



American Nurses Association Nursing Sensitive Measures National Database of Nursing Quality Indicators (NDNQI®)

Isis Montalvo, RN, MS, MBA
American Nurses Association
Manager, Nursing Practice and Policy

National Committee on Vital Health and Statistics
Quality Workgroup (QWG)
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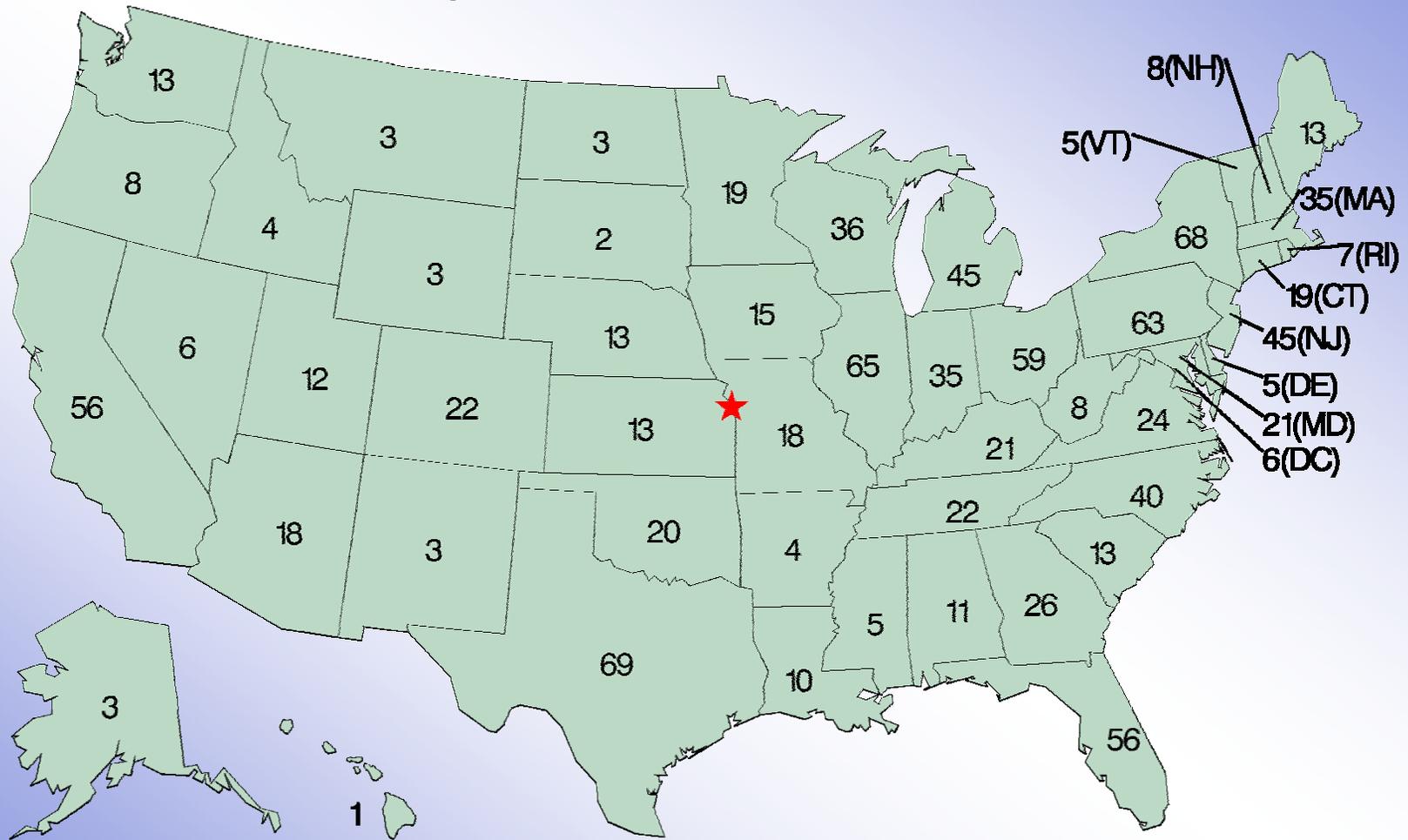
History of NDNQI®

- Established in 1998 as part of American Nurses Association's Safety and Quality Initiative
 - Ongoing investments in the development and implementation of the database and ongoing support through funding of new indicators and methodologies
- Owned by ANA
- Housed at the University of Kansas School of Nursing under the auspices of the KUMC Research Institute (RI), with oversight by ANA



