

## Competencies Most Valued by Employers— Implications for Master's-Prepared Occupational Health Nurses

by Pamela A. Hart, MPH, RN, Debra K. Olson, MPH, RN, Ann L. Fredrickson, BA, and Patricia McGovern, PhD, RN

Employers hire occupational health nurses based on what they consider the skills, knowledge, and attitudes (i.e., competencies) required for the job. The competencies employers consider most valuable will affect their hiring decisions. Educational institutions seek to provide competency-based curricula that will adequately prepare graduates to compete for positions.

Employers who have hired or could hire master's-prepared occupational health nurses were surveyed to determine what competencies they value and are thus needed by occupational health nurses. Demographics of the respondents' organizations were collected to describe their workplaces.

### DEFINING COMPETENCIES IN OCCUPATIONAL AND ENVIRONMENTAL HEALTH NURSING

Occupational and environmental health nursing draws on clinical

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nursing and management skills as well as knowledge from occupational and environmental health sciences. Thus, the definition of competency used in this study encompasses these in a review of the literature. Tzeng and Ketefian (2003) surveyed 89 hospitals in Taiwan to determine required nursing competency levels. Competency levels differed with type of hospital accreditation, services provided, employers' professional titles, and tenure of currently employed nurses. Tzeng and Ketefian (2003) define nursing competence as personal skills developed through professional nursing courses. They define competencies as a group of broad abilities and practical skills that might change along with environmental changes.

Eichelberger and Hewlett (1999) reviewed the literature to determine how various states applied competency models to the nurse education process. These researchers defined competency as ideas and beliefs describing capabilities, strengths, and assets nurses bring to the work force, further stating that competencies could serve as a benchmark to clarify nursing roles.

Benner (1984) related the Dreyfus skill attainment process to nursing using the levels novice, advanced beginner, competent, proficient, and expert. Benner described competencies on a continuum, discussing how nurses move along this continuum

building on basic skills through experiences in practice.

The American Association of Occupational Health Nurses, Inc. (AAOHN) has as one of its responsibilities the identification of competencies and performance criteria for occupational and environmental health nursing. These competencies were published in 2003 (American Association of Occupational Health Nurses, 2003). The AAOHN Board of Directors developed a plan to review and revise the competencies over time. To accomplish this task, the Professional Practice Committee gathered data from members in all competency areas, leading to revisions presented to the AAOHN Board of Directors in May 2003. The result was defined, specific levels of expertise (competent, proficient, and expert) in AAOHN-adopted competencies (AAOHN, 2003). Some of the competencies were similar to competencies in other nursing specialties, but focused on workplace issues. The competencies were categorized as follows:

- Clinical and primary care.
- Case management.
- Work force, workplace, and environmental issues.
- Regulatory and legislative.
- Management.
- Health promotion and disease prevention.
- Occupational and environmental health and safety education and training.

Table 1  
**Percentage of Respondents (N = 95) Indicating Value of Competencies for Proficient Practice in Occupational Health and Safety by Master's-Prepared Occupational Health Nurses\***

<i>Category</i>	<i>Question</i>	<i>% Not Valuable</i>	<i>% Valuable</i>	<i>% Very Valuable</i>
Behavior	Stay current in one's field of practice		11%	89%
Behavior	Function effectively on an interdisciplinary team		14%	86%
Behavior	Understand and apply relevant laws and regulations		22%	78%
Behavior	Identify ethical dilemmas and work in an ethical manner	1%	23%	76%
Behavior	Demonstrate awareness of diversity in social and cultural beliefs	1%	52%	47%
Communication	Communicate effectively with a variety of stakeholders (e.g., management and labor)		7%	93%
Communication	Communicate effectively with other safety and health professionals		14%	86%
Communication	Write well		20%	80%
Communication	Interpret and disseminate policies		33%	67%
Communication	Design and deliver adult education programs		42%	58%
Control	Design and implement work process interventions		36%	64%
Control	Design and implement changes in the work environment		36%	64%
Control	Design and implement screening programs	2%	38%	60%
Control	Design and implement health promotion programs	4%	37%	59%
Control	Design and implement surveillance systems	1%	45%	54%
Evaluation	Measure and evaluate programs	2%	26%	72%
Evaluation	Gather, manage, and analyze data		27%	73%
Evaluation	Assess risks to population health	1%	29%	70%
Evaluation	Interpret and apply scientific findings	1%	36%	63%
Evaluation	Design and initiate research	13%	66%	21%
Management	Display effective leadership		16%	84%
Management	Develop and implement health and safety programs		25%	75%
Management	Manage staff or personnel resources effectively	2%	27%	71%
Management	Formulate and implement guidelines and policies	1%	33%	66%
Management	Manage financial resources effectively	1%	33%	66%
Recognition	Understand the relationship between occupational exposures and health outcomes		9%	91%

