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2015
Impact of the Informatics
Nurse Survey

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2015 Impact of the Informatics Nurse Survey
Final Report
April 2015

This study follows up on research HIMSS conducted in 2009 to evaluate the impact that informatics nurses have on the healthcare information technology (IT) environment. This year's study addresses a wide array of topics, including the impact that informatics nurses bring to the clinical systems process, their impact on quality of care and their role with respect to emerging technologies. Because the content of this study has changed to reflect the current industry, comparisons to the previous study are only provided where applicable.

Contents

1. Executive Summary

To explore today's changing landscape, a wide range of healthcare professionals were asked to identify the impact that informatics nurses can have on the health information technology (IT) environment. According to the 576 respondents of the 2015 HIMSS Impact of the Informatics Nurse Survey, informatics nurses were widely seen as bringing value to the use of clinical systems and technologies at their healthcare organizations. Respondents indicated that informatics nurses bring greatest value to the implementation phase (85 percent) and optimization phase (83 percent) of clinical systems process.

Key survey results include:

Quality of Patient Care: Respondents reported a direct positive impact on the quality of care patients receive as a result of the work of informatics nurses. Sixty (60) percent of respondents indicated that informatics nurses have a high degree of impact on the quality of care.

Direct Impact on Clinical Systems: Respondents reported that informatics nurses have a high degree of impact on workflow, patient safety and user acceptance.

Hiring Informatics Professionals: Approximately one-quarter of respondents (23 percent) reported that their organization hired their first informatics professional prior to 2000.

Executive Leadership: Nearly two-thirds of respondents (61 percent) work for an organization that employs an informatics professional in a leadership position. Twenty (20) percent of respondents reported working for an organization that employs a Chief Nursing Information Officer (CNIO).

Longevity: Finally, the survey results suggest that longevity matters. The longer a healthcare organization has employed informatics professionals, the greater impact and value they have on the various aspects of the clinical systems process, as well as on the overall quality of care that patients received.

Involvement of Informatics Nurses with Emerging Technologies: Informatics nurses were most likely to be identified (70 percent) as providing assistance in the area of medical devices integration. At least half of respondents also indicated that informatics nurses would play a role with regard to smart devices.

2. Methodology

A total of 576 individuals responded to this web-based survey. Data was collected between November 17, 2014 and January 24, 2015. Individuals in the HIMSS enterprise database with a job title of Director or higher, informatics nurse or clinician received an initial invitation to complete this study on November 17, 2014 and a follow-up reminder on December 15, 2014. Additional notices were sent to relevant external communities and HIMSS sister associations and external stakeholders during the timeframe the survey was open.

3. Profile of Survey Respondents

Individuals responding to the survey were asked a number of questions about themselves and their organizations. The majority of respondents to this year's study reported working for a healthcare provider organization. Approximately two-thirds of respondents (64 percent) reported working at a hospital; another 21 percent identified their primary worksite as the corporate offices of a health system. Three percent of respondents reported working for a medical practice and three percent work for another healthcare setting, such as a home health agency. Four percent of respondents identified working for a vendor or consultant. The remaining four percent of respondents reported working for a variety of other organizations, including colleges and universities or professional organizations.

Respondents working for hospitals were asked to provide additional information about their facility. Nearly half of respondents (47 percent) reported working for facilities with 500 or more licensed beds. A breakdown is below:

- Under 100 beds – 13 percent;
- 100 to 199 beds – 10 percent;
- 200 to 299 beds – nine percent;
- 300 to 399 beds – 12 percent;
- 400 to 499 beds – nine percent; and
- 500 or more beds – 47 percent.

Respondents working for hospitals were also asked to classify the type of hospital they represent; they were able to select multiple types of hospitals if they represent more than one type of hospital. Slightly less than half of respondents (46 percent) indicated they work for a medical/surgical hospital. Another 40 percent indicated that they work for an academic medical center and 27 percent reported working for a critical access hospital. Fifteen (15) percent indicated they work for an "other" hospital type, such as pediatric hospitals, rehab facilities, long-term care facilities, or military/VA facilities.

The vast majority of individuals responding to the survey identified as an informatics nurse; this was selected by 79 percent of respondents. Among this group, the three most frequently identified titles were Clinical/Nursing Informatics Specialist (18 percent), Director of Nursing Informatics (nine percent) and Clinical Analyst (eight percent). Among the non-informatics respondents, the three most commonly identified titles were Chief Information Officer (five percent), Chief Nursing Officer (five percent) and Chief Medical Information Officer (two percent).

For the purposes of this research, the data will be analyzed in two broad title groupings. The first will review any differences between nurse informatics professionals and those individuals that did not categorize themselves as a nurse informatics professional. The second will review differences between the data on a somewhat more granular level, dividing the audience into four groups: nurse executives, healthcare

executives (without a nursing background), informatics professionals, professionals without an informatics background.

Finally, respondents were asked to identify the region in which they live. Respondents were most likely to work in either the South Atlantic Region[1] or East North Central[2] Region. Each of these regions was identified by about 18 percent of respondents.

