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# Trends in Health Information Exchange Organizational Staffing

## *Part 2: A Deeper Look at Staffing Challenges*

*2013-2014 AHIMA/HIMSS HIE Technology Staffing Workgroup*
*October 2014*

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# Executive Summary

The American Health Information Management Association (AHIMA) and the Healthcare Information and Management Systems Society (HIMSS) originally released a 2012 survey, *Trends in HIE Organizational Staffing: AHIMA/HIMSS Staffing Model Environmental Scan*, to support their organizational goals of highlighting the staffing needs and requirements for this type of health information exchange organization. As Health Information Exchanges (HIEs) and Health Information Exchange Organizations (HIOs) nationally continue to mature and evolve, it is important and relevant to understand their current requirements for information technology (IT) and heath information management (HIM) skills and experience specific to a number of staff roles, and to understand how these organizations recruit and maintain talent.

A joint AHIMA and HIMSS workgroup was once again convened to develop and provide oversight for the 2014 HIE Technology Staffing Challenges Survey. The goal of this analysis is to provide valuable insights that can assist other HIOs as they evaluate and implement their current and planned staffing requirements.

The 2014 AHIMA/HIMSS HIE Technology Staffing Challenges Survey focused on three particular positions that were previously identified as the most challenging roles to staff and retain as well as how best to recruit for this type of talent:

- Connectivity
- Data Integrity
- Data Integration

The survey identifies the key elements of today's HIE challenges related to requirements for staffing their IT positions, including but not limited to:

- Metrics regarding the HIO and its operational reach
- Total number of employees as compared to IT employees
- Skills sets required for each identified position (i.e. Connectivity, Data Integrity, or Data Integration)
- Levels of experience for each identified position
- Salary ranges for the positions
- Composition of staff model (i.e. full-time employee, part-time employee, consultant, outsourced positions to vendor, etc.)
- Recruitment approaches
- Turnover by type of position
- Challenges for these roles
- Challenges related to the projects in which the current staff is engaged in

Representatives from 16 HIOs completed this survey. As a result of this limited sample size, the survey does not represent all types of HIOs that are in place today; nonetheless, the respondents provide valuable insights that can benefit their peers. Results are quantified in the study when the question is fully answered. For those occasions when a question is not answered by all participants, the information is identified, but not quantified.

In addition, if there are any patterns that can be derived from the responses, then this information is included. When appropriate, a reference to the survey question is included when reporting the corresponding findings, in order to assist the reader. Finally, for the survey questions that are identical to the 2012 survey, a comparison of the findings is included to determine what change(s) may have occurred.

The primary purpose of this white paper is to present the summary findings from the 2014 survey as reported by the participating HIOs.

**HIE Survey Participants – General Demographics**

Survey participants included organizations that have been operational since as early as 1996. Hospitals and physician practices are the primary types of participating organizations, yet since the 2012 survey, there are a growing number of other healthcare entities benefiting from the sharing of patient information. As of the time of this writing, the participants have identified a variety of these organizations that benefit from sharing patient information including, but not limited to:

- payers
- behavioral health centers
- fire department / Emergency Medical Services (EMS)
- nursing homes
- long-term care facilities
- Visiting Nurses Associations (VNAs)
- state public health entities
- Accountable Care Organizations (ACOs)

**HIE Survey Participants – Employee Demographics**

The majority of participating HIOs identify a broad range of total current employees, ranging from 1.5 to 47 full-time equivalents (FTEs).

Given the range of supporting IT staff, the participants fell into two categories: those who staff fewer than 10 IT employees and or those who staff 10-20 IT employees.

A number of the HIOs use a combination of staffing models including full-time and part-time staff, employees who job-share, on-site contractors and outsourcing. Additional details are provided in the **Survey Results** section of this white paper.

**HIE Position-Specific Information**

Based on the 2012 Survey, three types of IT positions were identified as most challenging to staff within HIE organizations: Connectivity, Data Integrity and Data Integration. The second part of the 2014 survey focuses on two specific areas related to staffing: (a) the recruitment and retention of talented staff in support of the HIO's IT requirements, and (b) the status of these staff members (i.e. full-time employee, part-time employee, consultant, etc.).

# Methodology

The study methodology consisted of directly surveying leadership within active HIE organizations. A joint workgroup of volunteers from AHIMA and HIMSS, supported by staff from both organizations, created and administered the survey. Microsoft SharePoint and conference calls facilitated by WebEx were used for task coordination and collaboration. The final version of the 2014 survey is available in **Appendix A: HIE Technology Staffing Challenges Survey**.

The survey was loaded into SurveyMonkey, an online survey tool, and tested for usability by the volunteer workgroup. The survey primarily targeted HIE directors or executives.

The joint AHIMA/HIMSS Workgroup identified target HIOs. HIMSS staff contacted HIOs with a request to complete the 2014 survey. The survey was activated on May 5, 2014. Reminders were sent to individual organizations and potential participants as needed by volunteers and staff liaisons. The survey closed on May 19, 2014. A total of 16 responses were received.

The format used to report the findings from the 2014 survey is a white paper. All the information contained in the white paper is derived from the collated survey results. Some results are quantified when participants responded to all or a majority of the survey questions. For questions with a limited number of survey responses, the information is provided in a table format to better determine whether there may be observational themes that can be identified for those responses.

