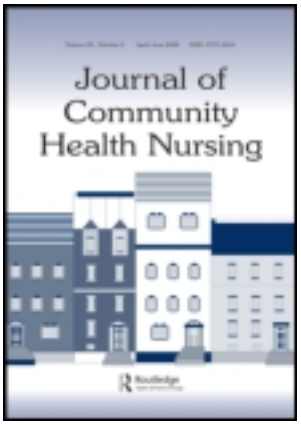

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Using the Omaha System as a Framework to Demonstrate the Value of Nurse Managed Wellness Center Services for Vulnerable Populations

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Using the Omaha System as a Framework to Demonstrate the Value of Nurse Managed Wellness Center Services for Vulnerable Populations

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Nurse managed wellness centers (NMWCs) are academic service settings where baccalaureate nursing students gain rich community health clinical experience while providing valuable wellness services to a vulnerable population. The Omaha System provides a framework for generating meaningful data that is essential for describing the value of NMWCs. A retrospective study of Omaha System assessments from 9 NMWCs provides descriptive data about the characteristics of the patient population and patient outcomes in relationship to knowledge, behavior, and status. Patients showed significant improvement for the overall sample and for 6 important health problems. These findings support anecdotal data about the value of NMWC for a vulnerable population.

Nurse managed wellness centers (NMWCs) offer a clinical laboratory setting for baccalaureate community health nursing clinical while providing valuable wellness services. Such services are instrumental in addressing health problems and facilitating appropriate health service utilization for vulnerable populations (National Nursing Centers Consortium [NNCC], 2011). In this article, a case study reflects the typical services and patient outcomes for a NMWC patient as an example of anecdotal evidence that supports the value the NMWCs.

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NMWC services are not reimbursable within the current United States health care system. To secure funding, meaningful quantitative data is needed for describing NMWC services in relationship to improved health outcomes. The Omaha System (Martin, 2005) provides a framework for describing, collecting, and reporting of NMWC assessment and interventions. The purpose of this study was to describe patient characteristics and patient outcomes for patients in nine NMWCs operated by the Donald and Dorothy Stabler Nursing Program at York College of Pennsylvania.

The study findings provide descriptive data about the patient population and patient outcomes. Patients showed significant improvement in relationship to knowledge, behavior and status for all problems together, as well as for pain, nutrition, skin, mental health, health care supervision and bowel function. These findings provide integrity to anecdotal observations and support the value of the services provided to a vulnerable population group. Such findings are useful in sustainability efforts and contribute to the body of knowledge regarding NMWC patient problems and outcomes.

NURSE MANAGED WELLNESS CENTER SERVICES—A CASE STUDY

J. M. is a 59-year-old African American who has resided in a low income public housing complex for the past 10 years. He was disabled as a result of an accident that occurred 20 years ago. Although J. M. is eligible for Medical assistance, he has not sought health care in many years. J. M. attended a blood pressure screening conducted by NMWC students in the lobby of his apartment building. His blood pressure was 196/94. Under the supervision of the faculty, the student conducted an assessment at the time of his blood pressure screening and determined that J. M. did not need emergency intervention. The student called J. M.'s local medical clinic, facilitated the reinstatement of his Medical assistance coverage, and arranged for him to have a walk-in appointment on that same day. His clinic provider diagnosed J. M. with hypertension, prescribed medication, and instructed him on lifestyle modifications. J. M. continued weekly visits to the NMWC, and his assigned student conducted ongoing assessments, and provided teaching under the supervision of the nurse faculty. Two weeks later, J. M. revealed that he had run out of the supply of antihypertensive medication that he was given at the medical clinic and that he had not gotten his prescription filled because he did not understand where he was to have it filled. The student called the clinic and relayed to J. M. the instructions for how to get his prescribed medication.

J. M. had difficulty limiting his dietary salt intake because without easy access to a grocery store, his main sources of food were fast food, canned foods from a corner store, and the local food bank. The student instructed J. M. on options for healthier food choices and reducing salt with those food choices. Walking was J. M.'s only option for exercise for managing hypertension; however, his neighborhood was unsafe for walking alone. With the student's recommendation, J. M. joined the weekly exercise class offered by the NMWC. After eight weeks, J. M. reported being adherent with his prescribed medication, his blood pressure decreased to 152/76, he was able to identify five foods that were high in salt that he had eliminated from his diet, and he had attended four of the last five weekly exercise classes. In the classes he became acquainted with another resident who was also motivated to exercise more than the weekly class. The NMWC students recorded a video of the class and provided a copy to J. M. so that he and the other

resident could do the exercise program together. J. M.'s blood pressure continued to decrease, he remained adherent to the pharmacologic and non-pharmacologic regimen for management of his hypertension, and he continued to exercise.