4. Current Informatics Environment

The vast majority of respondents (98 percent) indicated their organization employs informatics professionals. Respondents were most likely to report that their organization employs an informatics professional with a nursing background (95 percent). More than half (58 percent) also reported that their organization employs an informatics professional with an "other" clinical background and 55 percent reported that their organization employs an informatics professional who is either a physician or has a medical background.

There is a great deal of diversity in this sample with regard to when organizations first created an informatics position. For instance, 12 percent of respondents reported their organization created their first informatics position prior to 1995. On the other hand, 18 percent of respondents indicated that their organization did not create an informatics professional until between 2010 and 2014.

Table One: Timeframe in Which Healthcare Organizations Created Informatics Position

Timeframe	Number	Percent
Prior to 1995	67	11.9%
1995 – 1999	60	10.6%
2000 – 2004	88	15.6%
2005 – 2009	131	23.2%
2010 – 2014	99	17.5%
Don't Know	120	21.2%
Total	565	100.0%

Respondents were also asked to identify if their organization had hired an informatics professional in a leadership capacity. Nearly two-thirds of respondents (61 percent) reported that their organization had hired an informatics professional in a leadership capacity. The remaining respondents indicated that their organization either had not hired an informatics leader (21 percent) or had included these responsibilities with another position (15 percent).

Nearly half of respondents (48 percent) reported that their organization had hired a Chief Medical Information Officer (CMIO). Another twenty percent of respondent reported employing a Chief Nursing Information Officer (CNIO) at their organization. Ten percent noted that their organization had hired a Chief Clinical Information Officer (CCIO).

Furthermore, respondents were most likely to report that their organization had hired only a single informatics leader (40 percent), compared to 18 percent that had hired two informatics leaders and four percent that had hired three informatics leaders.

Additionally, the earlier a healthcare organization created an informatics position, the more likely that organization is to employ a clinical informatics leader. For instance, three-quarters (75 percent) of

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[1] South Atlantic Region – DC, DE, FL, GA, MD, NC, SC, VA, WV
[2] East North Central Region – IL, IN, MI, OH, WI

respondents that reported their organization first created an informatics position prior to 1995 had hired an informatics leader, compared to only 43 percent of respondents who created their first informatics position between 2010 and 2014.

Additionally, those who have a longer tradition of hiring informatics professionals were more likely to have informatics leaders of multiple backgrounds working at their organization. More than one-third of respondents (37 percent) that first created an informatics position prior to 1995 had two or more informatics leaders, compared to only 12 percent of those respondents working for an organization that first created an informatics position between 2010 and 2014.

Respondents were also asked to identify to whom their clinical informatics leaders reported. The top three reporting areas for each type of informatics leader are listed below:

Chief Nursing Information Officer Reporting

- Chief Nursing Officer – 34 percent;
- Chief Information Officer – 25 percent; and
- Chief Executive Officer – 16 percent.

Chief Medical Information Officer Reporting

- Chief Information Officer – 28 percent;
- Chief Medical Officer – 26 percent; and
- Chief Executive Officer – 25 percent.

Chief Clinical Information Officer Reporting

- Chief Executive Officer – 43 percent;
- Chief Information Officer – 26 percent;
- Chief Medical Officer – 6 percent; and
- Chief Operating Officer – 6 percent.

5. Current Clinical Systems Environment

Respondents who work for a provider organization were asked to identify what their current clinical systems environment looked like, as well as to identify those solutions that were presently being implemented at their organizations. The top ten applications that respondents identified as being installed at their organization are listed below.

Table Two: Applications Already Installed at Respondents' Organizations

Installed Systems	Number	Percent
Electronic Medication Administration Record (eMAR)	474	92.0%
Electronic Medical Record/Electronic Health Record	471	91.5%
Clinical Documentation (Nursing)	471	91.5%
Ancillary Applications	467	90.7%
Billing/Financial Management Systems	464	90.1%
Computerized Practitioner Order Entry (CPOE)	463	89.9%
Clinical Information Systems	440	85.4%
Bar Coded Medication Management	440	85.4%
PACS (Picture Archiving and Communication Systems)	440	85.4%
Clinical Documentation (Non-Nursing)	424	82.3%

The top applications that respondents reported their organizations are *currently* implementing are noted below.