Recognition	Identify health and safety hazards of worksite processes and operations		15%	85%
Recognition	Know occupational safety and health laws and regulations		24%	76%
Recognition	Recognize the influence of cultural and social factors in occupational health and safety practices	2%	45%	53%
OHN specific	Communicate with senior management on health service program initiatives, outcomes, and cost-effectiveness		14%	86%
OHN specific	Evaluate the health outcomes and costs of health service programs		17%	83%
OHN specific	Design or manage health, safety, and environmental services consistent with corporate culture, business objectives, and the needs of employee and community population	1%	18%	81%
OHN specific	Analyze the risks associated with worksite hazards	2%	23%	75%
OHN specific	Develop, manage, or evaluate population risk reduction and health surveillance programs	1%	37%	62%
OHN specific	Design or implement quality improvement methods to measure health outcomes		38%	62%
OHN specific	Develop or manage case management programs	5%	34%	61%
OHN specific	Engage actively in efforts to affect policy making and practices governing employee, worksite, and environmental safety and health issues	3%	36%	61%
OHN specific	Develop or manage a budget to meet assessed needs	5%	34%	61%
OHN specific	Develop or evaluate clinical protocols and practice guidelines	4%	38%	58%
OHN specific	Act as a role model and student mentor	3%	39%	58%
OHN specific	Assume leadership roles in advancing the profession	1%	41%	58%
OHN specific	Develop or coordinate the company's health and corporate disability management programs	5%	42%	53%
OHN specific	Negotiate vendor or provider contracts and evaluate effectiveness of services	12%	49%	39%
OHN specific	Enhance research skills using mentoring and preceptorship opportunities	9%	63%	28%
OHN specific	Collaborate with researchers, other occupational and environmental health nurses, and members of occupational and environmental health and safety team participating in research	11%	62%	27%
OHN specific	Identify need for and initiate or participate in research on practice issues or problems	13%	65%	22%

*OHN = occupational health nurse.  
\*Ordered by percentage "very valuable" within each category.*

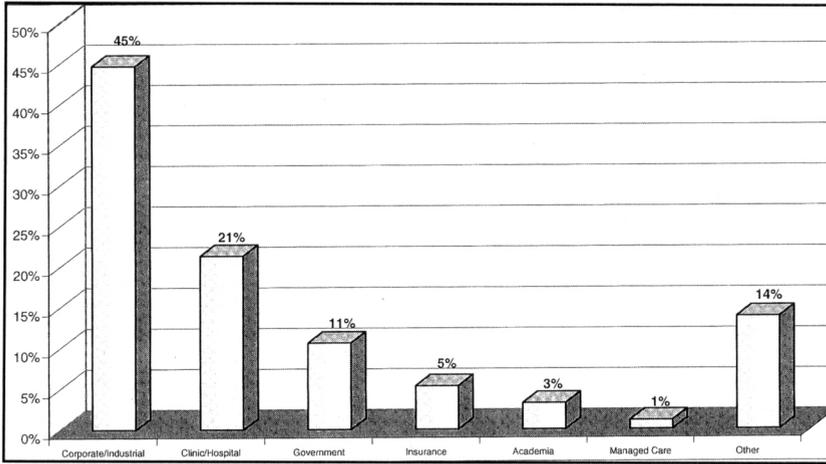


Figure 1. Respondents' work settings.