# Survey Participants

The 16 participating HIOs were located across the country, with representation of between one and three HIOs from 7 of the 10 regions used by the Centers for Medicare and Medicaid Services (CMS).[1]

The specific individuals who responded to the survey held a wide range of titles, including Chairman of the Board of Directors, Chief Executive Officer, President and Chief Executive Officer, Executive Director, Director, Policy Lead, Chief Financial Officer, Chief Information Officer, Program Manager and Project Manager. Given the range of specific questions posed in this survey, we recommended that the responders collaborate with other members of their HIO's administrative team to complete the survey.

## *Operational Status*

Of the 16 organizations surveyed, 13 respondents stated that their HIO was operational at the time the survey was administered in Spring 2014 and the remaining HIOs were poised to be operational in the weeks following the return of surveys.

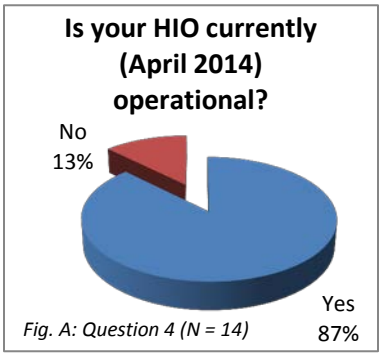

*Fig. A: Question 4 (N = 14)*

Of these, 16 reported a *date of first data exchange*. The survey responses indicated the earliest date for exchanging data was in 1996, and that three-quarters of the respondents initiated data exchange during the timeframe from 2007 through 2011. The most recently reported *initial* data exchange included three HIOs in 2014.

The graph below (*Figure B1*) provides the representation of first data exchange by specific year. This data points to significant activity in HIOs initially exchanging data from 2007 through 2012.

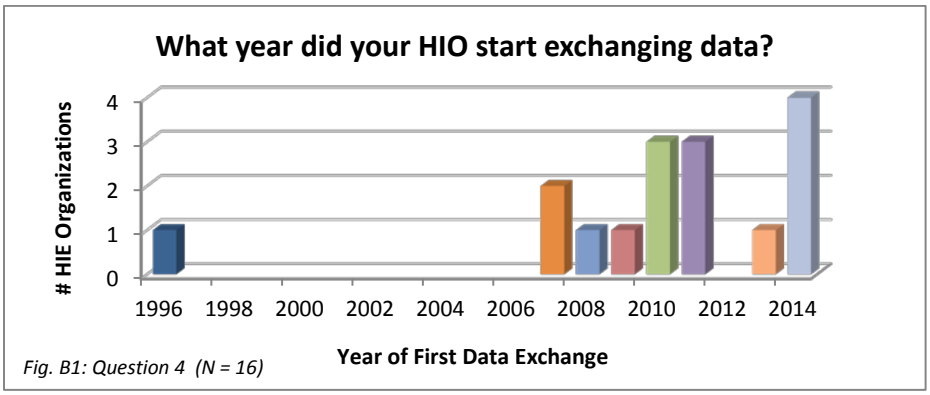

*Fig. B1: Question 4 (N = 16)*

The chart below (*Figure B2*) provides a comparison between the 2012 and the 2014 surveys to identify similarities or disparities between the responses. Both surveys reflect that the greatest number of HIOs began exchanging data between 2006 and 2012.

[1] Centers for Medicare & Medicaid Services. Regional Offices.

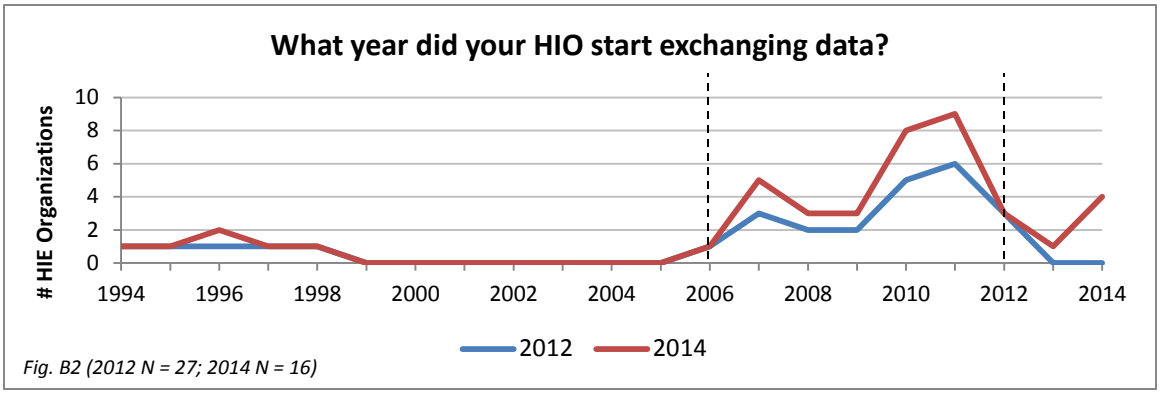


*Fig. B2 (2012 N = 27; 2014 N = 16)*

## *Size of HIE Staff*

All but two of the participants reported the total number of employees in their organization, and one participant indicated that their staffing complement is variable. The total number of staff ranges from 1.5 to 47 full-time equivalents (FTEs) while the IT staff ranges from 0 to 19 FTEs. Additional information about specific staffing models is addressed in the next section, **Survey Results**.

All 16 operational HIOs reported third-party organizations participating in their HIE, including stakeholders such as hospitals and physician practices. There is a wide range of other entities that are now within the scope of these HIOs, such as payers, behavioral health centers, fire department / Emergency Medical Services (EMS), nursing homes, long-term care facilities, Visiting Nurses Associations (VNAs), state public health entities and Accountable Care Organizations (ACOs).