- Health Information Exchange – 27 percent;
- Mobile Applications – 26 percent;
- Medical Device Integration – 23 percent;
- Voice Recognition – 20 percent;
- Electronic Prescribing – 18 percent; and
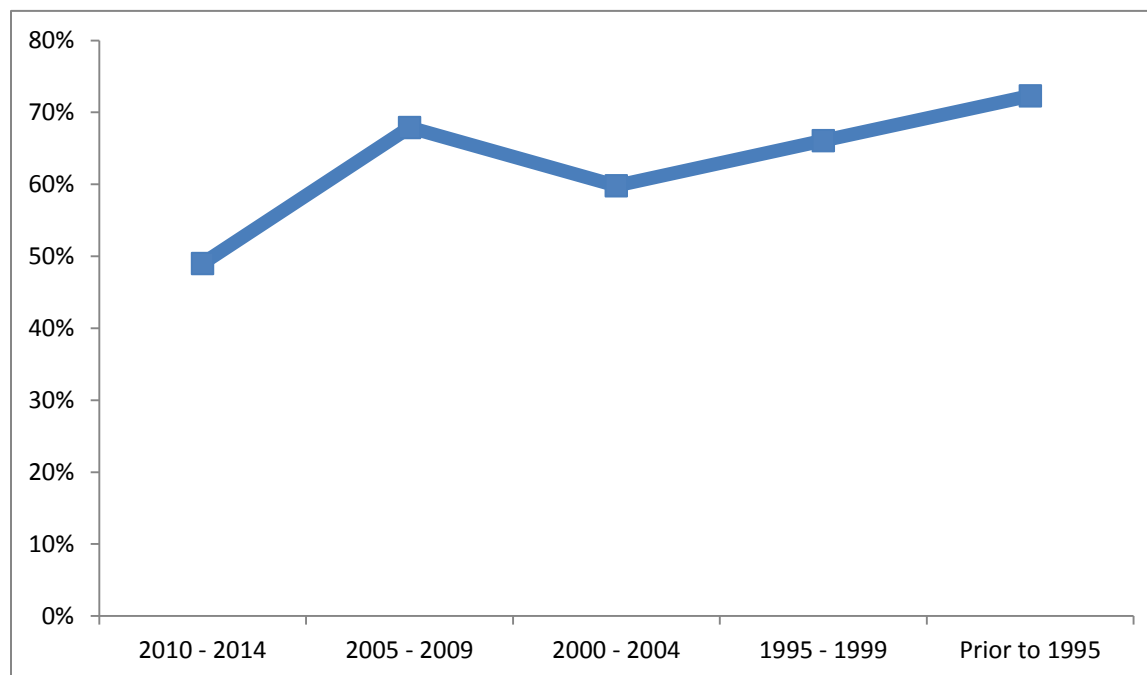- Remote Monitoring/Telehealth – 18 percent.

6. Impact on Quality of Care

Respondents were asked to identify the impact that informatics nurses had on the quality of care that patients received. Individuals were asked to respond to this question using a one to seven scale, where one is "no impact" and seven is "very high level of impact". For context, respondents were provided the Institute of Medicine's (IOMs) definition of quality of care – "the degree to which health services for individuals and populations increases the likelihood of desired health outcomes and are consistent with current professional knowledge"[3]. On average, survey respondents reported that informatics nurses have a very high degree of impact on the quality of care that patients receive (5.76). Indeed, 60 percent of respondents provided a score of six or seven on this scale.

In order to more fully understand the perception of impact on quality of care, this variable was examined in the context of several other metrics collected in the report. The first variable examined was the timeframe in which organizations first created an informatics position. A higher percent of respondents working for organizations with a longer history of employing informatics professionals indicated that informatics nurses had a great impact on quality of care when compared to those working for organizations employing informatics professionals for a shorter period of time. The chart below shows the percent of respondents that indicated a "high degree of value", as determined by identifying a score of six or seven on the scale.

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[3] Institute of Medicine Announcement – Crossing the Quality Chasm: The IOM Health Care Quality Initiative.
http://www.iom.edu/Global/News%20Announcements/Crossing-the-Quality-Chasm-The-IOM-Health-Care-Quality-Initiative.aspx

Chart One: Impact Nurse Informaticists Have on Quality of Care by Year their Organization Created its First Informatics Position

In addition, a greater percent of respondents who identified themselves as informatics nurse (61 percent) indicated that informatics nurses had a great impact on quality of care in comparison to those that did not identify as an informatics nurse (58 percent).

Finally, nurse executives had the highest percent of respondents who indicated that informatics nurses brought a great deal of value to quality of care (66 percent). In comparison, 60 percent of non-nursing healthcare executives, such as Chief Information Officers and CMIOs, rated the impact informatics nurses could have on quality of care as high.

7. Value to Clinical Systems

Respondents were asked a series of questions regarding the value that informatics nurses brought to several key areas in the use of clinical systems, including analysis, design, implementation, optimization and system selection. Each of these questions was asked using a one to seven scale, where one is "low value" and seven is "high value". The percent of respondents who identified a "high value" in each area, as classified by a score of six or seven, is outlined in the table below.

Respondents reported that informatics nurses have the greatest value in impacting implementation and optimization. While implementation was also the top item identified in the 2009 study, this year's respondents were much more likely to indicate that informatics nurses would bring value to the optimization process.

Table Three: Summary of Nurse Informaticists Impact on Clinical Systems

Role in Relation to Clinical Systems	2015	2009
Implementation	6.43	6.29
Optimization	6.34	5.96
Analysis	6.09	5.99
Design	6.00	5.97
Selection	5.26	5.12

Analysis

Three-quarters of respondents (75 percent) indicated that informatics nurses bring a high degree of value to the implementation of clinical systems at healthcare organizations. The average score in this category was 6.09.