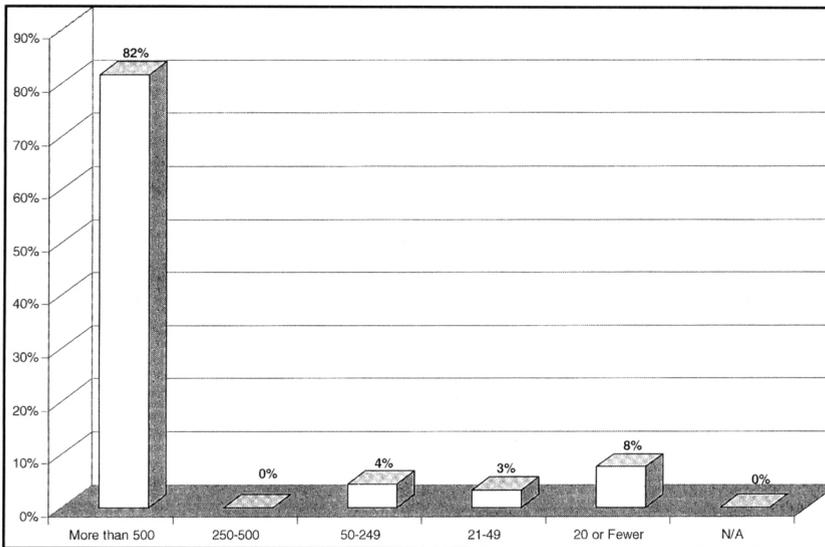


Figure 2. Sizes of respondents' organizations. (Partial percentage points calculated for each category were rounded up or down, in some cases resulting in a sum of all categories greater or less than 100%.)

- Research.
- Professionalism.

AAOHN states because occupational health nurses differ regarding education, experience, and job position, they may be experts in some areas of occupational and environmental health practice and novices in others. Competency should be measured relative to each specific level, not to occupational and environmental health nursing as a whole (AAOHN, 2003).

**MEASURING COMPETENCY**

The literature describes a variety of methods for measuring competencies. The National Association of Clinical Nurse Specialists (2003)

considers graduate-level education and successful completion of a certification examination the minimum qualifications for competency. This group states that the lack of a specialty examination should not be a barrier to qualification, and recommends portfolio review as another way to demonstrate competence. Carraccio, Wolfsthal, Englander, Ferrentz, and Martin (2002) determined competency by observing discrete measurable behaviors and comparing performance against a set standard or threshold. Bartlett, Simonite, Westcott, and Taylor (2000) compared nursing competence measurement in the United Kingdom and found that the literature suggests graduate

nurses may or may not be different from non-graduate nurses depending on which variables are being measured. Their findings were consistent in competence and performance by correlation with both length and type of education.

Tzeng and Ketefian (2003) compared hiring markets for nurses in South Carolina and Taiwan. These researchers suggested nursing educators should consult employers regarding the skills they prefer in the work force. Cleary, Lacey, and Beck-Warden (1998) examined the anticipated demand for nurses among employers. A telephone survey was conducted of a geographically stratified random sample of 909 North Carolina organizations employing nurses to identify preferences for registered nurses with varying levels of education. Critical thinking and management skills were the competencies most valued by hospitals. Both of these studies found employers anticipated needing nurses with education ranging from vocational training to advanced degrees and specific competencies as criteria for each position.

Occupational health nurses are employed in a variety of settings that shape their practice. AAOHN (2003) states, "Competencies are measured and stated in behavioral terms. Regardless of basic professional preparation, competencies required for one work setting are very different from those required for another" (p. 291). The competencies employers across these settings value most influence their hiring decisions. Determining competencies by work setting is essential in educating master's-prepared occupational health nurses.