In the 2012 survey, nearly half of the respondents reported 50 or less participating organizations, while the five largest responding HIOs reported 400 or more participating organizations (see *Figures C1 and C2* on next page). The 2014 survey shows a shift in the increased operational reach of the participating organizations with fifty per cent of the HIOs with 400 or less participating organizations and fifty per cent of HIOs with 401 to over 3,000 participating organizations.

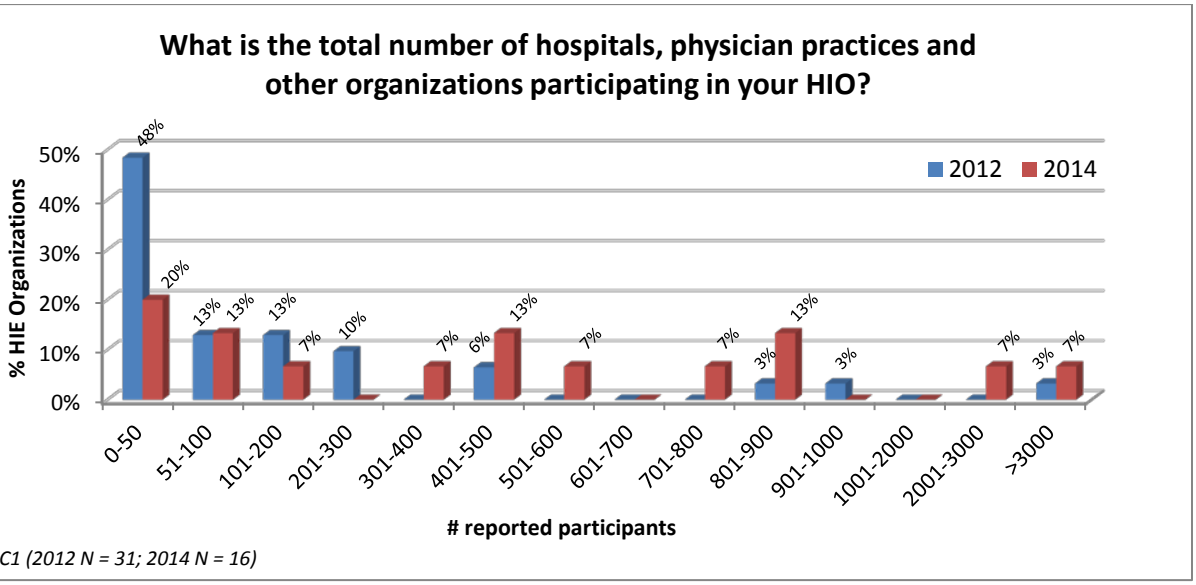


*Fig. C1 (2012 N = 31; 2014 N = 16)*

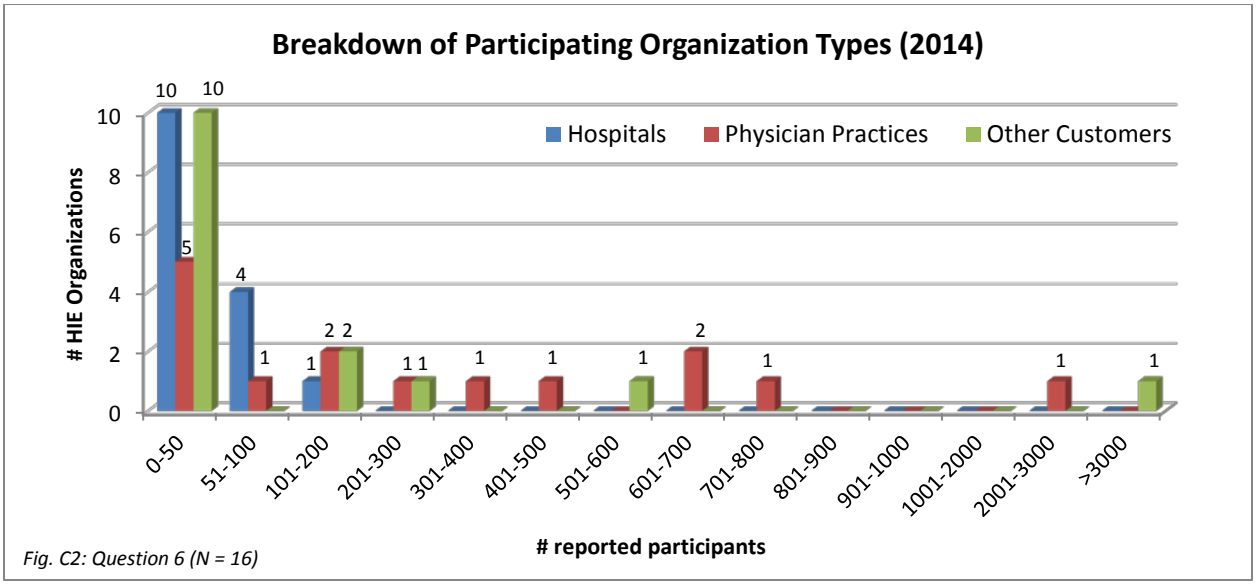


*Fig. C2: Question 6 (N = 16)*

As compared to the 2012 survey, there is a growing diversity and range of HIE participating organizations beyond both hospitals and physician practices. The broader range of "Other" participants identified in the 2014 survey includes:

- Payers
- Behavioral health centers
- Fire department / Emergency Medical Services (EMS)
- Nursing homes
- Long-term care facilities
- Visiting Nurses Associations (VNAs)
- State public health entities
- Accountable Care Organizations (ACOs)

## *Operations – Type and Transactions*

Survey participants identified both the *type of their organization* and *transactions* that they support. As HIE sustainability has been an industry concern for a number of years, the organizations have been steadily evolving into a growing number of public-private organizations and private organizations. The respondents to the 2014 survey clearly show this particular shift away from the public entity.

