality Forum. 2003.

- 387                   o While multiple version of the tool and associated subscales were reviewed, in the end,  
388                   the Steering Committee agreed to include the PES-NWI version.  
389

390 *Measures Not Recommended by the Steering Committee*

391                   The Steering Committee was opposed to recommending 44 other measures, although they  
392                   noted that additional research should be conducted to improve them. Many of these measures clearly  
393                   were of interest to Committee members, but a variety of issues, including those involving feasibility,  
394                   were raised that resulted in the exclusion of these measures from the set. These measures and a brief  
395                   summary of the rationale for excluding them follow:

396                   **Death in low mortality DRGs (AHRQ PSI)**

- 397                   o Because much of the research on this measure is focused on overall mortality versus  
398                   mortality in only low mortality DRG categories, concerns were raised that the evidence  
399                   base linking this measure to nursing was not sufficient.  
400                   o The Steering Committee believed that there were too many confounding variables—  
401                   beyond the care that is provided by nursing staff—to comfortably recommend this  
402                   measure as a ‘nursing-sensitive’ performance measure.  
403                   o The Steering Committee believed that because “failure to rescue” includes mortality  
404                   related to specific hospital complications (i.e., sepsis, pneumonia) and because the FTR  
405                   measure was recommended, this measure could be excluded.  
406

407                   **Length of stay (LOS) (DHHS)**

- 408                   o Generally, members of the Steering Committee thought it was an important measure—  
409                   especially from an efficiency and purchaser perspective.  
410                   o Overall, the Steering Committee felt that there was a growing body of evidence  
411                   relating length of stay to nursing care but that there because non-nursing factors  
412                   contribute greatly to LOS (e.g., physician practice), it was not the best measure of  
413                   nursing-sensitive performance.  
414

415                   **Lost work days (VANOD)**

416                   **Modified duty days (VANOD)**

- 417                   o While evaluated separately, these measures were discussed by the Steering Committee  
418                   together.  
419                   o The Steering Committee believed these measures would be captured by other  
420                   recommended measures (e.g., skill mix, nursing hours per patient day).  
421                   o These measures were not viewed as sufficiently related to patient outcomes.  
422                   o Because various injuries influence these measures, they were viewed as unreliable.  
423

424                   **Post-op respiratory failure (AHRQ PSI)**

- 425                   o The measure developer rated the reliability as low causing the Steering Committee to  
426                   exclude it from its recommendations.  
427                   o Overall, the measure was seen as lacking clear specificity.  
428

429                   **Upper gastrointestinal (UGI) bleeding (DHHS)**

- 430                   o The measure was viewed by the Steering Committee as being more physician-sensitive  
431                   than nursing-sensitive.  
432                   o Because FTR includes UGI bleeding, the Steering Committee felt the outcome would be  
433                   captured in the recommended FTR measure.  
434                   o The measure was viewed as less nursing sensitive than other measures evaluated by  
435                   the Committee.  
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**Shock (DHHS)**

- o The Steering Committee viewed this measure as having multiple confounding variables and nursing care as one, of many, related factors.
- o Because FTR includes shock, the Steering Committee felt the outcome would be captured in the recommended FTR measure.

**Turnover (voluntary) (VHA Inc., NS-LIJ, literature)<sup>4</sup>**

- o The Steering Committee agreed that while important for human resource planning, the measure was not widely accepted as a nursing-sensitive performance measure—evidence linking the measure to patient outcomes is growing but not strong and consistent.
- o There were concerns that if reported, the public might misinterpret the results since it is not clear the strength or direction of the evidence—whether turnover results in poor quality care or whether poor quality causes turnover.
- o Since JCAHO requires hospitals to measure the human resource component of nursing staff effectiveness, concerns were raised that by excluding this measure (and other HR-related measures) the Steering Committee would be missing an opportunity to standardize this area.
- o Questions were raised about the measure’s specifications; whether RNs, LPNs, nurse aides are all included in the denominator population.
- o There was general agreement that clinical outcome measures are stronger indicators of nursing quality than administrative “proxies.”
- o Recognition that several organizations (e.g., VHA Inc., JCAHO) are studying the relationship between turnover and patient outcomes and that these investigations will further inform the deliberation.
- o While research is pending, this is one area that standardization is needed, as many hospitals and hospital systems use different definitions of turnover.
- o It was acknowledged by the Committee that turnover is often positive and that it does not differentiate preferable losses.
- o The Steering Committee viewed this measure as a critically important area for further investigation but voted to exclude the measure.
- o Advice and counsel was sought by the Steering Committee through the Technical Advisory Panel (TAP) to be convened under this project.