NMWC

The services that J. M. received are typical for NMWCs, a subset of nurse-managed centers (NMCs). NMCs are characterized by provision of care within a holistic nursing framework rather than a traditional disease-oriented medical model (Hansen-Turton, Miller, & Greiner, 2009). NMCs and NMWCs provide primary care and wellness services to vulnerable population groups that include the older adults, uninsured, low-income individuals, and individuals with cultural and linguistic barriers (NNCC, 2011). The difference between NMCs and NMWCs is that NMCs provide primary care services that include diagnosis, treatment, and management of disease and illness by nurse practitioners and nurse midwives, and these services are reimbursable. NMWCs focus on wellness services that integrate health promotion and disease prevention; services that are not reimbursable. Because consistent revenue streams do not exist for NMWCs, sustainability hinges on ability to generate meaningful data for funding requests.

The case study provides an example of NMWC services initiated through outreach activities such as blood pressure screening, health fairs, nutrition education, and exercise classes. These support the health care needs representative of a vulnerable population in which medical conditions such as cardiovascular disease are disproportionately represented (NNCC, 2011).

The case study also illustrates expected outcomes of wellness services, which include improved disease self-care, appropriate utilization of preventive and primary care services, and decreased utilization of emergency room, acute care, and nursing home services. Because these outcomes are difficult to measure (King & Resick, 2009), the Omaha System (Martin, 2005) provides a framework for documenting nursing interventions and patient outcomes within a NMWC and has been shown to provide such meaningful data (Martin, Monsen, & Bowles, 2011).

History of NMWCs at York College of Pennsylvania (YCP)

The first NMWC at YCP opened in partnership with a local housing agency in the fall of 2001. The wellness model was chosen because the initial grant funding supported wellness services, and because the YCP Department of Nursing at the time did not offer a Nurse Practitioner program. Over the next several years, NMWC services were expanded, and by the fall of 2010 there were nine NMWCs in low-income housing complexes throughout York city in south central Pennsylvania. These nine centers provide clinical learning sites for sixty four students enrolled in the community health nursing course each fall and spring semester. As depicted in the case study, the NMWC services include health assessment, health education, and community resource referral for individuals in the housing complexes, as well as group interventions focused on health education, health screening, and health interventions. These clinical activities in the NMWC provide an ideal setting for baccalaureate students to meet the community health clinical course objectives. The student learning outcomes related to community course concepts have been described separately (Thompson & Bucher, in review).

YCP NMWCs patients reported satisfaction with the services and with the relationships they were able to develop with students (Thompson & Feeney, 2004). As with J. M., there were

numerous anecdotal reports of improved self-care of chronic illnesses, effective coordination of care for appropriate utilization of community resources, as well as emergency room visits and hospitalizations that may have been prevented or shortened. These anecdotal reports came from the NMWC nurse faculty, housing partners, and primary care providers. Housing partners noted that community-level interventions such as health fairs, blood pressure screenings, and exercise classes improved socialization among the housing complex residents. This anecdotal evidence was the basis for ongoing support from YCP and the community partners while the NMWCs were developing. However, as funding needs for long term sustainability increased, more sophisticated data was needed to reflect the value of the services. The Omaha System, which allowed for retrieval of such meaningful data, was adopted for the purpose of documenting nursing interventions and subsequent patient outcomes.

The Omaha System

The Omaha System is a multidisciplinary standardized interface terminology. It was developed and has been tested extensively in community care settings. The Omaha System is being used in diverse practice settings that include public health, home health, and nurse managed centers (Martin, 2005; Omaha System, 2011). The Omaha System has been recognized by The American Nurses Association and has been mapped to the International Classification of Nursing Practice (Hyun & Park, 2002; Omaha System, 2011). It is a valid and reliable comprehensive hierarchical system that incorporates documentation of patient assessment and clinician interventions.