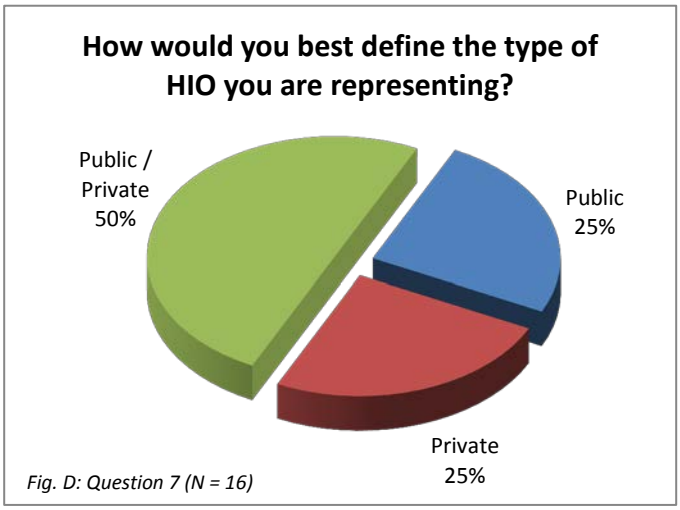


*Fig. D: Question 7 (N = 16)*

The survey also shows a growing number of patients whose health information is made available through the HIE. Only 12 of the 16 participants identified the number of patients that are served through the HIE and this information is

plotted in the chart below. As the chart shows, the majority of the HIOs exceed serving 1 million patients. The distribution of the chart indicates that two-thirds of the respondents serve more than 1 million patients, while one-third of the respondents serve between 50,000 to 1 million patients.

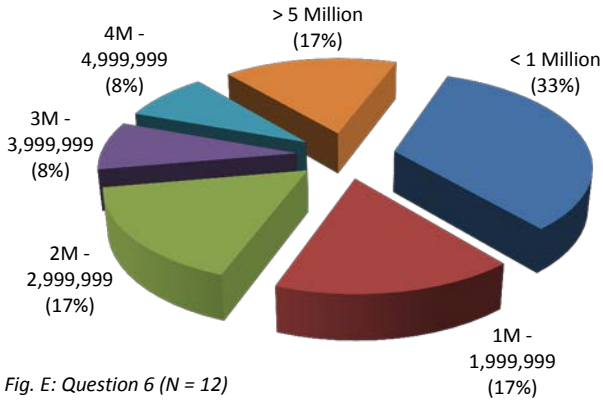


*Fig. E: Question 6 (N = 12)*

# Survey Results

## *Current Staffing*

The staffing levels of HIOs were framed as both the total number of current staff as well as the IT staff to support their organizational requirements. The current number of positions may include full-time, part-time, on-site contractor, consultants and/or outsourced through third party organizations.

All but two of the participants reported the total number of employees in their organization and one participant indicated that their staffing complement is variable. The total number of staff ranges from 1.5 to 47 full-time equivalents (FTEs) while the IT staff ranges from 0 to 19 full-time equivalents and one response indicating that the staff varies in numbers.

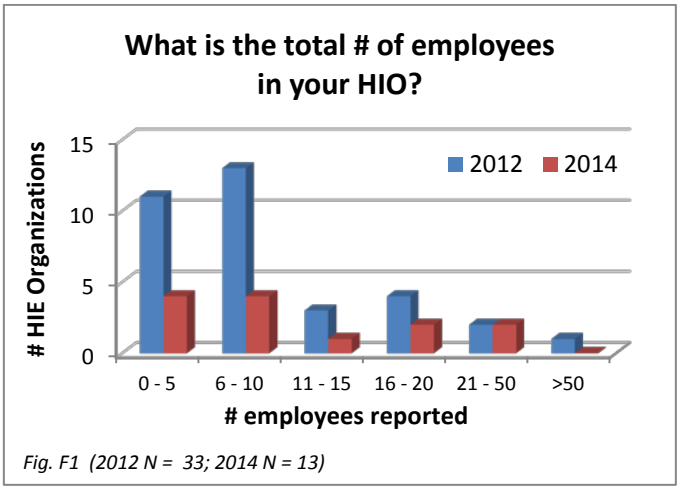


*Fig. F1 (2012 N = 33; 2014 N = 13)*

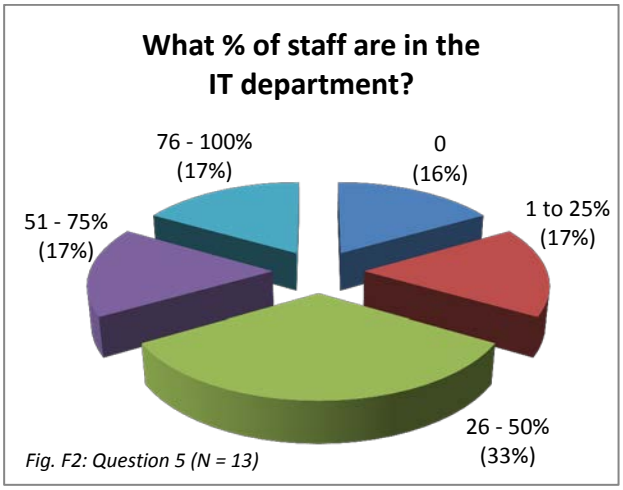


*Fig. F2: Question 5 (N = 13)*

The responses provided a pattern with two groupings for the total number of employees:

- those with 10 or fewer employees, and
- those sites with 10-20 employees.