**Nursing needlestick injuries (MilNOD)**

- o The measure developer acknowledged concerns about the measure’s reliability and validity.
- o Additional concerns were raised regarding the measure’s relevance in a needleless healthcare system.
- o It was agreed that the measure not ready for adoption.

**Staff tenure (VHA Inc.)**

- o Many of the same discussion points were raised for “staff tenure” as were raised with turnover.
- o The Steering Committee raised concerns about the possible misinterpretation of this measure—that longer tenure may be perceived to relate to poor quality care.
- o Concerns were raised with the usefulness of the measure as it was not clear whether months of employment in a particular position were more beneficial than months of employment in a particular institution.

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<sup>4</sup> Turnover and vacancy, were measures that stimulated great debate. While the Steering Committee voted to exclude these measures, clear division existed.

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**Average days to fill (VHA Inc.)**

**Turnover costs/expense (VHA Inc.)**

**Vacancy (VHA Inc.)<sup>4</sup>**

**Recruitment rate (VHA Inc.)**

- o While evaluated separately, these measures were discussed by the Steering Committee together.
- o Many of the same discussion points were raised for these measures as were raised with turnover.
- o The Steering Committee viewed these measures as too immature for implementation. While the Steering Committee viewed them as important future measures, vacancy was considered the most likely candidate for near-term standardization.
- o Concerns were raised that efficiency is a vital aim of the healthcare system that that the Steering Committee would likely have few measures in this area. It was suggested that these measures might represent a missed opportunity to standardize nursing care efficiency.

**Nurse to patient ratio (CalNOC)**

- o The Steering Committee acknowledged that this measure is of vital importance to California hospitals (hence, the focus by CalNOC).
- o It was acknowledged that the measure may benefit from standardization but that addressing a standard ratio is beyond the project's purpose.
- o The Steering Committee was strongly opposed to establishing any specific staffing ratio.
- o The Steering Committee viewed the recommendation of nursing care hours and skill mix as an adequate surrogate for this measure.

**Deep vein thrombosis (DVT)/pulmonary embolism (PE) (DHHS, AHRQ PSI)**

- o It was acknowledged that this outcome is more dependent on anticoagulation therapy than nursing care. As a result, it was not viewed as a nursing-sensitive performance measure.

**Sepsis (DHHS)**

- o It was acknowledged that the Steering Committee had previously recommended several infection-related measures (BSI, UTI, pneumonia).
- o Since the FTR measure includes sepsis, the Committee felt that recommendation of it was an appropriate surrogate.
- o While the measure was investigated in an extensive study (800 hospitals in 11 states), no consistent strong evidence was found to support it as a nurse-sensitive measure.

**Selected infections due to medical care (AHRQ PSI, NS-LIJ, literature)**

- o The Committee agreed that evidence linking this measure to nursing care was weak.

**Post-op hip fracture (AHRQ PSI)**

- o Because the occurrence is infrequent and variation is low, the Steering Committee did not see it as a priority for standards setting.
- o The Steering Committee suggested that the denominator (post-operative inpatients) was too narrow and that the measure was more appropriate for the long term care population.

**Post-op physiologic and metabolic derangements (AHRQ PSI)**

- 537           o It was acknowledged by the Steering Committee that the measure’s exclusions consist  
538           of the most important derangements (ketoacidosis, hyperosmolarity, or other coma  
539           and a principal diagnosis of diabetes) making the measure less relevant.

540  
541 **Post-op sepsis (AHRQ PSI)**

- 542           o Concerns were raised about the appropriate coding of sepsis and the differentiation  
543           between nosocomial and pre-existing sepsis making the measure unreliable.  
544           o Since the FTR measure includes sepsis, the Committee felt that recommendation of it  
545           was an appropriate surrogate.