Hospital Sites - June 2007

1099 Hospitals in 50 States and District of Columbia



★ National Database of Nursing Quality Indicators (NDNQI)®

Updated 06/04/2007

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NATIONAL DATABASE OF NURSING QUALITY INDICATORS



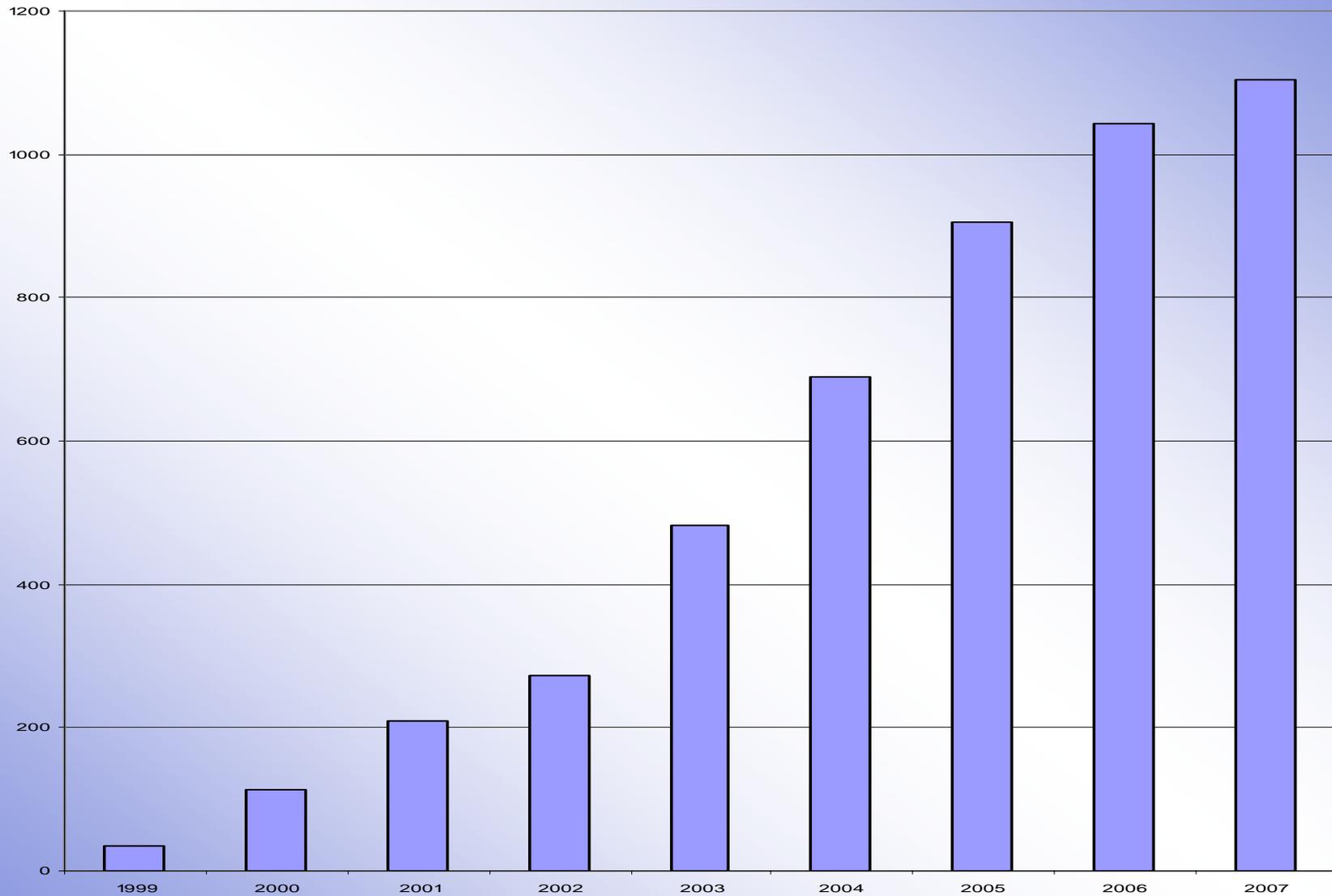


Mission

To aid the Registered Nurse in patient safety and quality improvement efforts by providing research-based national comparative data on nursing care and the relationship to patient outcomes.



