



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)
Washington, DC
June 19, 2007

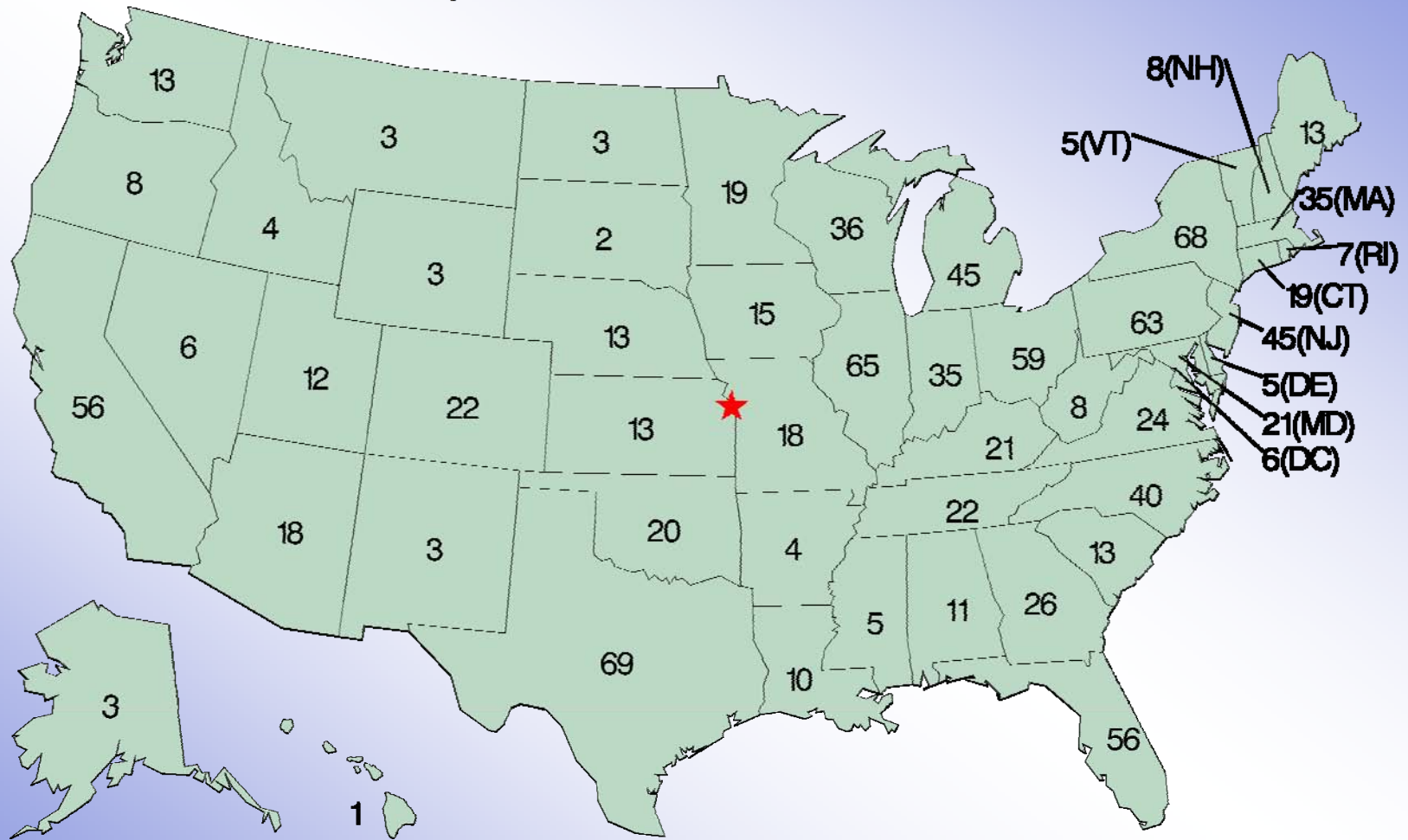
History of NDNQI®

- 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

© American Nurses Association, 2007

NATIONAL DATABASE OF NURSING QUALITY INDICATORS



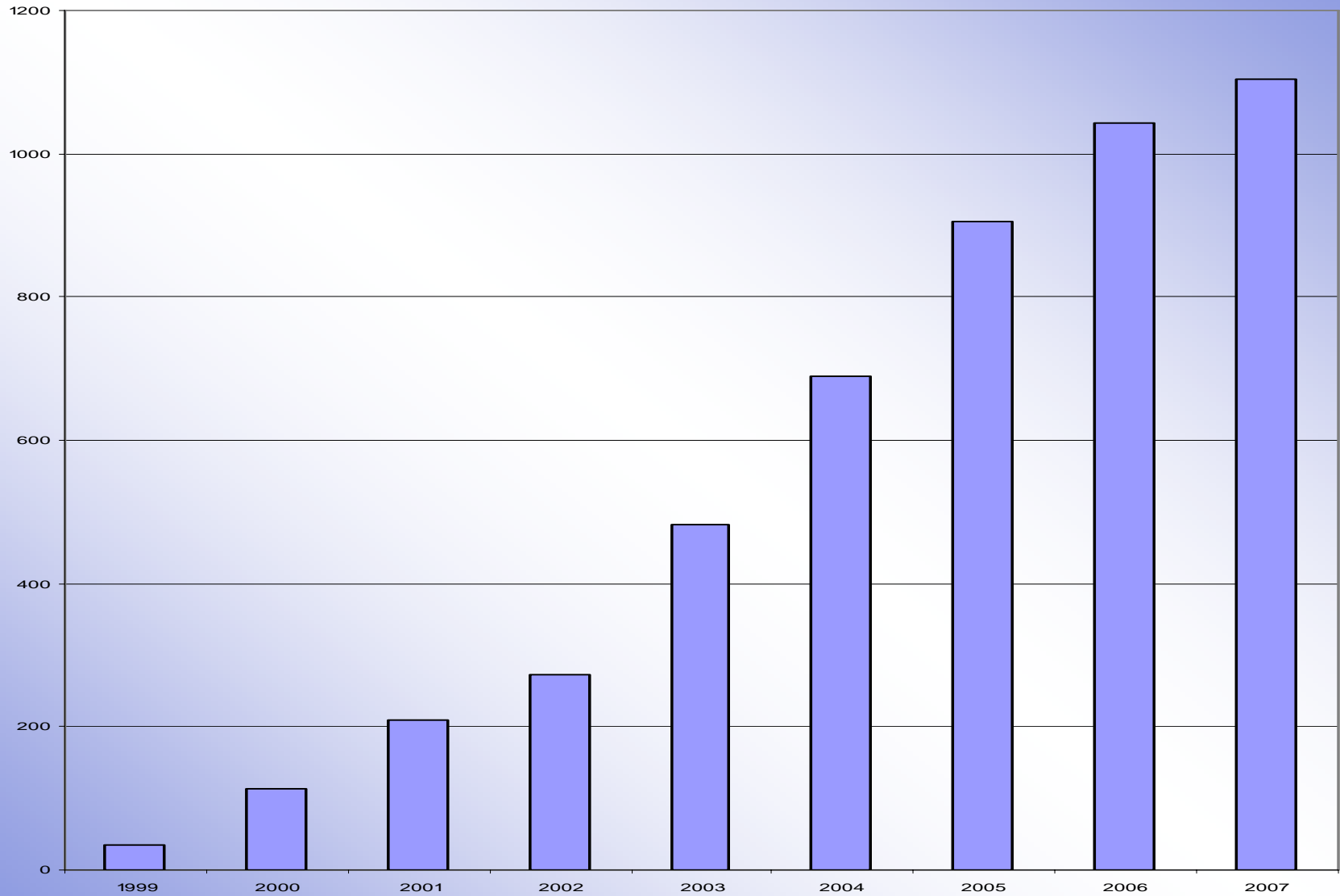


Mission

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



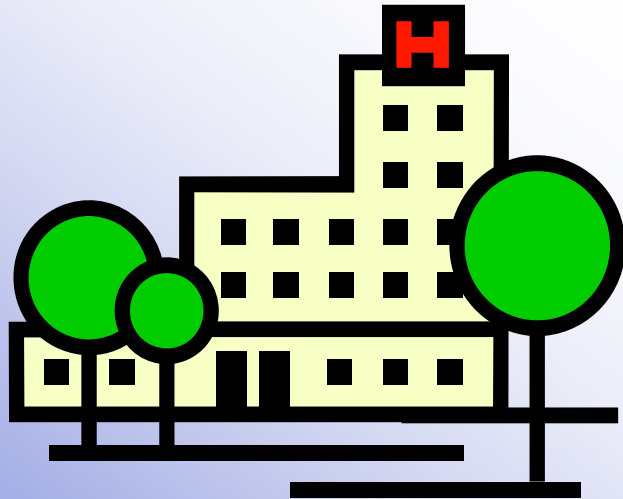
© American Nurses Association, 2007

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

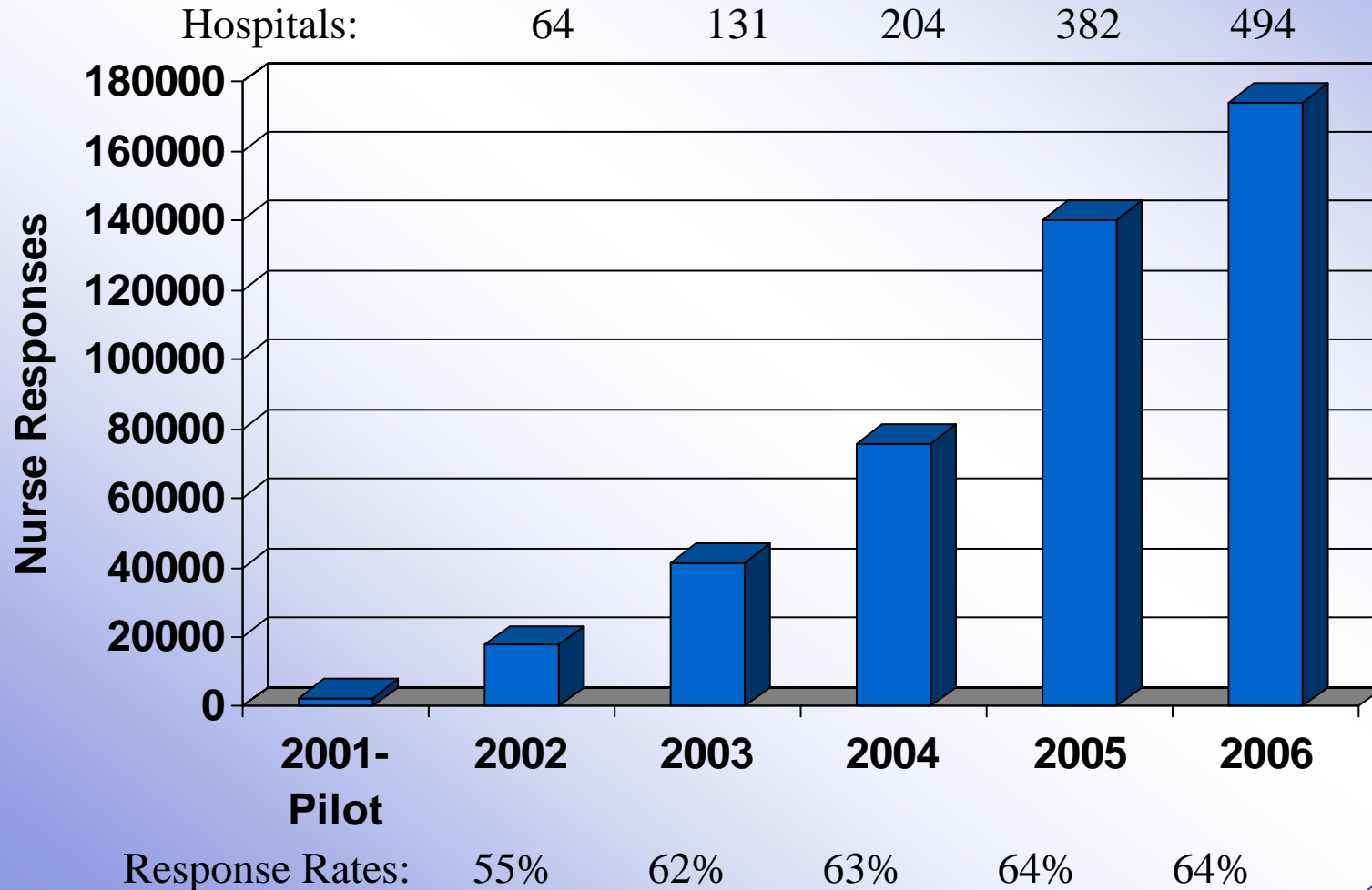
National Comparison Data

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



© American Nurses Association, 2007

NATIONAL DATABASE OF NURSING QUALITY INDICATORS





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%*

- 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.

References

- American Nurses Association (1995) *Nursing Care Report Card for Acute Care*. Washington, DC: American Nurses Publishing
- Dunton, N., Gajewski, B., Taunton, R.L., & Moore, J. (2004). Nurse staffing and patient falls on acute care hospital units. *Nursing Outlook*, 52, 53-59.
- Boyle, D.K., Miller, P.A., Gajewski, B.J., Hart, S.E., & Dunton, N. (2006) Unit Type Differences in RN Workgroup Job Satisfaction. *Western Journal of Nursing Research*, 28(6):622-640.
- Hart, S.E., Bergquist, S.A., Gajewski, B.J. & Dunton, N.E. (2006). Reliability testing of the National Database of Nursing Quality Indicator's pressure ulcer indicator. *Journal of Nursing Care Quality*, 21(3):256-265.
- Montalvo, I. & Dunton, N. (2007) *Transforming Nursing Data into Quality Care: Profiles of Quality Improvement in U.S. Healthcare Facilities*. Silver Spring, MD: Nursesbooks.org

Contact Information

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

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