546  
547 **Transfusion reaction (AHRQ PSI)**

- 548           o While the Steering Committee recognized that this measure is related to an NQF-  
549           endorsed serious reportable event<sup>5</sup>, they perceived it to be an infrequent occurrence  
550           and of lower priority for nursing care measurement than other candidates.  
551           o Concerns were raised that the measure is not specific enough to distinguish  
552           improperly administered blood from blood administered that results in an allergic  
553           reaction.

554  
555 **Ventricular tachycardia/fibrillation management (Methodist)**

- 556           o Concerns were raised that the measure, as specified, was not supported by the  
557           evidence.  
558           o There was no evidence linking this measure to nursing care.  
559           o It was acknowledged that the administration of defibrillation/automatic external  
560           defibrillation by nurses is not consistent with hospital policies.

561  
562 **30-day mortality rate (risk-adjusted) (literature)**

- 563           o The Steering Committee raised concerns about the feasibility of risk-adjustment as well  
564           as the burden of collecting mortality at 30-days.  
565           o There was widespread agreement that nursing variables are not the only ones  
566           associated with mortality, and that other aspects of care, even after adjusting for  
567           patient and hospital characteristics, have a direct influence.  
568           o The Steering Committee acknowledged that the link between nursing care and  
569           mortality was growing and would likely be more developed in the future.

570  
571 **Reintubation (NS-LIJ, literature)**

- 572           o While the Steering Committee regarded research in this area as sufficient, the measure  
573           studied was focused on very narrowly defined denominator populations (hepatic  
574           resection and resection of abdominal aorta with replacement) whereas the measure  
575           under consideration was applied to a broader population (all ICU patients) that had  
576           not been sufficiently investigated.  
577           o The authors of the various studies on reintubation raised concerns about the  
578           inadequacy of the risk adjustment methodologies for this measure.

579  
580 **Infection control isolation compliance (Northwestern Memorial Hospital)**

- 581           o Evidence reviewed by the Steering Committee was not sufficient to demonstrate this  
582           measure’s link to nursing care.  
583           o While the measure is related to the CDC isolation precautions, the specifications are  
584           based on selected practices (rather than all precautions) raising concerns about the  
585           measure’s validity.

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<sup>5</sup> National Quality Forum. *Serious Reportable Events in Healthcare*. Washington DC: National Quality Forum. 2002.

- 586                   o The Steering Committee opted not to recommend this measure but asked NQF staff to  
587 further evaluate the CDC’s infection control personnel staffing measure (recently  
588 updated).

589  
590 **Infection control personnel (ICP) staffing (CDC)**

- 591                   o Initially, this measure was submitted by the CDC during the open solicitation period  
592 as a measure that was not appropriate for endorsement but that would inform the  
593 Steering Committee’s research agenda. However, during the Steering Committee’s  
594 review of measures, the CDC presented more current research allowing for full  
595 consideration.
- 596                   o While the recent research facilitated comprehensive evaluation of the measure, the  
597 Steering Committee did not view the research as ample enough to support it as a  
598 nursing-sensitive performance measure.

599  
600 **Nurse-committed medication errors (MilNOD, literature)**

- 601                   o Concerns were raised that the measure does not differentiate between nurse detected  
602 and nurse committed medication errors.
- 603                   o Because of the definitional issues and the likelihood that the measure would be  
604 perceived by nurses as punitive, reporting would likely be inconsistent creating  
605 questionable reliability.
- 606                   o Because medication errors were viewed as system errors, the Committee had difficulty  
607 suggesting a causal relationship between medication errors and nursing care.
- 608                   o There was general agreement that the measure was not ready to be recommended as a  
609 standard.

610  
611 **RN experience (literature)**

- 612                   o The Steering Committee raised questions regarding the extent that experience versus  
613 competency is related to outcomes. Without clear support from the evidence, the  
614 measure was viewed as immature for standardization.
- 615                   o As human resource databases are not consistent, there were feasibility/burden issues  
616 related to generating data on which the measure is constructed.
- 617                   o The measure is not sensitive enough to distinguish nurses who may be new to a unit  
618 (and therefore might be less experienced) from nurses who are new to the  
619 organization.
- 620                   o While it was recognized that administrative measures (such as RN experience) would  
621 be important variables on which to study outcomes, this measure was not perceived to  
622 be fully developed and tested.