The Omaha System exists in the public domain, meaning it is not held by copyright and can be used without obtaining permission from the developer or publisher. It can be used as either a manual or electronic system (Martin, 2005). The Omaha System includes a health promotion modifier and interventions that are directed toward patient wellness, support systems, and coping skills. As such, it can effectively be utilized in a NMWC to direct and document interventions, and to capture aggregate data related to patient problems, interventions, and client outcomes at the individual, family, and community level. Use of the Omaha System enables articulating standards of care, informing clinical decision making, and quantifying interventions and outcomes (Martin, 2005).

The Omaha System is comprised of three components (a) problem classification scheme, (b) intervention scheme and (c) problem rating scale for outcomes. The problem classification scheme is comprised of four domains: environmental, psychosocial, physiological, and health-related behaviors. Within the four domains, there are a total of 42 problems with signs and symptoms for these health problems. The intervention scheme describes clinical interventions that are categorized as teaching, guidance, and counseling; treatments and procedures; case management; and surveillance. The problem rating scale for outcomes is a Likert-type scale for patient knowledge, behavior, and status related to each problem. These rating scales range from one to five, with one reflecting the lowest, i.e. no knowledge; inappropriate behavior, and extreme signs and symptoms (status), and five being superior knowledge, consistently appropriate behavior, and no signs and symptoms. The problem rating is done at problem identification and as indicated until the problem is resolved (Canham, Mao, Yoder, Connolly, & Dietz, 2008; Martin, 2005).

Electronic documentation capability substantially enhances the Omaha System data collection and analysis (Leonardo, Resick, Bingman, & Strotmeyer, 2004; Monsen, et al., 2006). The Omaha

System has passed Healthcare Information Technology Standards Panel Tier 2 selection criteria for Use Cases in 2007, is integrated into Systematized Nomenclature of Medicine–Clinical Terms (Omaha System, 2011) and is frequently used as an interface terminology in electronic documentation systems, particularly in community care settings (Martin et al., 2011).

The benefits to use of the Omaha System in student clinical education are well documented (Barton, Clark, & Baramee, 2004; Connolly, Mao, Yoder, & Canham, 2006; Elfrink & Davis, 2004; Ndiwane, 2005; Plowfield, Hayes, & Hall-Long, 2005). Utilization of the Omaha System has also been reported for generating data that describes client characteristics and nursing interventions (Hildebrandt, Baisch, Lundeen, Bell-Calvin, & Kelber, 2003; Monsen, Banerjee, & Das, 2010; Neff, Mahama, Mohar, & Kinion, 2003) and relationships between nursing interventions and patient outcomes (Brooten, Youngblut, Deatrick, Naylor, & York, 2003; Monsen, Radosevich, Kerr, & Fulkerson, 2011). In addition, links between nursing interventions and improved patient outcomes have been reported (Anderko, Bartz, & Lundeen, 2005; Monsen et al., 2010; Monsen et. al, 2006; Monsen, Sanders, Yu, Radosevich, & Geppert, 2011; Monsen, Westra, Oancea, Yu, & Kerr, 2011; Yu & Lang, 2008).

The Omaha System at YCP NMWCs

The Omaha System was adopted in 2005 by the YCP NMWCs to generate quantitative data to support the anecdotal evidence that NMWC improved patient outcomes. Because of funding limitations, electronic format was not obtainable, so a paper format was used. The community health course faculty who supervised the care provided by students assessed problems from the problem classification scheme, and rated knowledge, behavior and status using the problem rating scale for outcomes. The ratings were recorded when problems were identified, and again when the problem was reevaluated or resolved.

The case study is used to describe the documentation system as it was adapted in the YCP NMWCs. In J. M.'s chart, upon his initial visit, the faculty assessed the problem classification scheme problem circulation on the problem list, completed the information related to that problem and rated knowledge, behavior and status according to the problem rating scale for outcomes (see Figure 1). The student recorded J. M.'s blood pressure on a vital signs flow sheet and wrote a narrative note for the identified problem, circulation. When the services encompassed the facilitation of J. M.s prescription medication and access to ongoing primary care, the health care supervision problem, was added by the faculty to J. M.'s problem list. Because the nutrition education included teaching about healthy eating, in addition to reduced salt, nutrition was also added to the problem list. With each of J. M.'s visits to the NMWC, the problem list and goals were reviewed. When a goal was met, the knowledge, behavior, and status were recorded by the faculty members and the problem was indicated on the problem list as being resolved.