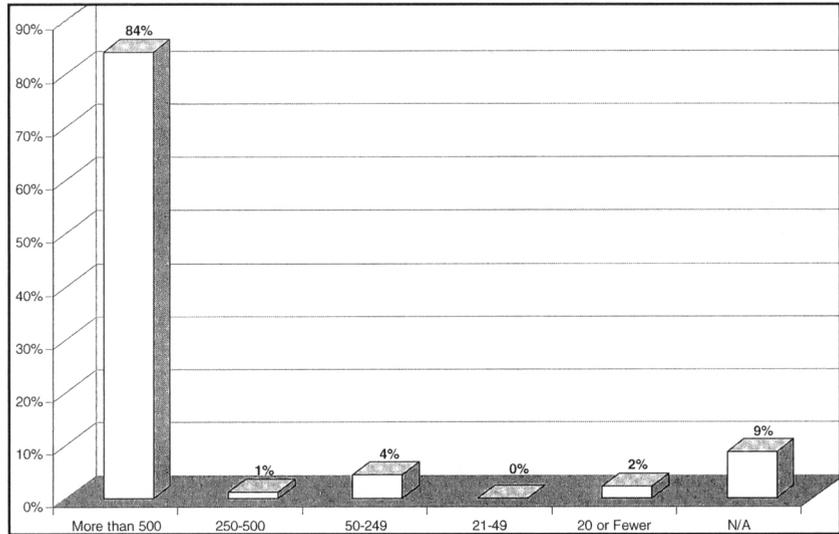
This descriptive study identified how employers value a set of cross-cutting and discipline-specific competencies brought to organizations by master's-prepared occupational health nurses. The competency set used had been validated by Olson et al. (2005) in a 2002 survey evaluating the curriculum of an education and research center funded in part by the National Institute for Occupational Safety and Health. In that study, faculty identified both discipline-specific

and crosscutting occupational health and safety competencies for four programs: Occupational Medicine, Occupational Health Nursing, Industrial Hygiene, and Occupational Injury Epidemiology and Control. Faculty identified potential competency sets using published literature, course objectives, and content summaries. Common themes or categories were identified for the crosscutting occupational health and safety competencies. Program graduates completed a survey assessing the value of, and proficiency in, these competencies based on their post-graduation work experience.

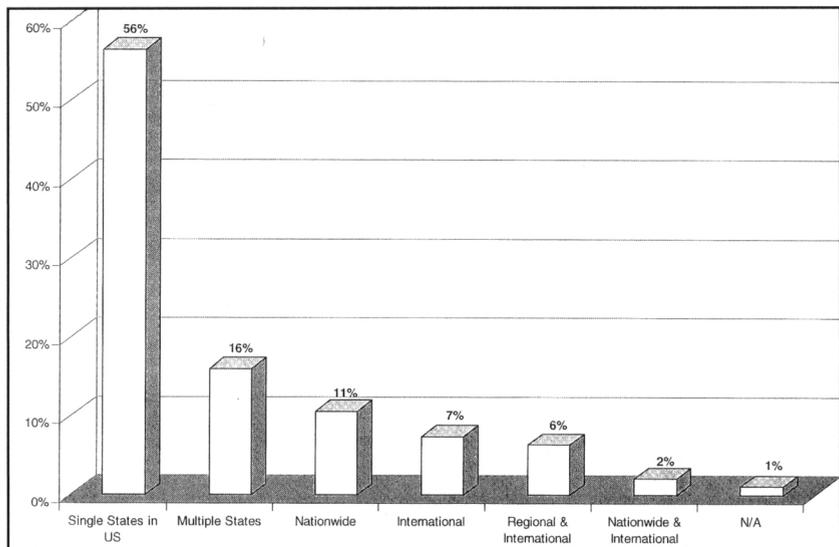
**METHODS**

AAOHN members identifying themselves as master’s-prepared nurses and who allowed their demographics and e-mail addresses to be shared made up the survey pool. A prospective list of 920 members identifying themselves as master’s prepared in any field (i.e., not limited to a master’s degree in nursing) was obtained from AAOHN and potential participants were e-mailed an invitation. The invitation discussed the purpose of and inclusion criteria for the survey and contained a link to the survey website. If recipients of the invitation did not have responsibility for hiring master’s-prepared occupational health nurses or had not previously hired a master’s-prepared occupational health nurse, they were asked to forward it to the individual within their organization who did.