623  
624 **RN education (literature)**

- 625                   o The Steering Committee raised many of the same concerns as were raised for RN  
626 experience.
- 627                   o Recommendations from emerging research should be taken into account before  
628 standardizing this measure.
- 629                   o North Dakota recently overturned its BSN-minimum entry-level into practice, and  
630 indication that states may be devaluing the education of nurses as a proxy for quality.

631  
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633  
634 **Absenteeism (literature)**

- 635                   o The Steering Committee raised uncertainties about the relationship between  
636 absenteeism and quality. (Does absenteeism result in poor quality or does poor quality  
637 result in absenteeism?)

- 638           o The Steering Committee believed this measure would be captured in other ways (e.g.,  
639 skill mix, nursing hours per patient day).

640  
641 **Family-centered care core metric (Boston Children’s Hospital)**

642 **Skin care core metric (Boston Children’s Hospital)**

643 **Vascular access device metric (Boston Children’s Hospital)**

644 **Patient safety core metric (Boston Children’s Hospital)**

645 **Feeding tube and care documentation metric (Boston Children’s Hospital)**

- 646           o These measures were evaluated individually but reviewed by the Steering Committee  
647 as a bundle.
- 648           o In general, these measures lacked sufficient evidence to support their reliability and  
649 validity.
- 650           o Furthermore, no testing of these measures’ “nursing sensitivity” had been conducted.
- 651           o These measures were based on multi-item tools/instruments making them  
652 burdensome.

653  
654 **Symptom management (pain, nausea, shortness of breath) for palliative care (The  
655 Methodist Hospital)**

- 656           o While the measure was based on a validated instrument (ESAS), the Steering  
657 Committee raised concerns that it was constructed from selected elements extracted  
658 from the ESAS tool without evidence of validity or reliability of these elements.
- 659           o The measure’s specifications were not precise (e.g., ESAS is used with patients who can  
660 and cannot respond; the measure developer modified the specifications during the  
661 NQF evaluation process to align it with the ESAS’ protocol) suggesting the measure  
662 would benefit from further development and testing.

663  
664 **Atelectasis (iatrogenic lung collapse) (literature)**

- 665           o This measure was excluded because of the proprietary risk adjustment methodology  
666 on which it is based.

667  
668 **Magnet status (literature)**

- 669           o This measure was excluded because of unresolved proprietary issues.

670  
671 **Unplanned extubation (NS-LIJ)**

- 672           o Concerns were raised about the precision of the measure—specifically, the  
673 differentiation of self-extubations and accidental extubations in the numerator.
- 674           o The validity, reliability, and link to nursing care were viewed as not sufficiently  
675 developed/studied.
- 676           o The Steering Committee viewed other, confounding factors (e.g., respiratory therapy)  
677 as contributing to this outcome more than nursing care.

678  
679 **Suspected drug reaction (NS-LIJ)**

680 **Patient complaint rate (NS-LIJ)**

681 **Medication/therapeutic near misses (NS-LIJ)**

- 682           o Although evaluated individually, the measures were reviewed by the Steering  
683 Committee collectively.
- 684           o For all three measures, precision and specification issues were raised causing the  
685 Steering Committee to exclude them. For example, patient complaints includes all  
686 complaints including those that are not patient care- and/or nursing care-related.
- 687           o Additionally, the definition of “near miss” and “suspected drug reaction” were  
688 sufficiently vague to cause inconsistencies in the measure.