METHOD

After IRB approval was obtained from York College of Pennsylvania, data collection was conducted through retrospective chart review of patient charts in each of nine NMWC sites. Omaha System data were manually abstracted from NMWC paper documentation to a data collection form, from which data were then entered to an Excel spreadsheet. Patient identity was protected

YCP Nurse Managed Wellness Center
Omaha Problem List

Patient Name J. M.

Date Identified and Initials	Problem Number	Problem Name	Type	Ratings K	B	S
3/8/11 cwt	29	Circulation	AP	2	3	3
Goal: Patient will have blood pressure <130/70			D/C date			
Date Identified and Initials	Problem Number	Problem Name	Type	Ratings K	B	S
3/22/11 cwt	41	Health Care Supervision	AP	2	3	2
Goal: Patient will obtain prescription medications through Healthy York Network			D/C date	4	5	5
Date Identified and Initials	Problem Number	Problem Name	Type	Ratings K	B	S
3/22/11 cwt	35	Nutrition	AP	1	2	2
Goal: Patient will be able to identify places to obtain fresh fruit or vegetable within his budget			D/C date			
Date Identified and Initials	Problem Number	Problem Name	Type	Ratings K	B	S
4/12/11 Cwt	29	Circulation	AP	3	3	2
Goal: Patient will attend NMWC exercise class for three consecutive weeks.			D/C date			

Type

AP – Actual Problem

PP – Potential Problem

Rating:

	Knowledge	Behavior	Status
1	No Knowledge	Never Appropriate	Extreme Signs/Symptoms
2	Minimal Knowledge	Rarely Appropriate	Severe Signs/Symptoms
3	Basic Knowledge	Inconsistently Appropriate	Moderate Signs/Symptoms
4	Adequate Knowledge	Usually Appropriate	Minimal Signs/Symptoms
5	Superior Knowledge	Consistently Appropriate	No Signs/Symptoms

FIGURE 1 YCP Nurse Managed Wellness Center Omaha Problem List

by assigning numeric codes to the patient records. Demographic data included sex, race, ethnicity, age (by category), primary language spoken, medical diagnoses, and primary care provider. Omaha System variables included problems with associated ratings for knowledge, behavior, and status at admission and discharge. In these data, urinary function problem was combined with genito-urinary system problem in the Omaha System 1st edition (Martin & Scheet, 1992), which was used in the NMWCs until 2010. The disposition of the problem (goal met, problem reevaluated, patient moved, patient deceased) and the total number of visits for the problem were included in the data collection. Data were entered from the data collection form into an electronic file and analyzed using Predictive Analytics SoftWare Statistics (PASW) version 18 using standard descriptive and inferential statistical methods.

RESULTS

The sample included 375 patients from 9 NMWCs. There were more women (60%), Caucasians (74%), non-Hispanics (88.5%), and English speakers (90%.) The majority (61%) was over the age of 60 (see Table 1). There were 1,244 problems documented in patient records (see Table 2). The five most frequent problems were circulation (15.3%), health care supervision (11.1%), pain (9.7%), nutrition (9.6%) and mental health (8.9%). Of the 1,244 problems, 338 had pre- and

TABLE 1
Demographic Characteristics

		Total Sample (N = *375*)	
		n	%
Sex	Male	146	40
	Female	229	60
Race	Caucasian	276	74
	African American	85	23
	Other	13	2.5
	Unknown	1	.5
Ethnicity	Hispanic	39	11
	Non-Hispanic	319	88.5
	Unknown	1	0.5
Age	Over 60	231	61
	18–59	143	37.5
	Unknown	1	0.5
Language	English	337	90
	Spanish	32	8
	Unknown	4	2
Primary care provider (PCP)	Clinic	163	43
	Private practice	163	43
	No PCP	18	6
	Unknown PCP	31	8

TABLE 2
Most Frequent Problems in Patient Records ($n = 1252$)