While a greater percent of respondents identifying themselves as informatics nurses reported (77 percent) that informatics nurses have a substantial impact on analysis than did their non-informatics counterparts (66 percent), both groups clearly indicated that informatics nurses bring value to this area.

Design

Approximately three-quarters of respondents (73 percent) indicated that informatics nurses bring value to their organization through the design of clinical systems. The average score in this category was 6.00.

Additionally, respondents that work for organizations that created an informatics positon longer ago tended to be somewhat more positive about the value that informatics nurses bring to the design phase. More specifically, 82 percent of respondents working for an organization that first created an informatics position prior to 1995 indicated that informatics nurses brought a high degree of value to the design phase. In comparison, 58 percent of respondents working for an organization that first created an informatics position between 2010 and 2014 reported the same.
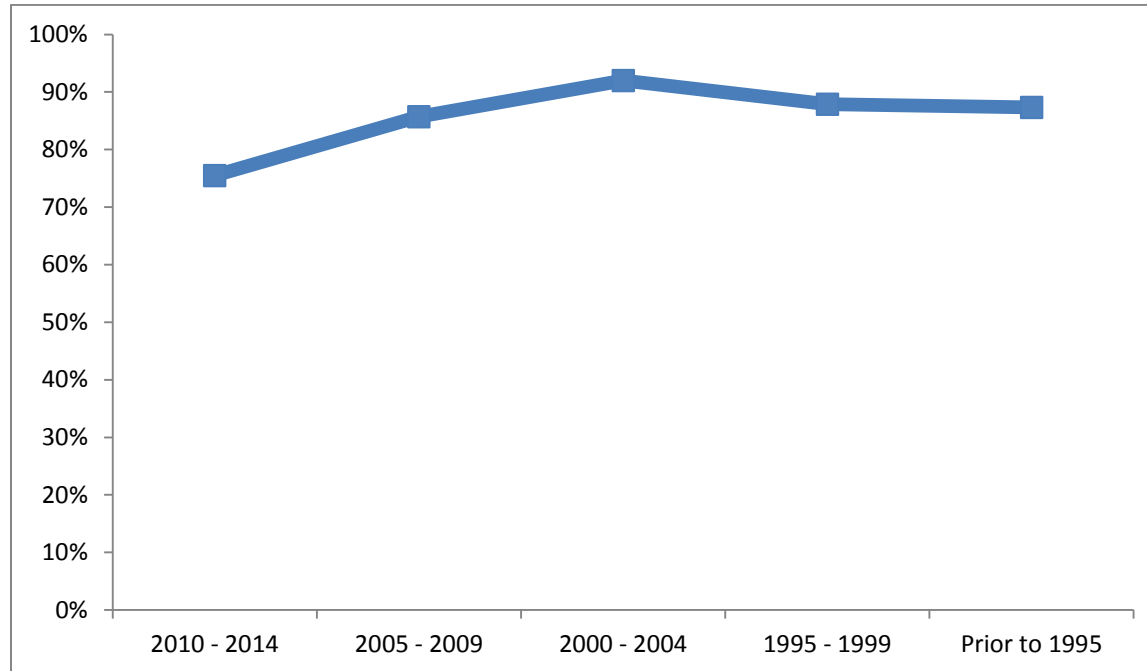
As expected, informatics nurse professionals were more optimistic about the value they bring to clinical systems design than were non-informatics professionals. However, a high percent of respondents in both groups reported this to be the case (75 percent of informatics nurses compared to 68 percent of non-informatics nurses).

Implementation

Respondents were most likely to report that informatics nurses brought value to their organization through participation in the implementation of clinical systems (85 percent). The average score in this category was 6.43.

In general, respondents working for an organization that created an informatics position prior to 2010 were more likely to identify a high degree of value with regard to clinical system implementation when compared to their colleagues who work at an organization that created its first informatics position in 2010 or after.

