EXECUTIVE SUMMARY

The 2003 HIMSS Nursing Informatics Survey, sponsored by Omnicell, Inc., suggests that nurse informaticists play a critical role in the implementation of clinical information and documentation systems, particularly those relating directly to nursing. Although two-thirds of respondents work in a hospital or healthcare system, nearly one-quarter work for either a vendor, supplier or consulting firm.

Other key findings of the survey include:

- **Clinical Background:** Nearly half of the respondents have a background in either intensive care nursing or medical/surgical nursing. Prior to beginning an informatics career, half of the respondents indicated they had at least 16 years of clinical experience.

- **Informatics Training:** Over half of the respondents indicated that the knowledge they have about informatics came from on-the-job training. And while nearly half of the survey respondents hold a post-graduate degree, only 10 percent hold a formal informatics degree.

- **Informatics Career:** Only one-quarter of the respondents have 10 or more years of informatics experience, and nearly 40 percent have fewer than five years of experience. When the switch is made to an informatics career, most nurses do not continue to perform clinical duties—only eight percent indicate that more than 25 percent of their time is presently devoted to clinical duties.

- **Job Responsibilities:** Among those respondents with managerial responsibilities, half indicated that they were responsible for managing four or more employees. Two-thirds of respondents selected systems implementation as a top job responsibility. Systems development and coordination/administration of activities round out the top three.

- **Barriers to Success:** Eighteen percent of respondents identified availability of financial resources as the largest barrier to success in their role as nurse informaticists. User acceptance and administrative support were each identified by 16 percent of respondents.

- **Continuing Education:** Respondents are most likely to indicate that they would like information about professional practice trends, informatics careers and database design/management. The Internet is the source they turn to most frequently to get the information they need. Continuing education needs are met most frequently through attendance at national conferences and regional events.
METHODOLOGY

To gain a better understanding of the background of nurse informaticists, the issues they address on a daily basis and the tools they turn to for completing their jobs, HIMSS conducted a Web-based survey. The survey was sponsored by Omnicell, Inc. Support was received from a number of nursing informatics associations, including the Puget Sound Nursing Informatics Group (PSNIG), CARING (the Capital Area Roundtable on Informatics in Nursing), the Nursing Information Systems Council of New England (NISCNE), the American Nursing Informatics Association (ANIA), the Delaware Valley Nursing Computer Network (DVNCN), and the Midwest Alliance for Nursing Informatics (MANI). Support was also received from the University of Utah.

Nurse informaticists that were part of these organizations, as well as HIMSS members, were invited to participate in this survey, which took place in October 2003. A total of 537 usable responses were received, making it the largest ever survey of nurse informaticists.

ABOUT THE RESPONDENTS

Half of the survey respondents work in a hospital setting, with another 13 percent working at the corporate level of a healthcare system. (Figure 1) Nearly one-quarter (21 percent) work for either a vendor, supplier or consulting firm. The remaining 15 percent of respondents work for other facilities, including academic settings, government/military facilities, payer/managed care or ambulatory care locations.

Among those respondents who were knowledgeable of their organization’s annual net revenue, approximately 41 percent work for organizations with a 2002 revenue of $50 million or less, while about one-quarter work for an organization with a 2002 revenue of more than $500 million. (Figure 2) Individuals were asked to report on their organization’s 2002 revenues.

One-quarter of the respondents (26 percent) work in states in the South Atlantic1 region. (Figure 3) Another 18 percent work in the East North Central2 region, with 16 percent working in the Pacific3 region. Five percent or fewer respondents came from each of the following regions: Mountain4, New England5, West South Central6 and East South Central.7

Survey respondents hold a wide variety of job titles, including application analyst, clinical analyst, clinical applications specialist, consultant, director of nursing

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1 Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia and Washington DC.
2 Illinois, Indiana, Michigan, Ohio and Wisconsin
3 Alaska, California, Hawaii, Oregon and Washington
4 Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah and Wyoming
5 Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont
6 Arkansas, Louisiana, Oklahoma and Texas
7 Alabama, Kentucky, Mississippi and Tennessee
informatics, informatics nurse specialist, nursing informatics specialist, project manager and senior application specialist. No one title is held by more than a handful of respondents, thus illustrating the diversity of roles in this newly evolving field.