		Total Sample	
Problem Name	*Domain*	n	*%*
Circulation	Physiological	191	15.3
Health care supervision	Health related behaviors	139	11.1
Pain	Physiological	121	9.7
Nutrition	Health related behaviors	120	9.6
Mental health	Psychosocial	111	8.9
Neuro-musculo-skeletal	Physiological	77	6.2
Respiration	Physiological	67	5.3
Skin	Physiological	60	4.8
Bowel function	Physiological	32	2.5
Medication regimen	Health related behaviors	41	3.2
Cognition	Physiological	30	2.4
Substance abuse	Health related behaviors	28	2.2
Urinary function	Physiological	24	1.5
Vision	Physiological	22	1.8
Digestion	Physiological	21	1.7
Sleep and rest	Health related behaviors	17	1.3
Grief	Psychosocial	9	0.7

postknowledge, behavior, and status ratings. Paired sample *t*-tests for difference between knowledge, behavior, and status scores after intervention were significant ($p < .05$) for health care supervision, pain, nutrition, mental health, skin, bowel function, and sleep and rest (see Table 3).

DISCUSSION

In this study, Omaha System data described NMWC patient characteristics, health problems and improvements in problem-specific knowledge, behavior, and status outcomes. The demographic characteristics of the NMWC patients in the sample reflect the demographics of the NMWC public housing residents and of York City. These data support that the NMWCs patients are a representative sample of the York City, PA population. The frequency of health problems data accurately reflect the most frequent problems that are addressed in the YPC NMWCs, consistent with other reports of the usefulness of Omaha System data for describing frequency of patient health problems by service provider (Barton, et al., 2004; Hildebrandt et al., 2003; Monsen et al., 2010; Monsen & Kerr, 2004; Monsen, Sander, et al., 2011; Neff, et al., 2003). As illustrated in the case study, circulation is often the initial problem assessed because blood pressure screening has an effective outreach and case finding activity.

Health care supervision is the second most frequent problem. Linkage to health care resources has a significant impact on patients' ability to access appropriate resources to improve self-care and remain independent. These nursing activities comprise a significant amount of the work that is done within the NMWCs. J. M.'s referral for access to his prescription drugs provides an example of these interventions that enhance chronic disease self-management.

TABLE 3
Paired Samples *t* Test for Knowledge, Behavior and Status

Knowledge	*n*	*K1*	*K2*	*K change*	*p*	*% improved*
Knowledge						
Total sample	338	2.70	3.5	0.793	<0.001	17.3
Pain	39	2.82	3.56	0.744	<0.001	23.1
Nutrition	36	2.58	3.42	0.833	<0.001	21.5
Skin	35	2.74	3.91	1.171	<0.001	41.7
Mental health	25	2.8	3.48	0.68	0.001	13.9
Health care supervision	23	2.48	3.78	1.304	<0.001	13.1
Bowel function	13	2.6	3.53	0.93	<0.001	34.4
Behavior	*n*	*B1*	*B2*	*B change*	*P*	*% improved*
Behavior						
Total sample	338	3.14	3.7	0.555	<0.001	14.3
Pain	39	3.26	3.72	0.462	0.020	15.8
Nutrition	36	2.97	3.47	0.5	0.006	21
Skin	35	3.06	4.03	0.971	<0.001	36.7
Mental health	25	3.28	3.68	0.4	0.022	2.2
Health care supervision	23	2.56	2.78	1.098	<0.001	11.8
Bowel function	13	3	3.8	0.8	0.028	34.4
Status	*n*	*S1*	*S2*	*S change*	*P*	*% improved*
Status						
Total sample	338	2.89	2.67	0.775	<0.001	15.6
Pain	39	2.85	3.69	0.846	0.002	19
Nutrition	36	2.94	3.28	0.333	0.038	12.4
Skin	35	2.71	4.53	1.824	<0.001	51.7
Mental health	25	3.04	3.52	0.48	0.025	10.5
Health care supervision	23	2.78	2.89	0.87	<0.001	11
Bowel function	13	2.67	4.33	1.667	<0.001	37.5

Improved outcomes were noted for all problems together, as well as for pain, nutrition, skin, mental health, health care supervision and bowel function. The ability to use the Omaha System to show improved outcomes in patients' knowledge about, behavior related to, and signs and symptoms of important health problems has been documented (Anderko et al., 2005; Brooten et al., 2003; Monsen, Radosevich, et al., 2011) and is in alignment with the things that concern us about vulnerable populations (NNCC, 2011). Improved patient outcomes is the most important finding in this study and gives integrity to our anecdotal observations. Such data are essential for justifying NMWC effectiveness in funding requests.