Chart Two: Impact Nurse Informaticists Have on Clinical System Implementation by Year their Organization Created its First Informatics Position
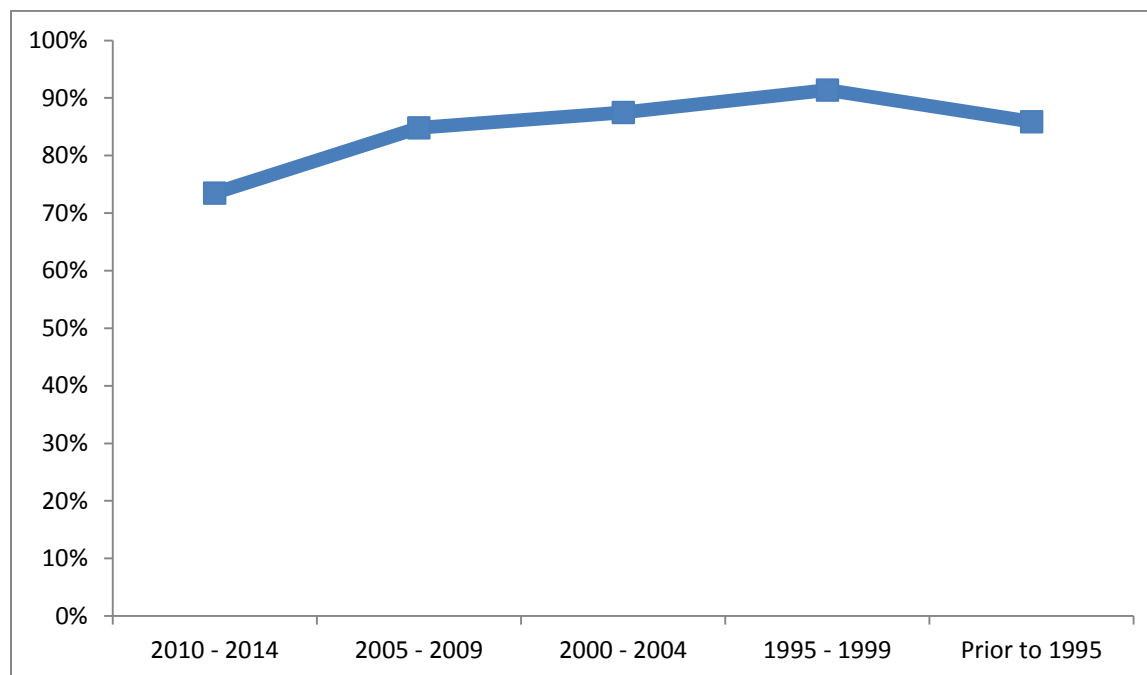

In addition, respondents self-identifying as informatics nurses were more likely (87 percent) than their non-informatics counterparts (78 percent) to identify a high degree of value in the area of system implementation. Finally, a higher percent of nurse executives (90 percent) than non-nurse executives (78 percent) indicated that informatics professionals bring value to the implementation phase.

Optimization

Respondents were also highly likely to report that informatics nurses brought value to their organization by participating in the process of optimizing clinical systems (83 percent). The average score in this category was 6.34.

In general, respondents who worked for an organization that first created an informatics position prior to 2010 were more likely to identify a high degree of value with regard to clinical system optimization when compared to their colleagues who work at an organization that created its first informatics position in 2010 or after.

Chart Three: Impact Nurse Informaticists Have on Clinical System Optimization by Year their Organization Created its First Informatics Position

Lastly, a greater percent of nurse executives (89 percent) than non-nurse executives (74 percent) indicated that informatics nurses brought value to clinical systems optimization.

System Selection

Half of respondents (50 percent) indicated that informatics nurses bring a great deal of value to the systems selection process at their organization. The average score in this category was 5.26.

8. Impact on Clinical System Process

Based on the level of participation informatics nurses have with regard to the analysis, design, implementation, optimization and selection of clinical systems, respondents were asked to identify how this level of involvement impacted key areas of the clinical systems process. Each of these questions was asked using a one to seven scale, where one is "no impact" and seven is "high impact". The percent of respondents identifying a "high value" in each area, as classified by a score of six or seven, is outlined in the table below. Respondents reported that informatics nurses have the greatest impact on workflow, patient safety and user acceptance. These were also the top three responses identified when this study was last conducted in 2009.

Table Four: Summary of Nurse Informaticists Impact on Clinical Systems Processes

Role in Relation to Clinical Systems	Number	Percent
Workflow	441	80.3%
Patient Safety	417	76.2%
User Acceptance	410	75.0%
Design/Configuration	387	70.8%
Compliance with Policies/Regulations	381	69.8%
Accuracy of Documentation	366	67.2%
Definition of Alerts/Reminders	365	66.6%
Screenflow	358	65.7%
Completeness of Documentation	353	65.0%
Quality Outcomes	351	64.4%
Reduction of Never Event	332	61.0%
Reporting	312	57.3%
Integration/Interface with Other Systems	277	50.6%

Accuracy of Documentation

Approximately two-thirds of respondents (67 percent) of respondents indicated that having an informatics nurse involved in the analysis, design, implementation, optimization, and selection process for clinical systems results is highly impactful as it relates to accuracy of documentation.

There are no additional statistically significant differentiators by respondent title or when an organization first created an informatics position.