**NURSING BACKGROUND AND EDUCATION**

Nearly half of the nurses in this survey report that they hold a post-graduate degree. One-third of respondents (31 percent) hold a Master’s Degree in Nursing, and another 14 percent report that they hold a Master’s Degree with a focus outside nursing, such as an MBA. Nearly three percent of respondents hold a doctorate in nursing, while one percent hold other doctoral degrees.

One-quarter of respondents (25 percent) report that their background is in critical care nursing — also a high-tech specialty. (Figure 4) Another 22 percent report a background in medical/surgical nursing, and an additional 15 percent report that they have a background that lies in multiple departments. The nursing background of other respondents includes other specialties such as emergency medicine, surgery and pediatrics. Only three percent of nurses report having a background solely in informatics.

Most of the respondents have extensive clinical experience prior to assuming their informatics responsibilities; half of the respondents reported having at least 16 years of clinical experience prior to becoming a nurse informaticist. (Figure 5) Another 21 percent have 11 to 15 years of experience. The remaining 30 percent have fewer than 10 years of experience.

Reflecting the newness of this specialty, the majority of those surveyed have only been involved with informatics for a few years. (Figure 6) Nearly 40 percent of respondents have fewer than five years of experience as a nurse informaticist. Only one-quarter of respondents have 10 or more years of experience as a nurse informaticist.

Most of the nurse informaticists in this survey do not continue to perform clinical duties. (Figure 7) Nearly three-quarters of the respondents (74 percent) report that they spend no time performing clinical responsibilities, while another 18 percent report that they spend less than 25 percent of their time on clinical responsibilities. Only eight percent of respondents devote more than 25 percent of their time to clinical activities.

Over half (56 percent) identify on-the-job training as the primary vehicle through which they received the information needed to do their jobs. (Figure 8) Only ten percent have a formal nursing informatics degree (either Master’s or PhD level; none reported receiving a Bachelor’s degree). Another 10 percent hold a certificate in nursing informatics. Three percent reported that they completed informatics training as a concentration or minor within another degree program. A handful (two percent) report either presently pursuing a degree in nursing informatics or holding credits towards a nursing informatics degree.

Nearly half of the survey respondents (46 percent) hold at least one certification that is relevant to their work as a nurse informaticist; most of these individuals hold only one
Among those who indicated that they are certified, almost half (48 percent) have achieved the nursing informatics certification offered by the American Nurses Credentialing Center (ANCC). Just over one-third (37 percent) of respondents indicate that they are certified in another nursing area, such as perioperative nursing (CNOR) or critical care nursing (CCRN). Four percent report that they hold the CPHIMS certification offered through HIMSS (the Healthcare Information and Management Systems Society).

There is no clear area to which the nurses in this survey report. Approximately one-third (37 percent) indicate that they report to the information systems department, while another quarter (26 percent) indicate that they report directly to the nursing department. Respondents also indicate that they report to administration, sales/marketing, implementation or quality improvement. None of the respondents reported to a supervisor in an ancillary department (i.e. pharmacy or laboratory).

**JOB RESPONSIBILITIES**

Most of the nurses responding to the survey work in an independent role and have minimal supervisory requirements. Half of the respondents did not answer this question, suggesting that no individuals reported to them, either directly or indirectly. Of those that have supervisory responsibilities, 48% oversee four or more employees. Only one-quarter indicated that they had managerial responsibility, either directly or indirectly, for eight or more individuals.

Two-thirds of respondents (67 percent) indicated that systems implementation, which includes training, supporting and preparing users, was one of their top job responsibilities. Systems development was identified by just over half of the respondents (52 percent) as a top job responsibility. This includes the customizing/updating of a vendor system or the creating/updating of an in-house system. Rounding out the top three job responsibilities is acting as a liaison or communicator. This role, which includes working with administration and the coordination of activities, was identified by one-third of respondents. Performing quality initiatives (such as system evaluation and problem solving, quality improvement and patient safety) and informatics education (training, planning and continuing education) were each identified by approximately one-quarter of respondents. Policy development, operations, sales/marketing and informatics research were each identified by less than ten percent of respondents.