STUDY LIMITATIONS

Due to incomplete data and lack of documentation, these preliminary results must be interpreted with caution. The study should be replicated with other large NMC and NMWC data sets.

The Omaha System has been used to describe interventions related to particular nursing problems (Brooten, et al, 2003; Monsen et al., 2010; Monsen, Radosevich, et al., 2011; Monsen, Westra, et al., 2011; Yu & Lang, 2008). Because the Omaha System nursing interventions were not consistently recorded in the NMWC patient records, data linking interventions to patient outcomes could not be reported.

Only one-third of the records had complete pre- and post- knowledge, behavior, and status ratings. Interrater reliability in assigning problems within the problem classification scheme, and scoring for the problem rating scale for outcomes is a limitation of this study. The nurse faculty who documented problems and ratings did so with limited exposure to Omaha System documentation quality training. Increased support for quality documentation is being incorporated within the nursing curriculum.

Electronic health records that incorporate the Omaha System are available but are not utilized in the YCP NMWCs due to funding limitations. Collection of this data was tedious because of the manual documentation system in place at the time of data collection. Future plans to implement an electronic clinical management system when resources are available will benefit student learning about electronic health record use and data collection and analysis. There is potential to compare data across NMWCs and NMCs using the Omaha System.

CONCLUSION

These study findings provide a preliminary description of the characteristics of the YCP NMWC patient population and health problems that are addressed in individual student-patient interventions. Previous anecdotal reports of cardiovascular conditions, health resource utilization, obesity, and diabetes as the most common patient problems are supported by data. More important, these data support that NMWC patient knowledge, behavior, and status show improvement in relation to health problems. Documenting improved outcomes in a population that is least likely to have access to resources to improve health is a powerful message about the importance of the NMWCs.

REFERENCES

Anderko, L., Bartz, C., & Lundeen, S. (2005). Practice-based research networks: Nursing centers and communities working collaboratively to reduce health disparities. *Nursing Clinics of North America*, *40*, 747–758. doi:10.1016/j.cnur.2005.08.009

Barton, A. J., Clark, L., & Baramee, J. (2004). Tracking outcomes in community-based care. *Home Health Care Management and Practice*, *16*, 171–176.

Brooten, D., Youngblut, J., Deatrick, J., Naylor, M., & York, R. (2003). Patient problems, Advanced Practice Nurse (APN) interventions, time and contacts among five patient groups. *Journal of Nursing Scholarship*, *35*, 73–79.

Canham, D., Mao, C., Yoder, M., Connolly, P., & Dietz, E. (2008). The Omaha System and quality measurement in academic nurse-managed centers: Ten steps for implementation. *Journal of Nursing Education*, *47*(3), 105–110.

Connolly, P. M., Mao, C., Yoder, M., & Canham, D. (2006). Evaluation of the Omaha System in an academic nurse managed center. *Online Journal of Nursing Informatics*, *10*(3). Retrieved from www.cinahl.com/cgi-bin/refsvc?jid=1536&accno=2009508875

Elfrink, V. L., & Davis, L. S. (2004). Using Omaha System data to improve the clinical education experiences of nursing students: The University of Cincinnati project. *Home Health Care Management & Practice*, *16*, 185–191. doi:10.1177/1084822303260933

Hansen-Turton, T., Miller, M. E. T, & Greiner, P. (Eds). (2009). *Nurse-managed wellness centers: Developing and maintaining your center*. New York, NY: Springer.

Hildebrandt, E., Baisch, M., Lundeen, S., Bell-Calvin, J., & Kelber, S. (2003). Eleven years of primary health care delivery in an academic nursing center. *Journal of Professional Nursing*, *19*, 279–288. doi:10.1016/S8755-7223(03)00100-5

Hyun, S., & Park, H. A. (2002). Cross-mapping the ICNP with NANDA, HHCC, Omaha System and NIC for unified nursing language system development. *International Nursing Review*, *49*, 99–110.

King, E., & Resick, L. (2009). What is a nurse managed wellness center? In T. Hansen-Turton, M. E. T. Miller, & P. Greiner (Eds), *Nurse managed wellness centers: Developing and maintaining your center* (pp. 7–12). New York, NY: Springer.