Completeness of Documentation

Slightly less than two-thirds of respondents (65 percent) indicated that having an informatics nurse involved in the analysis, design, implementation, optimization, and selection process for clinical systems results is highly impactful as it relates to the completeness of documentation.
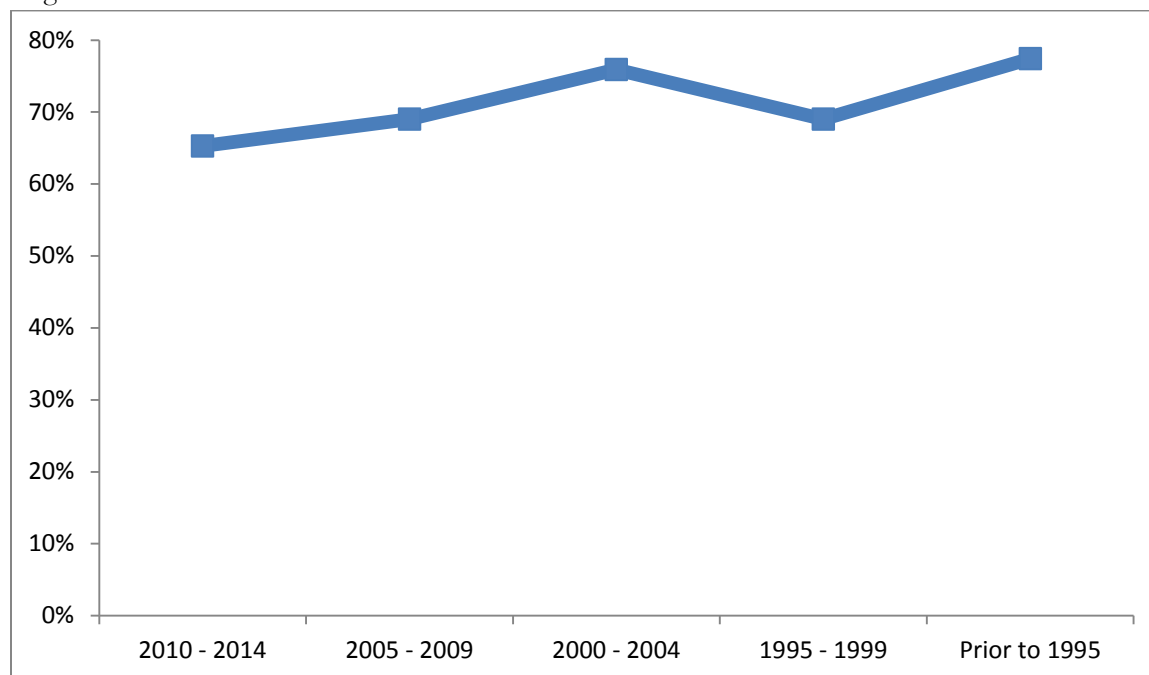
Furthermore, respondents working for an organization that has a CCIO were much more likely to indicate that informatics nurses have an impact in this area (74 percent) when compared to respondents that work for an organization that does not have a CCIO (64 percent). And, nurse executives were more likely to note an impact in this area (61 percent) when compared to their non-nurse executive counterparts (52 percent).

Compliance with Policies and Regulations

Seventy (70) percent of respondents indicated that having an informatics nurse involved in the analysis, design, implementation, optimization and selection process for clinical systems results is highly impactful as it relates to compliance with policies and regulations.

Respondents who worked for an organization that created its first informatics position prior to 1995 were more likely (77 percent) to identify a high degree of impact with regard to compliance with policies and regulations compared to their colleagues who work at an organization that created its first informatics position in 2010 or later (65 percent).

Chart Four: Impact Nurse Informaticists Have on Compliance with Policies and Regulations by Year their Organization Created its First Informatics Position

Definition of Alerts/Reminders

Approximately two-thirds of respondents (67 percent) indicated that having an informatics nurse involved in the analysis, design, implementation, optimization and selection process for clinical systems results in a high impact with regard to the definition/creation/setting for alerts and reminders within clinical systems.
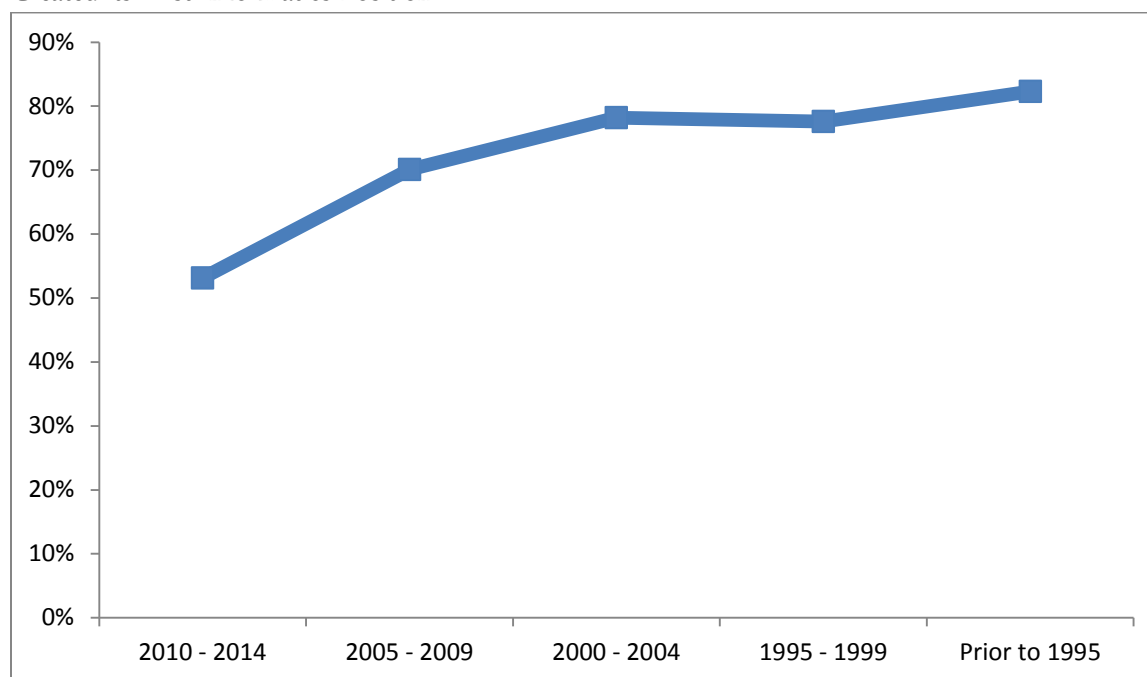
More specifically, respondents working for an organization that employs a CCIO were much more likely to indicate that informatics nurses impact this area (85 percent) compared to respondents that work for an organization that does not employ a CCIO (65 percent). Additionally, respondents working for an organization with a CMIO were more likely (69 percent) to report that informatics nurses had an impact on reporting than were their counterparts at organizations that do not have a CMIO on staff (64 percent).

