Brief Synopsis of the Nursing Minimum Data Set (NMDS)

November 2003

Adopted from the seminal work of Werley & Lang, 1988

I. DEFINITION

Built on the concept of the uniform minimum health data sets (UMHDSs), the Nursing Minimum Data Set (NMDS) represents the first attempt to standardize the collection of essential nursing data. By adopting the definition given for a UMHDS, the NMDS can be defined as a minimum set of elements of information with uniform definitions and categories concerning the specific dimensions of nursing, which meets the information needs of multiple data users in the health care system. The NMDS includes the label and conceptual definition of those essential, specific elements that are used on a regular basis by the majority of nurses across all types of settings in the delivery of care.

II. PURPOSES

The purposes of the NMDS are to: (a) establish comparability of nursing data across clinical populations, settings, geographic areas, and time; (b) describe the nursing care of individuals, families and communities in a variety of settings, (c) demonstrate or project trends regarding nursing care provided and allocation of nursing resources to patients or clients according to their health problems or nursing diagnoses; (d) stimulate nursing research through links to the data existing in health-care information systems; and (e) provide data and information about nursing care to influence practice, administrative, and health policy decision making.

III. ELEMENTS

The NMDS includes three broad categories of elements: (a) nursing care, (b) patient or client demographics, and (c) service elements. Elements that also are included in the Uniform Hospital Discharge Data Set (UHDD) are indicated by an asterisk. Elements that are being collected already need not be recollected in hospitals (or other settings) when they can be obtained through existing relational database management systems.

<table>
<thead>
<tr>
<th>Nursing Care Elements</th>
<th>Patient or Client Demographic Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nursing Diagnosis</td>
<td>*5. Personal Identification</td>
</tr>
<tr>
<td>2. Nursing Intervention</td>
<td>*6. Date of Birth</td>
</tr>
<tr>
<td>3. Nursing Outcome</td>
<td>*7. Sex</td>
</tr>
<tr>
<td>4. Intensity of Nursing Care</td>
<td>*8. Race and Ethnicity</td>
</tr>
<tr>
<td></td>
<td>*9. Residence</td>
</tr>
</tbody>
</table>

Service Elements

*10. Unique Facility or Service Agency Number
*11. Unique Health Record Number or Patient or Client
12. Unique Number of Principle Registered Nurse Provider
*13. Episode Admission or Encounter Date
*14. Discharge or Termination Date
*15. Disposition of Patient or Client
*16. Expected Payer for Most or This Bill (Anticipated Financial Guarantor for Services)

IV. BENEFITS FOR NURSING

Were the NMDS adopted nationwide (or worldwide) with a system of ongoing data collection, the following are benefits for nursing:
1. Access to comparable essential, core nursing care and resources data on local, regional, national, and international level;
2. Enhanced documentation of nursing care provided;
3. Identification of trends related to patient or client problems and nursing care provided;
4. Impetus to improved costing of nursing services;
5. Data for quality improvement;
6. Impetus to further development and refinement of health information systems and electronic health record;
7. Comparative research on nursing care, including research on nursing diagnoses, nursing interventions, nursing outcomes, and intensity of nursing care;
8. Contributions toward advancing nursing as a research-based discipline.

V. IMPLICATIONS

There are a variety of implications of the NMDS for nurses in practice, administration, research, and education. Implementation of the NMDS also has far-reaching implications for health policy decision making and the health care industry. Some examples of these are highlighted below:

A. Nursing Practice
   1. Stress complete, accurate documentation of nursing care
   2. Facilitate the continuity of care provided to clients transferred among health care settings.

B. Nursing Administration
   1. Emphasize the need to measure nursing care provided and resources consumed
   2. Highlight the need to abstract core minimum nursing data across the various types of care delivery settings.
   3. Investigate the patterns of nursing care and costs in various types of care delivery settings.

C. Nursing Research
   1. Promote descriptive research on nursing care of clients in various settings.
   2. Stimulate efforts to compare nursing practice across settings—locally, regionally, nationally, and internationally.
   3. Assess the patterns of outcomes for various nursing diagnoses.
   4. Develop and refine nursing resources allocation methodologies.

D. Nursing Education
   1. Facilitate an awareness in students of the necessity to document care appropriately, reflecting use of the nursing process model.
   2. Insure the integration of information management in the undergraduate and graduate curricula for use in decision making in all areas of nursing.

E. Health Care Policy and Health Care Industry
   1. Access to comparable nursing data.
   2. Development of local, regional, national, and international data bases, focusing on nursing care.

VI. IMPLEMENTATION OF THE NMDS

A. Terminology Standards.
   Realization of the benefits of the NMDS will occur when the NMDS is used by nurses across multiple practice settings where nursing care is provided. However, use of the NMDS requires the use of a common language for nursing practice; consistent and complete documentation; and an electronic information system to facilitate the documentation, linkage, and retrieval of data. A great deal of work has occurred already toward the development of standardized language for nursing practice; for example the American Nurses Association (ANA) has recognized a number of tools as meeting specified criteria. For further information on these ANA recognized terminologies that support nursing practice see:
Applications to Information Systems.