Leonardo, M. E., Resick, L. K., Bingman, C. A. & Strotmeyer, S. (2004). The alternative for wellness centers: Drown in data or develop a reasonable electronic documentation system. *Home Health Care Management & Practice*, *16*, 177–184. doi: 10.1177/1084822303260932

Martin, K.S. (2005). *The Omaha System: A key to practice, documentation, and information management* (2nd ed.). Omaha, NE: Health Connections Press.

Martin, K. S., Monsen, K. A., & Bowles, K. H. (2011). The Omaha System and meaningful use: Applications for practice, education, and research. *CIN: Computers, Informatics, Nursing*, *29*, 52–58. doi:10.1097/NCN.0b013e3131f9ddc6

Martin, K. S, & Scheet, N. J. (1992). *The Omaha System: A pocket guide for community health nursing*. Philadelphia, PA: Saunders.

Monsen, K. A., Banerjee, A., & Das, P. (2010). Discovering client and intervention patterns in home visiting data. *Western Journal of Nursing Research*, *32*, 1031–1054. doi: 10.117/019394591037090

Monsen, K. A., Fitzsimmons, L. L., Lescenski, B. A., Lytton, A. B., Schwinchtenberg, L. D., & Martin, K. S. (2006). A public health nursing informatics data-and-practice quality project. *CIN: Computers, Informatics, Nursing 24*, 152–158.

Monsen, K. A., Fulkerson, J., Lytton, A., Taft, L., Schwichtenberg, L., & Martin, K. S. (2010). Comparing maternal child health problems and outcomes across public health nursing agencies. *Maternal & Child Health Journal* [serial online]. *14*, 412–421. doi: 10.1007/s10995-009-0479-9

Monsen, K. A., & Kerr, M. J. (2004). Mining quality documentation data for golden outcomes. *Home Health Care Management & Practice*, *16*, 192–199. doi: 10.117/1084822303259871

Monsen, K. A., Radosevich, D. M., Kerr, M. J., & Fulkerson, J. A. (2011). Public health nurses tailor interventions for families at risk. *Public Health Nursing*, *28*, 119–128. doi:10.1111/j.1525-1446.2010.00911.x

Monsen, K. A., Sanders, A., Yu, F., Radosevich, D., & Geppert, J, (2011). Family home visiting outcomes for mothers with and without intellectual disabilities. *Journal of Intellectual Disability Research*, *55*(5), 484–499. doi:10.1111/j.1365-2788.2011.01402.x

Monsen, K. A., Westra, B. L., Oancea, S., Yu, F., & Kerr, M., (2011). Linking home care interventions and hospitalization outcomes for frail and non-frail elderly patients. *Research in Nursing and Health*, *34*, 160–168. doi: 10.1002/nur.20426

National Nursing Centers Consortium. (2011) Nurse managed centers are changing the face of health care. Retrieved from http://www.nncc.us/about/nmhc.html

Ndiwane, A. (2005). Teaching with the Nightingale Tracker technology in community-based nursing education: A pilot study. *Journal of Nursing Education*, *44*, 40–42. Retrieved from http://www.slackjournals.com/article.aspx?rid=34953

Neff, D. F., Mahama, N., Mohar, D. R. H., & Kinion, E. (2003). Nursing care delivered at academic community-based nurse-managed center. *Outcomes Management*, *7*, 84–89.

Omaha System.org. (2011). *Omaha System overview*. Retrieved from http://www.omahasystem.org/overview.html

Plowfield, L., Hayes, E., & Hall-Long, B. (2005). Using the Omaha System to document the wellness needs of the elderly. *Nursing Clinics of North America*, *40*, 817–829.

Thompson, C., & Bucher, J. (in press). Meeting clinical competencies in nurse-managed wellness centers. *Journal of Professional Nursing*, forthcoming.

Thompson, C., & Feeney, E. (2004). Student–Client relationships in a community health nursing clinical setting. *Nursing Education Perspectives*, *25*, 137–138.

Yu, F., & Lang, N.M. (2008). Using the Omaha System to examine outpatient rehabilitation problems, interventions, and outcomes between clients with and without cognitive impairment. *Rehabilitation Nursing*, *33*(3), 124–31.