NDNQI Growth - Participating Hospitals



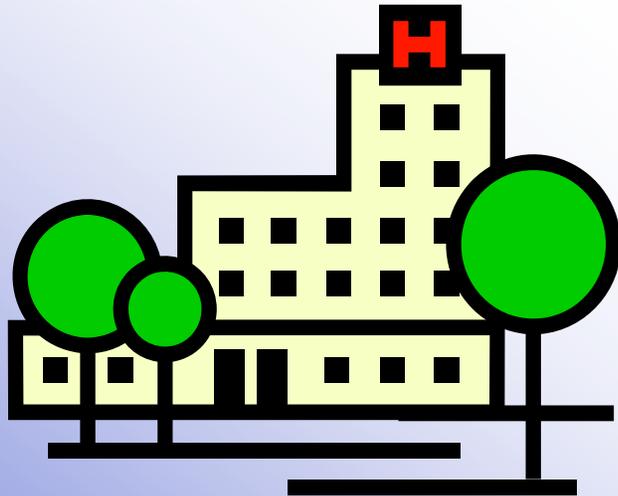
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NATIONAL DATABASE OF NURSING QUALITY INDICATORS



NDNQI Participants

- Voluntary
 - Interest in Quality
 - Satisfy Magnet requirements
 - Satisfy JCAHO reporting on staffing effectiveness standards
- 48% academic/teaching
- 86% not-for-profit
- 20% Magnet
- 88% Urban
- Bed size
 - <100 16%
 - 100-199 26%
 - 200-299 22%
 - 300-399 15%
 - 400-499 9%
 - >500 12%



NDNQI Program

- Database Participation
 - Indicator Development
 - Web-based data submission
 - Web-based tutorials for site coordinators and others who submit data (required to pass before being able to submit data)
 - High level of accuracy in reporting
 - On time electronic reports
 - Accessibility of many NQF endorsed nursing measures
 - Optional RN Satisfaction Survey for all RNs

NDNQI Program

- Pilot Testing
 - Voluntary hospital participation in pilot testing of new indicators
- Education & Research
 - Quarterly Conference Calls
 - Annual National Conference
 - Publication
 - NDNQI Studies via NINR, NIOSH & NDNQI

NDNQI's Measures

NDNQI's NATIONAL QUALITY FORUM

- Patient Falls
- Patient Falls with Injury
- Nursing Hours per Patient Day
- Staff Mix
- % Nursing Hours Supplied by Agency Staff
- Practice Environment Scale (PES)
- Restraints

Other NDNQI[®] Measures

- Hospital-acquired Pressure Ulcer Prevalence
- RN Satisfaction
- RN Education/Certification
- Completeness of the Pediatric Pain Assessment, Intervention, Reassessment (AIR) Cycle
- Pediatric Peripheral Intravenous Infiltration Rate
- Psychiatric Physical/Sexual Assault Rate

Indicators in Development

- Voluntary Turnover* (*scheduled implementation Q3 '07*)
- Nosocomial Infections* (*scheduled implementation Q4 '07*)
 - Central Line Associated Blood Stream Infections (CLABSI)
 - Catheter Line Associated Urinary Tract Infections (CLAUTI)
 - Ventilator Associated Pneumonia (VAP)

*NQF Consensus Measure

Data Collection

- Data provided from administrative record systems or special studies
- Some data from medical record review or electronic health records
 - *Nursing hours from payroll or staffing systems that collect actual not just budgeted*
 - *Patient days from census data systems*
 - *Pressure ulcer data and restraint use from a prevalence study and medical record review*

Data Submission

- Web forms
- XML upload
 - *Contain standardized information required by NDNQI*
 - *Have known level of reliability*

Standardization

- Specific processes established to collect standardized reliable data
 - Provide hospitals comparative reports
 - Use in analyses of the relationship between aspects of the nursing workforce and nursing sensitive patient outcomes
- Standardized Definitions and Data Collection Guidelines

Standardization

- Web-based tutorial for training data collection and data entry staff on the guidelines.
- Using in-person interviews with hospital site coordinators to correctly classify units into unit types.
- Soliciting input from hospitals about data they would like in the reports they receive from NDNQI.
- Guaranteeing the confidentiality of data, so that hospitals are motivated to provide accurate data.