There are two outlier organizations that include between 25-50 full-and/or part-time employees. One participant relies on a third party, professional services contract as well as contractors to provide them with all their required resources.

IT staffing generally ranged from 2 to 5 FTEs, though one outlier respondent indicated 19 FTEs on their IT staff. Another respondent indicated that their staffing is variable and further explanation is available later in this white paper.

## *Organizational Composition*

The focus of the 2014 survey highlighted three roles that present a challenge to HIOs:

- Connectivity,
- Data Integrity,
- Data Integration, and/or
- Combination of 2 or more of these positions.

Of the 16 total respondents to the survey, 12 provided information about the size of their IT departments and 9 provided the specific number of staff members and positions under Connectivity, Data Integrity and Data Integration roles. *Figure G* below provides the distribution of these roles in relation to the total number of employees within the participating HIOs:

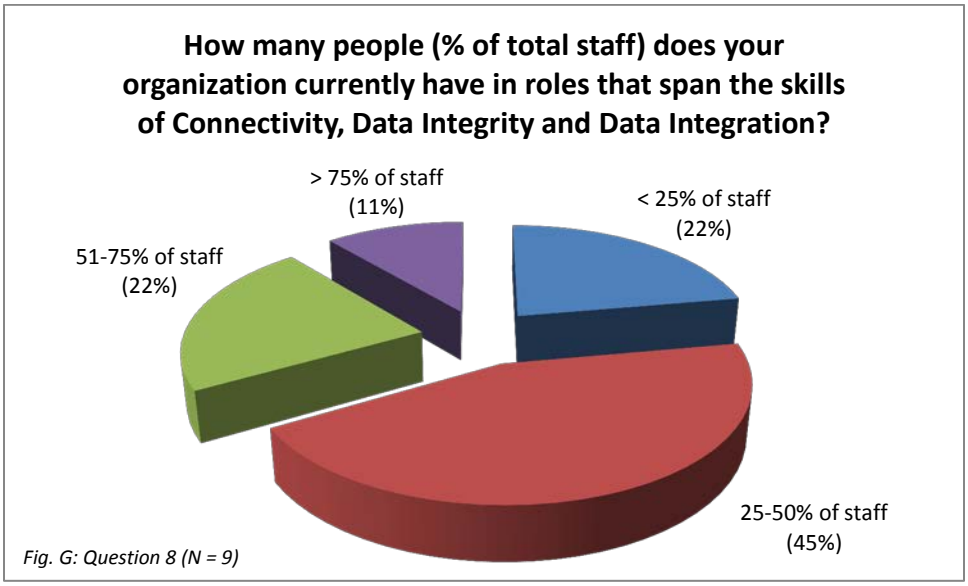


*Fig. G: Question 8 (N = 9)*

Nearly half of the responding participants reported between 25% and 50% of their total staff are in roles related to Connectivity, Data Integrity and/or Data Integration. On the far ends of the spectrum, one participant indicated that all (100%) of their employees are in these positions or similar roles, while another participant indicated that none of their employees are in roles related to these skill sets.

# Position-Specific Information

Although the HIE Technology Staffing Challenges Survey identified and broke down questions across the three roles of Connectivity, Data Integrity and Data Integration, the responses provided by the 16 participating HIOs suggest that these roles are not clearly distinguished from one another in practice. The following pages provide details for each of the three key staffing roles targeted in this analysis, with the understanding that many of the respondents viewed these types of positions as interchangeable.

## *Connectivity*

### Titles

The titles for persons engaged in Connectivity roles at the participating HIOs are as follows (listed in alphabetical order):

- Application Architect
- Database Administrator
- Director
- HIE Integration Manager
- HIE Project Manager
- Interface Engineer
- Project Analyst
- Senior Network Engineer
- Technical Outsourcing Analyst

The Connectivity role provides the greatest number of designated titles when compared to the other two role types, Data Integrity and Data Integration, assessed in this survey.

### Education Requirements

According to the survey participants, 78 per cent of respondents require a Bachelor's degree for Connectivity staff, with Computer Science specified as the preferred course of study; only 22 per cent require a Master's degree. Additional experience requirements identified include HIPAA/Security, Telecommunications or Health IT.

### Required Experience – IT and Health IT

Of the 16 survey participants, 10 provided information about the number of years of IT and Health IT experience required for the Connectivity role:

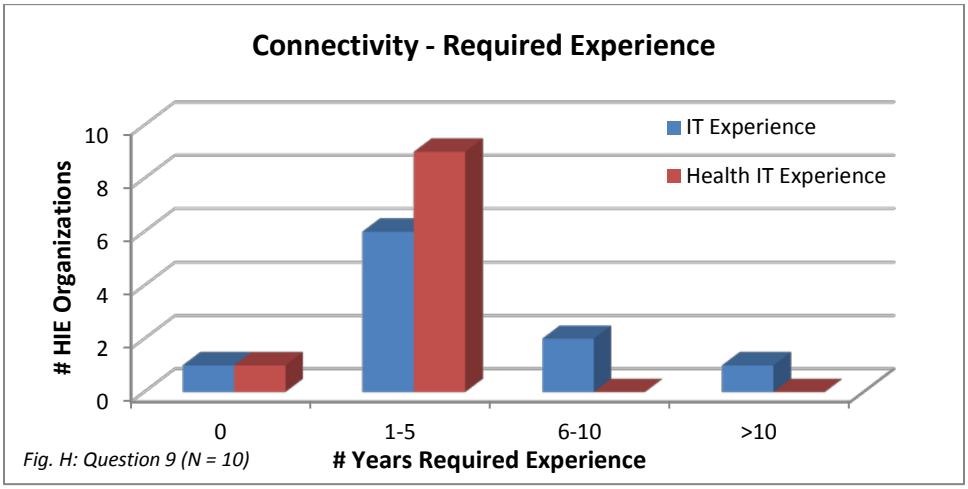


*Fig. H: Question 9 (N = 10)*

It is interesting to note that the required level of general IT experience reported for Connectivity staff ranged from no requirement to as high as 25 years of experience, while all participants required only 5 years or less of specific Health IT experience.