Design/Configuration

Nearly three-quarters of respondents (71 percent) indicated that having an informatics nurse involved in the analysis, design, implementation, optimization and selection process for clinical systems is highly impactful with regard to the design and configuration of clinical systems.

In general, respondents who work for an organization that first created an informatics professional position prior to 1995 were more likely (82 percent) to identify that engaging informatics nurses had a high degree of impact with regard to design and configuration when compared to their colleagues who work for an organization that created its first informatics position more recently (53 percent).

Chart Five: Impact Nurse Informaticists Have on Design and Configuration by Year their Organization Created its First Informatics Position

Integration/Interface with Other Systems

Approximately half of respondents (51 percent) indicated that having an informatics nurse involved in the analysis, design, implementation, optimization and selection process for clinical systems has a high degree of impact on achieving integration or the ability to interface with other systems.
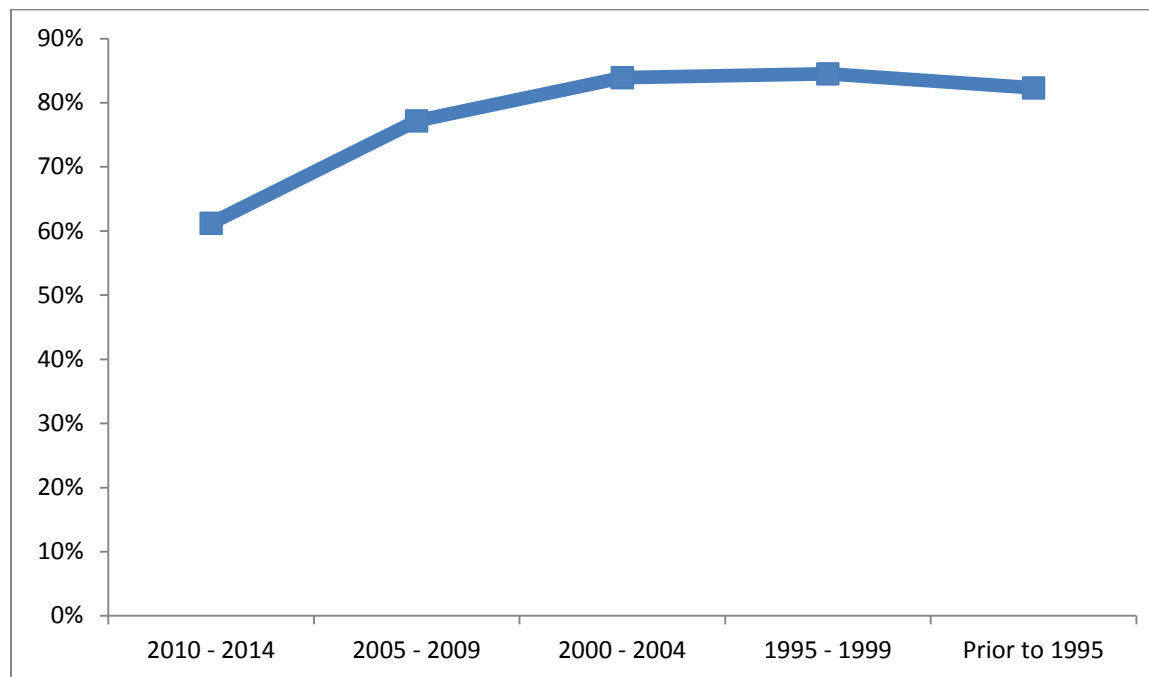
The presence of a CCIO impacts perception of the role that informatics nurses have with regard to impacting the clinical system's ability to interface with other systems. Respondents working for an organization that employs a CCIO were much more likely to indicate that informatics nurses have an impact (66 percent) when compared to respondents working for an organization that does not have a CCIO (49 percent).