Resources

- Investment capital
- Volunteer advisory panel
- Expert literature review to identify nursing sensitive indicators
- Secure web site
- Nurse liaisons with hospital experience
- Interdisciplinary team:
 - Nurse researchers
 - Outcome indicator experts
 - Statisticians
 - Database and web programmers
 - Statistical analysts, and survey researchers
 - Experts in database development and maintenance
- 3rd party database management, for hospitals to feel that their data are secure and confidential



Ascertaining Data Reliability

- Used initial ANA indicators then NQF indicators
- Annual reliability studies on indicators that include
 - Survey on data collection practices
 - Rater-to-standard reliability assessments or audits of reported data against original records.
 - Pressure Ulcer Reliability Study demonstrated moderate to near perfect reliability.[\[1\]](#)
 - Demonstrated that certified wound ostomy continence nurses had better reliability in wound assessment.
 - NDNQI pressure ulcer tutorial developed and disseminated to all NDNQI hospitals and posted on web-site www.nursingquality.org

[\[1\]](#) Hart, S., Bergquist, S., Gajewski, B. & Dunton, N. (2006) Reliability Testing of the National Database of Nursing Quality Indicators Pressure Ulcer Indicator. *Journal of Nursing Care Quality* 21(3), 256-265.

- Quarterly Reports on Indicators
 - Trends: 8 rolling quarters with an average for those quarters
 - 50-200 pages depending on hospital size
 - 26 Tables altogether
 - Statistical significance, mean, quartiles and national comparisons at the unit level
 - Details on structure and process measures
- Annual Report
 - RN Survey Results
- Aids in decision making, measure sustained changes and improve quality
- Specialty and system reports
- Statewide reports for public reporting