When participants accessed the link included in the invitation, the first screen they encountered on the website was the consent form. The website was designed so participants could not progress to the screen for completion of the survey unless they first clicked on the “I agree” button at the end of the consent form. It was also designed to log the participants’ e-mail addresses only to track responses to identify those who had completed the survey. After 2 weeks, a reminder e-mail was sent to the 710 potential participants who had not yet responded in an attempt



**Figure 3. Number of employees served at respondents’ organizations.**



**Figure 4. Respondents’ geographic locations. (Partial percentage points calculated for each category were rounded up or down, in some cases resulting in a sum of all categories greater or less than 100%.)**

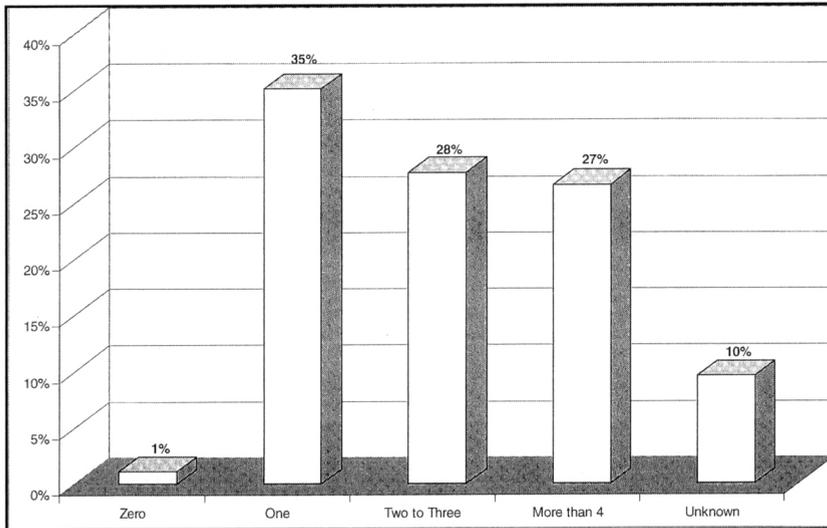
to maximize the response rate. The survey was posted on the website for 6 weeks.

The self-administered survey provided a list of competencies (Table 1), asking participants to rate how valuable they consider each for proficient practice in occupational health and safety when hiring master’s-prepared occupational health nurses. Participants were asked to rate each competency on a scale of 1 to 3 (1 = not valuable, 2 = valuable, and 3 = very valuable). The competency list was divided into two sections, one for crosscutting

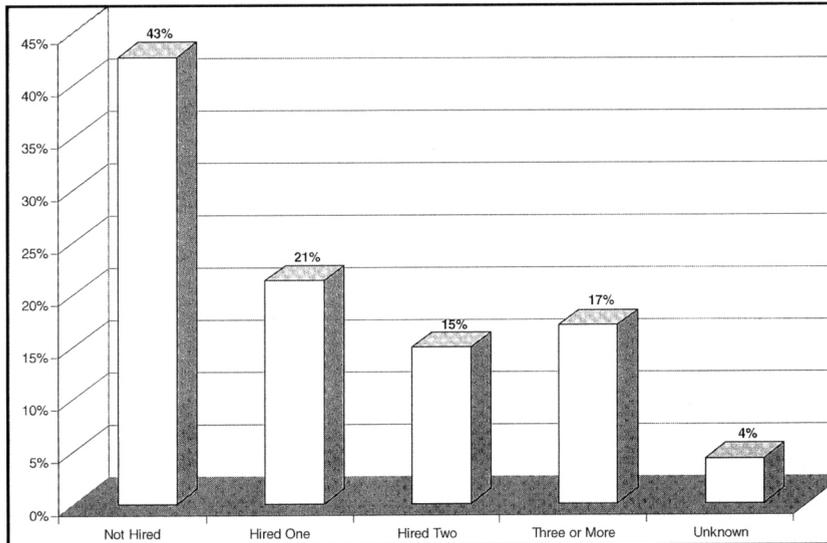
occupational health and safety competencies and one for discipline-specific occupational health nursing competencies.

The institutional review board approved the study as exempt from committee review of research involving human subjects in January 2004. Data collection began March 11, 2004, and ended April 21, 2004. Survey data were analyzed to determine frequencies, distributions, and relationships of value for the competencies.

Fisher’s exact test was used to compare the percentages of “very



**Figure 5.** Number of occupational health nurses at the respondents' organizations. (Partial percentage points calculated for each category were rounded up or down, in some cases resulting in a sum of all categories greater or less than 100%.)



**Figure 6.** Number of master's-prepared occupational health nurses hired by respondents.

valuable" responses to determine whether differences among groups were statistically significant. This test was used due to the low number of expected values in several of the data categories (seven categories of occupational health nurse competency, five specific competencies within each category, and three choices to describe respondents' value of the competency).