Respondents were also asked to identify the applications they were involved in developing or implementing. Nearly three-quarters (74 percent) indicated they were involved with a clinical documentation system. Another three-quarters (71 percent) reported that they were involved with their organization’s clinical information system. Rounding out the top three is nursing clinical documentation, which two-thirds of respondents are involved with. Additionally, over half (52 percent) are involved in the implementation of computerized provider order entry (CPOE) and 48 percent are involved in the implementation of an electronic medical record (EMR). Less than one-
quarter of respondents are involved with the implementation or development of the following systems: bar coded medication management, ICU technology, enterprise master patient index (MPI), picture archiving and communications systems (PACS) and utilization review (UR).

Approximately half of the nurse informaticists responding to this survey (47 percent) indicated that they were involved with five or fewer areas of development or implementation. Conversely, 12 percent of respondents are involved in ten or more areas.

With respect to the applications they have overall experience with, respondents were likely to identify clinical documentation (83 percent), clinical information systems (78 percent) and nursing clinical documentation (78 percent). The percentage of respondents indicating that they are presently implementing/developing a system is very similar to the responses for the systems that they have experience with implementing. Perhaps some of the answer lies in the fact that many of the individuals in this sample have been nurse informaticists for only a handful of years.

Many of the nurses responding to this survey indicated that they have been involved with the removal/replacement of at least one system. (Figure 14) Most respondents have rather limited experience with removing systems; one-third have been involved with the removal of only one system, and an additional 37 percent have been involved with the removal/replacement of two to four systems. Clinical documentation systems were identified by most respondents (46 percent) as the system they were involved with removing or replacing. Clinical information systems and nursing clinical documentation were also identified by at least 40 percent of respondents.

**BARRIERS TO SUCCESS**

Reflecting the multiple challenges and complexity of implementing clinical systems, three key areas were identified by respondents as the largest barrier to success in their role as nurse informaticists. (Figure 15) Availability of financial resources (18 percent), user acceptance (16 percent) and administrative support (16 percent) were the responses selected most frequently. Software design was also selected by more than ten percent of respondents (12 percent). In spite of the current nursing shortage in healthcare, only seven percent of respondents identified staffing levels as a barrier to success. Regulations outlined in the Health Insurance Portability and Accountability Act of 1996 (HIPAA) were identified as problematic by only one percent of respondents.

**RESOURCES**

Many nurses turn to multiple sources to obtain the information they need to carry out the day-to-day requirements of their positions. (Figure 16) One-quarter of respondents turn to at least three sources, while another 43 percent turn to four or more sources. The Internet, identified by about three-quarters of the techno-savvy nurses responding to this survey (71 percent), is used most frequently. Approximately 60 percent rely on the
information they receive from list serves, while just over half (52 percent) get the necessary information from industry journals. Little more than one-third rely on books. Respondents were least likely to turn to the help desk (17 percent) and survey research (15 percent) for their daily needs.

The majority of respondents also turn to multiple sources to meet their continuing education needs. (Figure 17) Only 16 percent of respondents indicated that they turned to one source. Approximately two-thirds of respondents (68 percent) indicated that their preferred method for getting communication was from a national conference; 58 percent turn to regional events. Nearly half (47 percent) turn to formal education venues, either in a traditional classroom setting or over the Internet, for their continuing education. Specifically, one-third turn to online education, and one-quarter utilize a traditional setting. Reflecting the constantly evolving state of technology, journals are a popular choice, as selected by 53 percent of respondents.

Nurse informaticists are most likely to identify professional practice trends and issues as a topic they are interested in learning more about; this response was chosen by 59 percent of respondents. (Figure 18) They would also like information on informatics careers (45 percent of respondents) and database design/management (43 percent of respondents). Integration and report writing and web technology each received nearly a 40 percent response, confirming the broad scope of the nurse informaticist’s role. The nurse informaticists responding to this survey are least interested in receiving informatics information for nursing students and information regarding hardware. In general, individuals are interested in receiving information on multiple topics. Only eight percent of respondents wanted to learn more about a single topic. However, individuals do appear to want their information concentrated on a few select topics; 62 percent want information on between two to five topics.

Over 90 percent of survey respondents indicated they were a member of at least one professional association. (Figure 19) For the most part, it appears as though the respondents who have joined a professional organization are selective. One-third of respondents belong to only one organization, with another 47 percent belonging to only two or three organizations. Specifically, nearly 40 percent of the respondents who indicated they were a member of a professional association noted that they held a HIMSS membership. Another 37 percent are members of CARING, and 35 percent identified themselves as members of ANIA. Over one-third of respondents also indicated they are members of the Sigma Theta Tau International Honor Society for Nursing, and nearly 20 percent are members of AMIA.