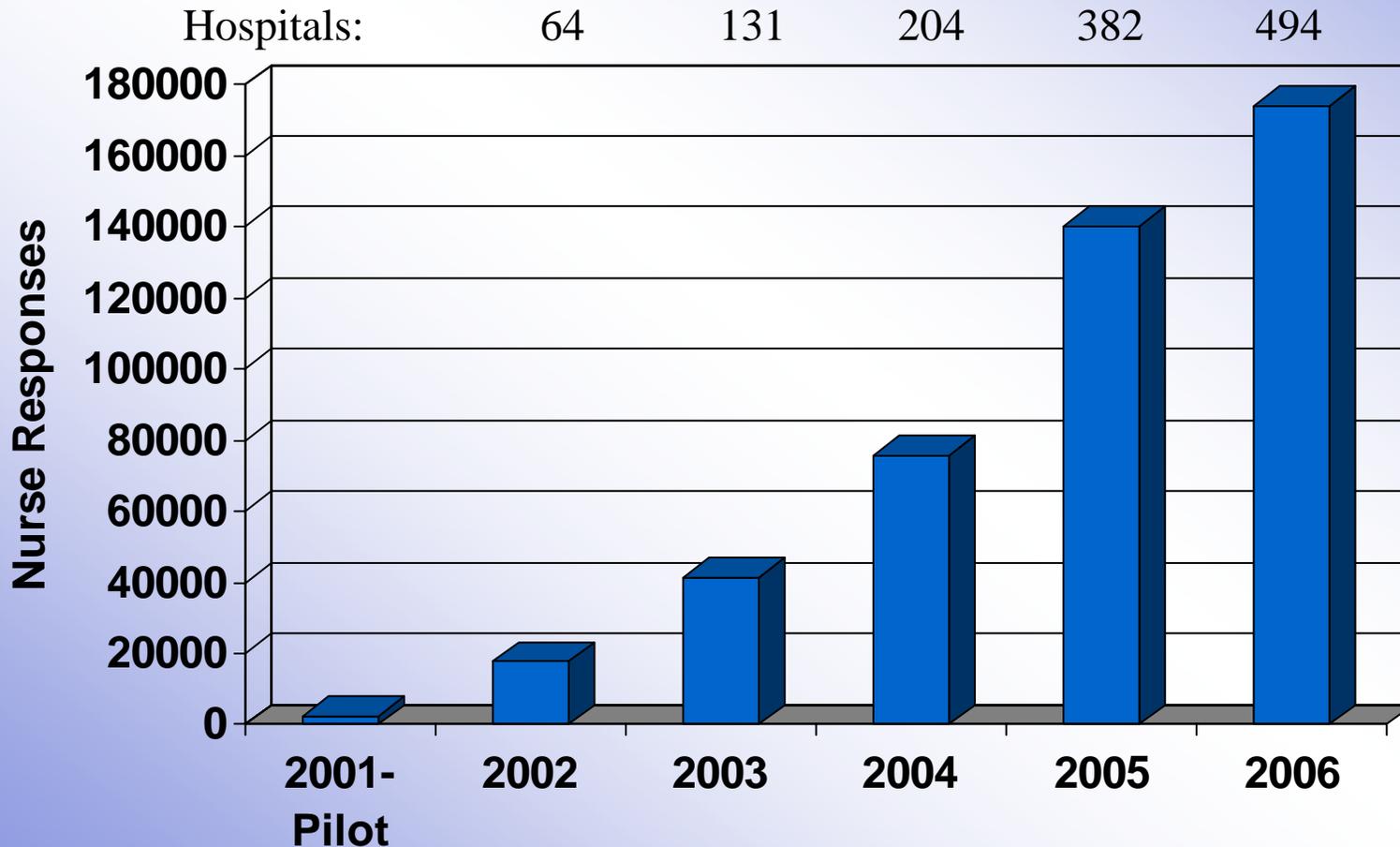
National Comparison Data

At the Unit Level – Where Care Occurs

- Unit type
 - Critical Care
 - Step-Down
 - Medical
 - Surgical
 - Combined Medical-Surgical
 - Rehab
 - Psychiatric
 - Pediatric
- Grouped by
 - Hospital Size or
 - Teaching Status



Database Growth: RN Satisfaction Participation



Response Rates: 55% 62% 63% 64% 64%

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Number of Units Reporting

• Adult Critical Care	1606	• Pediatric Critical Care	272
• Adult Step Down	1036	• Pediatric Step Down	20
• Adult Medical	1279	• Pediatric Medical	76
• Adult Surgical	976	• Pediatric Surgical	21
• Adult Medical/Surgical	1676	• Pediatric Med/Surg	284
• Adult Rehab	515	• Neonatal Critical Care	272
• Adult Psych	306	• Child/Adolescent Psych	81
• Geri Psych	64	• Other Psych	48
ALL ADULT UNITS	7458	ALL PEDIATRIC UNITS	1074

Outcomes

- Research done on NDNQI demonstrated significance at the unit level
- Studies done related to falls and pressure ulcers demonstrated which staffing or workforce element was statistically significant at the unit for the patient outcome, e.g.
 - *Higher nursing hours on step-down, medical and med-surg associated with less falls*
 - *Higher % RN hours on step-down, medical units associated with fewer falls*
 - *Higher reliability with certified nurses assessing wounds*
 - *For every percentage point increase in %RN hours, the pressure ulcer rate declines by 0.3%*

Outcomes

- National Data Use Conference
 - 1st : January '07
 - *Transforming Nursing Data into Quality Care*
 - 900 attendees
 - 2nd: January 30-February 1, 2008
 - *Workforce Engagement in Using Data to Improve Outcomes*
 - Call for Abstracts Open for Submission
 - <http://www.nursingworld.org/quality/conference/>
- Published best practice exemplars

Future Plans

- Methodology Development
 - Unit based acuity or risk adjustment
 - Needed to include mixed acuity units
 - Universal beds
 - Critical Access Hospitals
 - Hospital roll-up
- Indicator Expansion
 - Expand to other hospital units not currently eligible, e.g. assault in the ED
- Report Enhancement

Lessons Learned

- Underestimation of level of staffing required to operate a national database
- Accurate data collection requires a high level of technical assistance
- Ongoing quality monitoring checks are essential
- Indicator development and implementation requires time and resources to ensure data validity and reliability

Lessons Learned

- Significance and importance of implementing and evaluating indicators at the unit level ~ where care occurs, can not be underestimated
- NDNQI is in state of continuous quality improvement
- Web systems require continuous monitoring and testing

Lessons Learned

- Database design, statistical programs, web data entry screens, and some indicators have a life span of about 3 years before needing review and revision.
- Hospital environments and operations change and we need to adapt to maintain the relevance of the data definitions and report design.
- New information technologies emerge and must be incorporated for efficiency and to maintain interoperability with participating hospitals.

Lessons Learned

- Collecting structure, process and outcome indicators provides a comprehensive means for evaluating the quality of nursing care and patient outcomes.
- There is good distribution and representation of all bed sizes in the database to provide meaningful comparisons at the unit level.
- It is very important to have a definition of a hospital to maintain data comparability and validity.

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Contact Information

- Isis Montalvo
 - Manager, Nursing Practice & Policy
 - Isis.Montalvo@ana.org
 - 301-628-5047

 - Visit the NDNQI Web-site at www.nursingquality.org