**Required Experience – Technology Systems and Languages**

In terms of specific technology experience required for Connectivity roles, survey participants provided the following priorities (note that some systems, languages and other skill sets are repeated between different priorities, as different organizations may have placed differing levels of importance or need on these items):

**1st Priority**

- Analytical Report Writing
- HIT
- HL7
- Lotus Notes
- VPN

**2nd Priority**

- CCDA
- Interface Engine
- Network
- Troubleshooting
- VPN
- Windows Server

**3rd Priority**

- Application Design
- Direct Messaging
- MLLP / SFTP
- QA / Testing
- SQL
- Web Services

**Required Skill Sets – Business and Technical**

The following segment of the survey focused on identifying specific skills required for specific roles in HIE organizations, where Connectivity positions represented the greatest diversity of identified, required skills. The table below represents the three prioritized skills requirements for Connectivity positions, in alphabetical order according to priority as reported by the survey participants.

**1st Priority**

- Advocacy
- Analytical Thinking
- Computer Science
- Data Communications
- Firewall
- HL7
- Leadership

**2nd Priority**

- Business Analysis
- Organizational Skills
- Project Management

**3rd Priority**

- Customer Service
- Data Analysis
- Interface Management
- Network Architecture
- Networking
- Time Management

**Most Important Factors for Connectivity Roles**

Asked to prioritize the most important factors when considering a person for a Connectivity role, 12 of the 16 respondents provided feedback. Some health IT experience was most often identified as the key factor, with the next most important factors identified as general IT experience and meeting required education levels. The least important factors reported by survey participants in hiring for Connectivity roles were specific skill, system, language or technology experience.

**Salary Range for Connectivity Roles**

Based on the twelve respondents that provided information on salary, the ranges most common for Connectivity positions are shown in the graphic below:

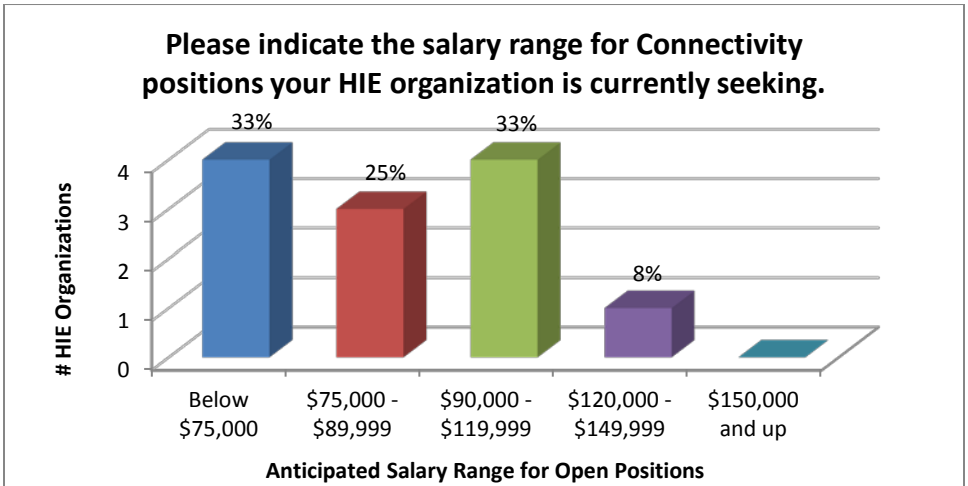


*Fig. I: Question 11 (N = 12)*

When compared to the roles of Data Integrity and Data Integration, the Connectivity roles have the most variable salary range, from below $75,000 to $119,999. It should also be noted that organizations reporting higher salary ranges were not necessarily located in the areas of the U.S. that are associated with commensurate higher salaries.

## *Data Integrity*

Eight of the 16 respondents reported that Data Integrity roles are combined with both Connectivity and Data Integration roles and 1 respondent said that Data Integrity and Data Integration roles were combined. Only 1 respondent reported that these roles are completely separate within their organization.

With such heavy overlap between roles, only 4 of the 16 participants provided responses to questions about specific Data Integrity roles within their organizations. The following information, then, should not be considered to represent all HIOs, but instead provides a snapshot of staffing practices within a few specific organizations.

**Titles**

The titles for persons engaged in Data Integrity roles at the participating HIOs are as follows (listed in alphabetical order):

- Data Analyst
- (Healthcare) Database Administrator
- HIE Operations
- HIE Implementation Manager

### Education Requirements

According to survey participants, educational requirements for Data Integrity roles range from a high school diploma to a Master's degree. Preferred courses of study include Health Information Management (HIM), business, healthcare, computer science and general medical training.

### Required Experience – IT and Health IT

Respondents consistently reported a standard requirement of 2-5 years general IT experience, while Health IT experience ranged from 0 to 10 years.