**COMPENSATION**

The average salary earned by respondents is $69,500. Approximately one-third of nurses responding to this survey report an annual salary of less than $60,000; another third earn a salary of between $60,000 and $75,000.
Respondents living in the New England and Middle Atlantic regions tend to earn higher salaries. (Figure 20) Those living in the West South Central and West North Central regions are more likely to earn salaries of $60,000 or less.

Over half (58 percent) of the respondents to this survey that work for vendor organizations earn a salary in excess of $75,000. (Figure 21) Those working in hospital and health system settings tend to earn lower salaries—only 20 percent of those working for a stand-alone hospital and 35 percent of those working for a health system earn $75,000 or more annually.

Additionally, individuals that have managerial responsibilities tend to earn higher salaries. (Figure 22) Among those respondents that manage eight or more individuals, 64 percent earn a salary of $75,000 or more. Conversely, among those respondents who manage only one individual, nearly half earn $60,000 or less.

Education and salary are also related. (Figure 23) Only 20 percent of individuals with a graduate education earn $60,000 or less annually, compared to 46 percent of individuals who do not hold a graduate-level degree. No relationship exists between holding a professional certification, such as those offered by HIMSS and ANCC, and salary level.

Individuals with more years of experience as a nurse informaticist tend to earn more. (Figure 24) Among those individuals with 10 or more years as a nurse informaticist, 59 percent earn $75,000 or more. Conversely, only 17 percent of these individuals earn $60,000 or less. There is no relationship between the number of years of clinical experience that an individual has and their salary level.

CONCLUSION

Patient safety is a well-documented priority for healthcare organizations. Reflecting this emphasis, a recent survey has identified CPOE, clinical information systems and bar coded medication management as three top applications that healthcare organizations will focus on in the next several years.8 Nurses play a critical role in the implementation of these systems, as almost three-quarters of respondents to this survey are involved with the implementation of their organization’s clinical information system. Additionally, 52 percent are involved in the implementation of CPOE software, and 48 percent are involved in the implementation of an EMR. Respondents to this survey are most likely to identify systems development and implementation as critical components of their day-to-day role. The extensive clinical background of these respondents lends itself nicely to these tasks, as nurses have an intimate understanding of the environment and procedures that are necessary for a successful implementation.

This involvement is impressive in a field that is newly evolving. Presently, individuals in this field rely on each other to get the information and training they need, instead of turning to formal education programs. While nearly half of the survey respondents hold a post-graduate degree, only ten percent have a formal nursing informatics degree. Instead,

the nurses in this survey have relied on on-the-job training and other resources such as the Internet, journals and national and regional conferences to get the information necessary to do their job. And almost all of the survey respondents are members of at least one professional association, and nearly two-thirds rely on the information they receive from listservs to get the information they need.

The newness of this field is also reflected by the job titles that respondents hold and the departments to which they report. The job titles in this survey show tremendous variation, from clinical analyst to director of nursing informatics to senior application specialist, and everywhere in between. Similarly, there is no clear area to which the nurses in this survey report. While the majority of respondents report to either the IT or nursing department, respondents also report to administration, sales/marketing, implementation or quality improvement. Perhaps with time, both of these will become more streamlined.

About HIMSS

HIMSS (Healthcare Information and Management Systems Society) is the healthcare industry's membership organization exclusively focused on providing leadership for the optimal use of healthcare information technology and management systems for the betterment of human health. Founded in 1961 with offices in Chicago, Washington D.C., and other locations across the country, HIMSS represents more than 14,000 individual members and some 220 member corporations that employ more than 1 million people. HIMSS frames and leads healthcare public policy and industry practices through its advocacy, educational and professional development initiatives designed to promote information and management systems' contributions to ensuring quality patient care. Visit www.himss.org for more information.

About Omnicell, Inc.

Established in 1992, Omnicell (NASDAQ: OMCL) is a leading provider of patient safety solutions preferred by nurses. Addressing the medication-use process and the medical-surgical supply chain, Omnicell’s broad range of solutions are used throughout the healthcare facility--in the pharmacy, nursing units, operating room, cardiac cath lab, and all the way to the patient’s bedside. Improving patient care by enhancing operational efficiency, Omnicell’s end-to-end solutions include systems for physician order management, automated pharmacy retrieval, medication packaging, medication and supply dispensing, open bar code supply management, nursing workflow automation at the bedside, and Web-based procurement. More than 1,400 healthcare facilities use Omnicell’s solutions to reduce medication errors, operate more efficiently, and decrease costs--ultimately contributing to improved clinical and financial outcomes. For more information, visit www.omnicell.com.