**RESULTS**

Ninety of the 920 e-mails sent were undeliverable, leaving 830 potential participants. Responses were

received from 220 of those e-mailed, including 119 being ineligible due to not meeting the inclusion criteria and 2 being unable to complete the survey. Ninety-five met the criteria and completed the survey. The overall response rate was 26.5%. The analysis includes the 95 respondents who completed the survey and met the inclusion criteria. Figures 1 through 6 display the demographics of the 95 survey participants and their work-sites.

Table 1 indicates how individual competencies within each of the competency categories were valued

by survey respondents. The competencies considered "very valuable" by the greatest number of respondents were "Communicate effectively with a variety of stakeholders" (93%), "Understand the relationship between occupational exposures and health outcomes" (91%), and "Stay current in one's field of practice" (89%). Three competencies—"Communicate effectively with other safety and health professionals," "Function effectively on an interdisciplinary team," and "Communicate with senior management on health service program initiatives, outcomes, and cost-effectiveness"—were each considered "very valuable" by 86% of the respondents.

The four individual competencies identified as "very valuable" by 28% or less of the respondents were "Design and initiate research" (21%), "Identify need for and initiate or participate in research on practice issues or problems" (23%), "Enhance research skills using mentoring and preceptorship opportunities" (28%), and "Collaborate with researchers, other occupational and environmental health nurses, and members of occupational and environmental health and safety team participating in research" (28%).

The ratings of the individual competencies in each competency category were used to compute an average score for the competency category; then the percentage of respondents who considered that category to be "very valuable" was compared across the various demographics. Respondents working in hospital or clinic settings valued the behavior category of competencies significantly more ( $p = .02$ ) than respondents working in other settings (Table 2). Respondents who had hired at least one master's-prepared occupational health nurse valued the communication category of competencies significantly more ( $p = .05$ ) than those who had not hired a master's-prepared occupational health nurse (Table 3).

**LIMITATIONS**

Internet-based surveys often have low response rates, as evi-

Table 2

**Percentage of Respondents ( $N = 95$ ) Hiring Master's-Prepared Occupational Health Nurses, by Work Setting, Identifying a Competency Category as Very Valuable for Proficient Practice in Occupational Health and Safety**

<b>Competency Category</b>	<b>Overall % for Each Category</b>	<b>Corporate or Industrial (%)</b>	<b>Clinic or Hospital (%)</b>	<b>Government (%)</b>	<b>Other (%)</b>
Recognition	89	88	95	80	91
Evaluation	62	66	60	60	57
Control	61	66	60	40	64
Communication	83	78	90	70	91
Behavior*	82	80	100	60	76
Management	75	76	80	70	73
OHN specific	55	62	60	40	45

*OHN = occupational health nurse.*

*\*Difference statistically significant ( $p = .02$ )*

Table 3

**Percentage of Respondents ( $N = 95$ ) Hiring Master's-Prepared Occupational Health Nurses, by Hiring Experience, Indicating Their Value of Competencies for Proficient Practice in Occupational Health and Safety**

<b>Competency Category</b>	<b>Overall % for Each Category</b>	<b>Hired None (%)</b>	<b>Hired at Least One (%)</b>
Recognition	89	87	91
Evaluation	62	55	67
Control	61	63	60
Communication*	83	73	89
Behavior	82	73	87
Management	75	71	78
OHN specific	55	54	56

*OHN = occupational health nurse.*

*\*Difference statistically significant ( $p = .05$ ).*

denced by this study (26.5%). Im and Chee (2004) conducted Internet-based research with 40 cancer patients, describing the field of nursing informatics and suggesting future directions for Internet surveys. In that study, possible reasons for a low response rate to an e-mail survey included concern about opening junk mail, or spam, from unknown senders; concern about privacy; lack of payment or other perceived benefit; respondent's computer operat-

ing system or modem capability not matching that needed to open the survey; and the potential for having the website "time out" while loading on the respondent's computer.

The Internet survey did not require entry of response data by the researchers and thus no opportunity existed for them to introduce errors. However, because the survey was completed online, respondents could not verify their electronic responses were the ones intended.