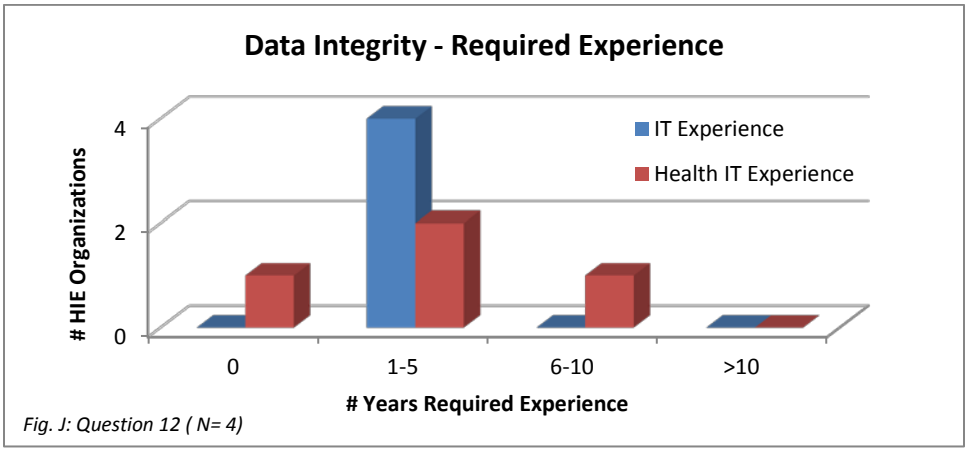


*Fig. J: Question 12 ( N= 4)*

### Required Experience – Technology Systems and Languages

The four participants that provided detailed information on the Data Integrity role identified the following priorities:

**1st Priority**

- Data Collection
- Detailed / Focused
- HIE Implementation
- Registration

**2nd Priority**

- Data Quality
- Data Understanding
- Organizational Skills
- HIE / EHR Implementation

**3rd Priority**

- Data Presentation (meaningful)
- Data Quality
- Prioritization
- HIE / EHR Integration

It is interesting to note that HIE or HIE / EHR implementation were listed at all 3 priority levels, and that Data Quality was listed as both 2nd and 3rd priority.

### Required Skill Sets

Although only 4 participants provided information for the Data Integrity position, the specific skill sets they identified serve to differentiate the Data Integrity position from the other two roles. The following list represents the skill sets prioritized for Data Integrity roles, in alphabetical order according to priority as identified by the participants.

**1st Priority**
- Computers
- Excel
- Master Patient Index

**2nd Priority**
- Analytical Tools
- EHRs
- Office Tools
- General MIS (Management Information Systems)

**3rd Priority**
- Communication Skills
- HIE

**Salary Range for Data Integrity Role**
There were insufficient responses to the questions about Data Integrity roles to quantify a specific result. However, of the participants that provided information on this topic, 3 out of 4 indicated that Data Integrity positions fall into the "Below $75,000" salary level, while the fourth participant reported a salary range between $90,000 and $119,000.

## *Data Integration*

Only one participant provided specific information about Data Integration roles within their organization. Their responses are provided here as an example of one organization's use of Data Integration roles and skill sets, and should not be considered to represent the larger HIE industry.

**Titles**
Only one title was identified for Data Integration roles: Interface Engineer

**Education Requirements**
A Bachelor's degree with an emphasis in JavaScript was reported as the minimum educational requirement for Data Integration positions at the participating organization.

**Required Experience – IT and Health IT**
Consistent with the information provided for Connectivity and Data Integrity roles, the Data Integration position described required 10 years of general IT experience and only 5 years of specific Health IT experience.

**Required Experience – Technology Systems and Languages**
Responses were limited in both number of replies and diversity. Prioritized responses are included below simply as an example.

- Web Server
- Unix
- Documentation

**Required Skill Sets**
Again, responses were limited in both number of replies and diversity. Prioritized responses are included below simply as an example.

- Unix
- Java Script
- Windows

**Salary Range for Data Integration Roles**
The salary for the identified Data Integration role was identified as falling between $75,000 and $89,999.

## *Comparison of the Three Roles*

Despite the small sample size overall and the different levels of participation on questions about these three role types – Connectivity, Data Integrity and Data Integration – a side-by-side comparison of the titles, requirements and salaries is helpful to identify commonalities and overlap. The following analysis will allow the reader to better understand the relationship between these roles.

### Titles

The following table (*Figure K*) lists all provided titles (in alphabetical order) and highlights similar position titles across the three roles.

| Connectivity | Data Integrity | Data Integration |
|---|---|---|
| Application Architect | | |
| | Data Analyst | |
| Database Administrator | (Healthcare) Database Administrator | |
| Director | | |
| HIE Integration Manager | | |
| | HIE Operations | |
| HIE Project Manager | HIE Implementation Manager | |
| Interface Engineer | | Interface Engineer |
| Project Analyst | | |
| Senior Network Engineer | | |
| Technical Outsourcing Analyst | | |

*Fig. K: Connectivity, Data Integrity and Data Integration Position Titles*

### Required Experience – IT and Health IT

For IT and health IT professionals seeking employment with an HIE organization, the reported experience requirements for the three target roles may be of particular interest. As illustrated in *Figure L* below, the most common requirement across all three roles is 1-5 years of IT or health IT experience. General IT experience requirements may range as high as 10 or more years, depending on the position, while health IT experience requirements tend to be lower.