Omnicell, Inc. sponsored this research in part because they recognized the criticality of having RNs develop systems for RNs. This, in turn, will improve patient safety and nursing satisfaction—which are integral components of Omnicell’s mission.
How to Cite This Study

Individuals are encouraged to cite this report and any accompanying graphics in printed matter, publications, or any other medium, as long as the information is attributed to the 2003 HIMSS Nursing Informatics Survey, sponsored by Omnicell, Inc.

For More Information

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Omnicell Contact
Workplace Setting

Figure 1

- Hospital: 51%
- Vendor Firm: 16%
- Health System (Corp.): 13%
- Consulting Firm: 6%
- Other: 5%
- Academic Setting: 5%
- Government/Military: 3%
- Ambulatory Care: 1%
- Payer/Managed Care: 1%

Organization Revenue

Figure 2

- More than $500M: 12%
- $51M to $500M: 14%
- $50M or Less: 12%
- Don't Know/NA: 57%
Geographic Region

![Bar chart showing geographic regions and their representation percentage.]

Nursing Background

![Bar chart showing various nursing backgrounds and their representation percentage.]

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Years of Clinical Experience

Figure 5

- More than Twenty: 31%
- Sixteen to Twenty: 19%
- Eleven to Fifteen: 21%
- Six to Ten: 18%
- One to Five: 11%

Years of Informatics Experience

Figure 6

- Ten or More: 23%
- Seven to Nine: 30%
- Five or Six: 30%
- Three or Four: 39%
- One or Two: 23%
Percent of Time Devoted to Clinical Activities

Figure 7

Training as a Nurse Informaticist

Figure 8
Nursing Informatics Certification

Figure 9

To Which Department Do You Report?

Figure 10
Number of Reports
(Direct & Indirect)

N=257

Top Three Job Responsibilities

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Which Applications do you Currently Participate in Developing or Implementing

Figure 13

Only top 10 shown in chart.

Which Applications Have you Replaced or Removed?

Figure 14

Only top 10 shown in chart.
Largest Barrier to Success as a Nurse Informaticist

Figure 15

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Availability of Financial Resources</td>
<td>1%</td>
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<tr>
<td>User Acceptance</td>
<td>16%</td>
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<tr>
<td>Administrative Support</td>
<td>16%</td>
</tr>
<tr>
<td>Software Design</td>
<td>12%</td>
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<tr>
<td>Organizational Strategic Plan</td>
<td>9%</td>
</tr>
<tr>
<td>Other</td>
<td>9%</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>7%</td>
</tr>
<tr>
<td>Staffing Levels</td>
<td>7%</td>
</tr>
<tr>
<td>Technology Not Available</td>
<td>5%</td>
</tr>
<tr>
<td>HIPAA Regulations</td>
<td>11%</td>
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</tbody>
</table>

Sources of Information (To complete job responsibilities)

Figure 16

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Site</td>
<td>71%</td>
</tr>
<tr>
<td>List Serves</td>
<td>63%</td>
</tr>
<tr>
<td>Journals</td>
<td>52%</td>
</tr>
<tr>
<td>Electronic Newsletters</td>
<td>45%</td>
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<tr>
<td>Association Newsletter</td>
<td>39%</td>
</tr>
<tr>
<td>Books</td>
<td>34%</td>
</tr>
<tr>
<td>Help Desk</td>
<td>17%</td>
</tr>
<tr>
<td>Survey Research</td>
<td>15%</td>
</tr>
<tr>
<td>Other</td>
<td>11%</td>
</tr>
</tbody>
</table>
Resources for Continuing Education

Figure 17

Desired Areas for Future Education

Figure 18
Professional Memberships

Figure 19

Salary
(By Region)

Figure 20
Salary
(By Organization Type)

Figure 21

Salary
(By Managerial Responsibilities)

Figure 22
Salary
(By Educational Level)

Figure 23

Salary
(Number of Years of Informatics Experience)

Figure 24