Every effort must be made to ensure that systems and processes are developed to assure accurate and complete documentation of nursing care, while minimizing additional demands made on nurses. While, theoretically it is possible to document manually and retrieve the elements of the NMDS, large data sets require computerization. Data must be coded and stored in a relational format so that the elements of the NMDS can be both retrieved and linked, that is, it must be possible to link each element with any or all of the elements in the NMDS and with other data sets, such as the Nursing Management Minimum Data Set or the UHDDS.

NIDSECSM was established by the American Nurses Association (ANA) to review, evaluate, and recognize information systems from developers and manufacturers that support documentation of nursing care within automated Nursing Information Systems or within computer-based Patient Record systems. NIDSECSM has developed standards to evaluate four dimensions of nursing data sets and the systems that contain them, including (a) Nomenclature, (b) Clinical Content, (c) Clinical Data Repository, and (d) General System Characteristics. Further information about standards for information systems is available through The Nursing Information & Data Set Evaluation Center (NIDSEC)

In addition to NIDSEC, there are many other initiatives to advance information systems in health care. Examples of some of the efforts underway in the United States and available resources include: (a) Institute of Medicine projects: The Computer-based Patient Record, Crossing the Quality Chasm and Data Standards for Patient Safety (http://www.iom.edu/); and (b) American Nurses Association: Androwich, I. M., Bickford, C.J., Button, P. S., Hunter, K. M., Murphy, J., Sensmeier, J. (2003). Clinical Information systems: A Framework for Reaching the Vision.

C. NMDS Research

The results of initial studies have provided evidence that the elements of the NMDS are available and retrievable in relational formats in information systems for analysis. Computerization has enabled rapid collection of large data sets at low costs once computer systems and retrieval programs were in place. Descriptions of nursing care of patients/clients and their families in hospitals, home health care agencies, and nursing centers are emerging. The NMDS has been used to project trends in nursing care and determine the allocation of nursing resources. Researchers have been successful in linking the NMDS with other data sets; this process extends further the power of the NMDS. A research review is available: Ryan P and Delaney C. (1995). The Nursing Minimum Data Set: Research findings and future directions. In J.J. Fitzpatrick & J.S. Stevenson (Eds), Annual Review of Nursing Research (Vol. 13 pp.169-194), Springer Publishing: New York, NY.

VII. MILESTONES

1985 National invitational NMDS Conference, Milwaukee, WI
1989 Establishment of the ANA Steering Committee on Data Bases to Support Clinical Nursing Practice
1989 International Council of Nurses Resolution to develop an International Classification for Nursing Practice (ICNP)
1995  Establishment of ANA NIDSEC™
1996  Establishment of the NMDS Research Consortium
1999  Systematized Nomenclature of Medicine (SNOMED®) International meeting toward the goal of integrating nursing concepts into SNOMED.
2000  First International-NMDS (i-NMDS) workshop, NI2000. Auckland, New Zealand
2002  HL7 registration
2003  Establishment of the NMDS Consortium Executive Committee

IX. FUTURE DIRECTIONS OF THE NMDS

The NMDS Consortium has been established to advance the development and implementation of a strategic plan for the NMDS research. The aims of the Consortium include:

1. Support the executive team that serves as the official representative for the NMDS to the American Nurses Association and as needed.
2. Maintain processes for review and revision of the NMDS.
3. Engage in strategic planning.
4. Ensure financial support for strategic objectives.
5. Facilitate ongoing communication mechanisms with stakeholders.
6. Promote the NMDS data integrity, comparability, and interoperability across sites and settings.
7. Support compatibility and linkages to other health care data sets.
8. Develop a NMDS research agenda.
9. Promote collaborative models of sharing resources and expertise to conduct NMDS research, including establishment of data repositories with NMDS data.
10. Facilitate the use of NMDS to examine the impact of nursing care on patient outcomes and safety.
11. Disseminate application and uses of the NMDS through presentations and publications.

Members of the NMDS Executive Committee include: Ida Androwich, Carol Bickford, Amy Coenen, Connie Delaney, Debra Konicek, Norma Lang, and Judith Warren. Further information about the NMDS Consortium can be found at: http://www.nursing.uiowa.edu/NI/collaborations_frm.htm

VIII. REFERENCES

See the NMDS website at http://www.nursing.uiowa.edu/NI/collaborations_frm.htm

For further information please contact:

Connie Delaney, PhD, RN, FAAN
University of Iowa College of Nursing (319 335-7113), connie-delaney@uiowa.edu
Ida Andowich, PhD, RNC, FAAN
Loyola University Chicago Niehoff School of Nursing iandrow@luc.edu
Amy Coenen, PhD, RN, FAAN
University of Wisconsin-Milwaukee College of Nursing (414 229-5146), coenena@uwm.edu
Judith Warren, PhD, RNC, FAAN
University of Kansas School of Nursing (913 588-4286), jwarren2@kumc.edu