689  
690 **Pain management (Kaiser Permanent (KP), Boston Children’s Hospital, literature)**

- 691           o Several different instruments and measures of pain assessment were reviewed by NQF  
692           staff—each with varying levels of validity and reliability.  
693           o Because of its importance as a cross cutting issue, there was strong support for  
694           including a pain measure; however, NQF staff recommended deferring a decision  
695           about any pain measure until the work of the American Medical Association (AMA),  
696           National Committee on Quality Assurance (NCQA) and JCAHO to finalize 9 measures  
697           of pain has been completed (due early 2004).  
698           o Through the CalNOC project, an extensive review of the pain  
699           assessment/management research has been conducted without evidence of a  
700           relationship between the actions nurses take to deal with patient pain and the outcome.  
701           o Additionally, an article is scheduled to be published (spring 2003) on the BCH pain  
702           measure that will inform the deliberations.  
703           o Because of the anticipated research related to pain assessment/management, the  
704           Steering Committee opted to defer recommendations on any measure until this  
705           emerging evidence becomes available.  
706

### 707 *Measures Recommended for Public Reporting*

708           The Steering Committee agreed that any recommended measure that scored high in the  
709           “usability” criterion be recommended for public reporting. Of the 13 measures that were  
710           recommended by the Steering Committee, all but 1 (smoking cessation) was rated “high” for  
711           usability. It was recognized that smoking cessation is a measure that is and will be reported publicly  
712           via other organization’s activities. This resulted in the Steering Committee recommending all 13  
713           measures for public reporting purposes.  
714

### 715 **ESTABLISHING AN AGENDA FOR RESEARCH**

716           During the course of measure identification and selection, a number of high priority areas for  
717           measurement were identified but lacked measures that were appropriate for inclusion based on their  
718           insufficiency in meeting the established evaluation criteria. As part of the project’s objectives, the  
719           Steering Committee identified gaps in measurement, described measure development opportunities,  
720           and made explicit recommendations to the NQF membership regarding research that could enhance  
721           the state of science and the maturity of candidate measures of nursing-sensitive performance.  
722

723           To construct its agenda for research, the Steering Committee employed various approaches  
724           including:

- 725           • examining the purpose, framework, scope and priority principles and disaggregating them to  
726           determine existing gaps;
- 727           • reviewing the measure evaluation criteria to determine the extent that measure developers  
728           and/or researchers were providing the type of evidence that is needed to adequately evaluate  
729           measures;
- 730           • detailing measure-specific refinements that would translate to measure improvements;
- 731           • reviewing measures that were beyond the scope thresholds and determine the extent that  
732           these measures should be translated into priorities for research; and
- 733           • suggesting, by expert opinion, other important areas for research and development.

734           Based on this approach, the following research priorities were recommended by the Steering  
735           Committee:  
736

- 737           • workforce measures and an empirical base to support them;

- 738 • measures that promote the highest quality and safety of healthcare rather than focusing on  
739 negative consequences;
- 740 • measures that address all NQF aims and all IOM priority areas;
- 741 • nurse-centered intervention process measures, including those that describe the unique  
742 contributions of nursing (e.g., assessment—especially pain assessment, problem identification,  
743 prevention, patient education) and the dependent, independent, and interdependent role of  
744 nurses;
- 745 • measures that address the role of nursing care teams and patient care teams; and,
- 746 • measures developed to address specific content areas (e.g., patient education, care  
747 coordination and integration, efficiency of nursing care, symptom management, pain  
748 assessment and management; functional outcomes, malnutrition and supplemental feeding,  
749 patient satisfaction with nursing care, and nursing satisfaction measures).
- 750
- 751 In addition to these recommendations, the Steering Committee described some general  
752 principles to frame their research agenda:
- 753 • Each organization’s willingness to collect data is an indicator of their commitment to quality  
754 and nursing performance.
- 755 • In order to evaluate each measure’s sufficiency, measure developers and researchers should  
756 investigate and document each measure’s adequacy with the NQF-endorsed measure  
757 evaluation criteria.
- 758 • Improvements in data availability and comprehensiveness will enable more robust research  
759 environment for measure development.
- 760 • Testing of consumers’ use of publicly reported measures should be undertaken.
- 761 • Establishing a business case for nursing-sensitive performance measurement will be necessary  
762 to facilitate a supportive climate for research and measure development.
- 763 • Interdisciplinary investigation of a collaborative nature will result in more adequate measures  
764 and wider acceptance of them within the provider community.
- 765 • Evidence supporting the measures as a “set” as well as evidence supporting the derivation of  
766 a nursing care performance index is a future priority .