Patient Safety

More than three-quarters of respondents (76 percent) indicated that having an informatics nurse involved in the analysis, design, implementation, optimization and selection process for clinical systems results in a high degree of impact with regard to patient safety.

In general, respondents who worked for organizations that first created an informatics position in 2004 or earlier were more likely to indicate that informatics nurses had an impact on patient safety as it related to clinical systems than were informatics nurses who worked for organizations that created an informatics professional in 2005 or later.

Chart Six: Impact Nurse Informaticists Have on Patient Safety by Year their Organization Created its First Informatics Position

Additionally, respondents working for an organization that employs a CMIO were more likely (79 percent) to report that informatics nurses had a high degree of impact on patient safety derived from clinical systems than were their counterparts at organizations that do not employ a CMIO on staff (73 percent).

Quality Outcomes

Nearly two-thirds of respondents (64 percent) indicated that having an informatics nurse involved in the analysis, design, implementation, optimization and selection process for clinical systems has a high degree of impact on quality outcomes.

There are no additional statistically significant differentiators by respondent title or number of years of having an informatics professional on staff.

Reduction of Never Events

Nearly two-thirds of respondents (61 percent) indicated that having an informatics nurse involved in the analysis, design, implementation, optimization and selection process for clinical systems had a substantial positive impact on the reduction of never events.

Additionally, respondents working for an organization that employ a CNIO were more likely to indicate that informatics nurses have an impact in this area (72 percent) when compared to respondents that work for an organization that does not have a CNIO (58 percent).

Reporting

Slightly more than half of respondents (57 percent) indicated that having an informatics nurse involved in the analysis, design, implementation, optimization and selection process for clinical systems results in a high degree of impact with regard to clinical systems reporting capabilities.

Respondents identifying themselves as an informatics nurse were more likely (59 percent) than their non-informatics counterparts (51 percent) to indicate that the participation of informatics nurses in the reporting process has a high degree of impact.

Additionally, respondents working for an organization that has a CCIO were more likely to indicate that informatics nurses have an impact in this area (75 percent) when compared to respondents that work for an organization that does not have a CCIO (55 percent). Conversely, respondents working for an organization with a CMIO were less likely (55 percent) to report that informatics nurses had an impact on reporting than were their counterparts at organizations that do not have a CMIO on staff (59 percent).

Screenflow

Approximately two-thirds (66 percent) of respondents indicated that having an informatics nurse involved in the analysis, design, implementation, optimization and selection process related to clinical systems will yield a high degree of value with regard to screenflow.

There are no additional statistically significant differentiators by respondent title or number of years of having an informatics professional on staff.

User Acceptance

Three-quarters (75 percent) of respondents indicated that having an informatics nurse involved in the analysis, design, implementation, optimization and selection process for clinical systems has a high degree of impact on user acceptance.

Respondents identifying themselves as an informatics nurse were more likely (77 percent) than their non-informatics counterparts (68 percent) to indicate that the participation of informatics nurses in facilitating user acceptance has a high degree of impact.

Workflow

Eighty (80) percent of respondents indicated that having an informatics nurse involved in the analysis, design, implementation, optimization and selection process for clinical systems will provide a great degree of value with regard to workflow.

There are no additional statistically significant differentiators by respondent title or number of years of having an informatics professional on staff.

9. Informatics Nurses and Emerging Technologies

Finally, respondents were asked to identify the role that informatics nurses play with regard to emerging technologies. In general, 85 percent of respondents indicated that informatics nurses were involved in at least one area of emerging technology at their organization. Respondents were most likely (70 percent) to indicate that informatics nurses play a role in medical device integration; this was also the top item selected when the research was last conducted in 2009. At least half of respondents (53 percent) also indicated that informatics nurses played a role with regard to smart devices. Respondents were least likely to indicate that informatics played a role in predictive modeling.

Table Five: Summary of Nurse Informaticists Role Related to Emerging Technologies

Option	Number	Percent
Medical Device Integration	404	70.1%
Smart Devices	307	53.3%
Personalized Healthcare	219	38.0%
Remote Monitoring	189	32.8%
Data Warehousing	165	28.7%
Voice Recognition	154	26.7%
Predictive Modeling	125	21.7%
Other (please specify)	28	4.9%
Total	576	100.0%

10. About HIMSS

HIMSS is a global, cause-based, not-for-profit organization focused on better health through information technology (IT). HIMSS leads efforts to optimize health engagements and care outcomes using information technology. Visit www.himss.org. For additional resources on nursing informatics, visit www.himss.org/ni.

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11. 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 2015 HIMSS Impact of the Informatics Nurse Survey.

12. For More Information, Contact:

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