The 3-point scale of "very valuable," "valuable," and "not valuable" might not have allowed enough variation in response. It was used to allow comparison of the results with the 2002 survey of graduates of the program (Olson et al., 2005). Use of the previous competencies might be a limitation, as participants could have valued additional competencies. The survey contained no open-ended questions and no option for participants to write in responses. Selec-

## IN SUMMARY

**Competencies Most Valued by Employers**

Implications for Master's-Prepared Occupational Health Nurses

*Hart, P. A., Olson, D. K., Fredrickson, A. L., & McGovern, P.**AAOHN Journal 2006; 54(7), 327-335.*

- 1 Educational institutions seek to prepare students to compete for positions in the workplace with a competency-based education.
- 2 Employers are important stakeholders in the preparation of occupational health nurses.
- 3 Competencies considered most valuable by employers will affect their hiring decisions. This study identifies competencies valued by employers in the workplace.

tions were limited to the competencies listed on the survey form.

Potential existed for selection bias, as respondents were drawn from the roster of AAOHN members who indicated they were, at a minimum, master's prepared and provided an e-mail address. The inclusion criteria may have limited the sample size. Little is known about the true population of employers of master's-prepared occupational health nurses.

Subsequent research could focus on increasing response rate and decreasing selection bias. Interviews or telephone surveys might have higher response rates and allow identification of additional valuable competencies.

## DISCUSSION AND CONCLUSIONS

Employers value some occupational and environmental health nursing competencies more than others. Competencies receiving the most "very valuable" responses involved communication, understanding occupational health nurse practice, and teamwork. Demographics contributed to the high value placed on these competencies. *Forty-five percent of respondents worked in a corporate or industrial setting. Eighty-two percent were employed by an organization with more than 500 employees. Thir-*

*ty-five percent had only one master's-prepared occupational health nurse in their organization. The occupational health nurse in a sole practice role would have to perform all functions necessary for a large corporation or industry without proficiency in these competencies.*

Competencies receiving the fewest "very valuable" responses involved some aspect of research. This makes sense given that 45% of the respondents were in corporate or industrial settings and research is not generally a primary function of such settings.

The value placed on certain categories of competencies differed significantly by work setting and hiring experience of the respondents. Tzeng and Ketefian (2003) and Cleary et al. (1998) conducted research regarding competencies of nurses in hospital settings. The literature defined competencies and their measurement in terms of clinical behaviors, as well. The clinical setting may be unique in its emphasis on behavior competencies. Respondents from hospitals and clinics may have more opportunity for and familiarity with observing specific nursing behaviors (e.g., *observing daily examples of the value of maintaining knowledge current in the field, contributing as part of an interdisciplinary team, or being aware of and sensitive to diversity in social*

and cultural beliefs). Respondents in non-clinical settings may not focus on observations of specific behaviors when measuring competence in their settings.

Eighty-two percent of the respondents worked in organizations with more than 500 employees. Thirty-five percent indicated having one master's-prepared occupational health nurse in their organization. A marginal statistically significant difference was noted for how respondents who had previously hired an occupational health nurse valued communication competencies. The high value placed on communication competencies may be related to a limited number of occupational health nurses in the organization and a large population of employees served. Respondents who had previously hired a master's-prepared occupational health nurse indicated communication competencies were very valuable. Perhaps they have directly experienced candidates' ability (or inability) to communicate effectively.

Tzeng and Ketefian (2003) and Cleary et al. (1998) both found that nursing competencies differed by specific needs of and services provided by organizations. The current study confirmed employers value specific competencies when hiring master's-prepared occupational health nurses. Thus, employers are important stakeholders in the preparation of occupational health nurses.

Competency development, long viewed as more of an art than a science, is being tested as education moves from competency, to curriculum, to practice (Olson et al., 2005).

Core competencies and performance indicators for a variety of specialties including occupational and environmental health nursing have emerged in the past decade. This study identifies those elements valued by employers, which should be considered in curriculum development.

*The Midwest Center for Occupational Health and Safety is an Ed-*

ucation and Research Center in the University of Minnesota School of Public Health and is funded in part by the National Institute for Occupational Safety and Health, Grant No. T42 /CCT 510422-10.

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