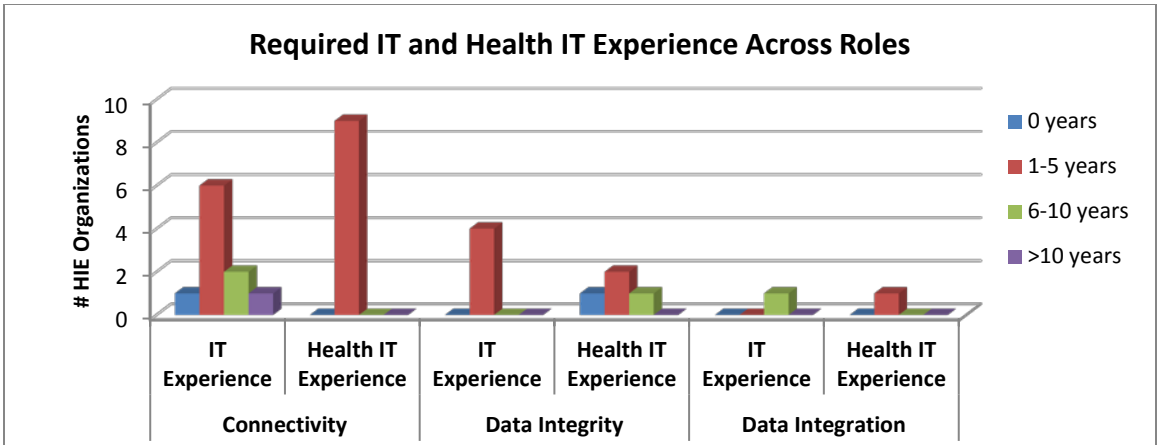


*Fig. L (N = 10)*

### Salary Range

Although Connectivity positions currently being filled at participating HIOs were reported to have salaries ranging as high as $120,000-$149,000 per year, the chart below (*Figure M*) illustrates a more common range of less than $75,000 up to $119,000 per year for these roles.

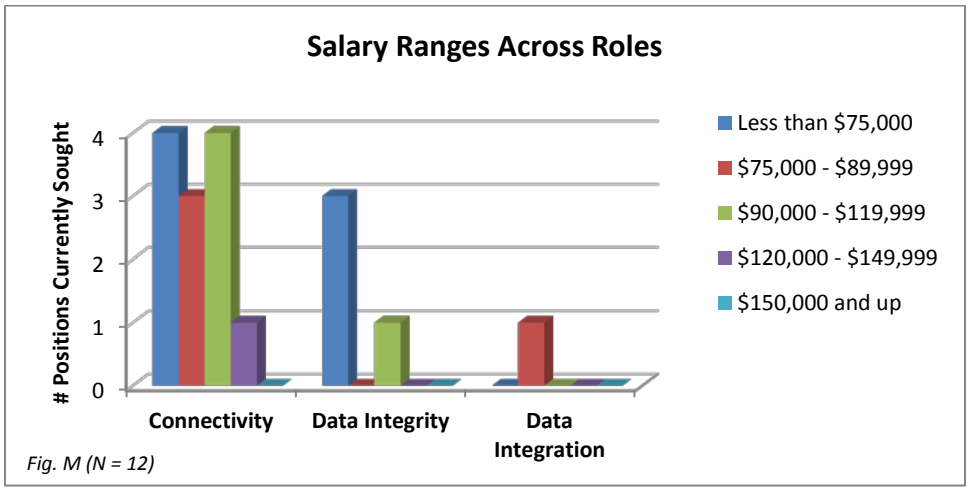


*Fig. M (N = 12)*

## *Identifying Talent, Recruitment and Fulfilling Organizational Needs*

In addition to detailed information on the three roles already discussed, the HIE Technology Staffing Challenges Survey asked participants to provide feedback on their hiring and staffing practices.

### Staffing Arrangements

The participating HIE organizations fulfill staffing needs for required roles through various types of arrangements, including:

- full-time employment,
- part-time employment,
- contractors,
- consultants,
- a combination of full-time employment and consultants,

- outsourced services to a vendor, and
- hiring a resource who had previously been an intern.

To further elaborate on how various staffing models are chosen, the survey asked how the HIE discerns whether roles/positions should either be outsourced or assigned to a consultant versus retained internally by their staff. Of the seven responses to this question, a number of specific approaches emerged for making this type of differentiation, including:

- Based on existing staff skills, type of task(s) and required skills to support the task(s)
- Short-term tasks, where outsourcing to contractors may be more appropriate
- Level of difficulty or technical expertise and whether it exceeds the skills and/or experience of existing staff
- Workload and duration or permanence of tasks

Participants also reported the practice of securing a consultant and, if the engagement, cultural fit, and long-term goals are deemed positive, converting the consultant to a full-time internal position.

**Recruiting and Hiring**

Participants in the survey reported the following experiences in hiring and recruiting for Connectivity, Data Integrity and Data Integration positions:

- Difficulty finding Project Management experience specific to Health Information Exchanges
- Recommend networking with peers to identify qualified candidates
- Extended periods of time needed to find qualified candidates that both have a cultural and technical fit to the organization.

Participants were asked to identify the various channels through which they identify industry talent and potential hires, including:

- Internal recruiters
- Technical managers (internal) conducting the search
- External search or recruiting firms
- Industry conferences or events
- Job boards
- Referrals
- Professional Organizations
- School alumni association
- Web site (HIE)
- Professional networking
- Other social media (e.g. LinkedIn)

Overall, the most prevalent recruitment practices were identified as using job boards, referrals and professional organizations. *Figure N* (below) illustrates the prevalence of each recruiting method as reported by the participants.

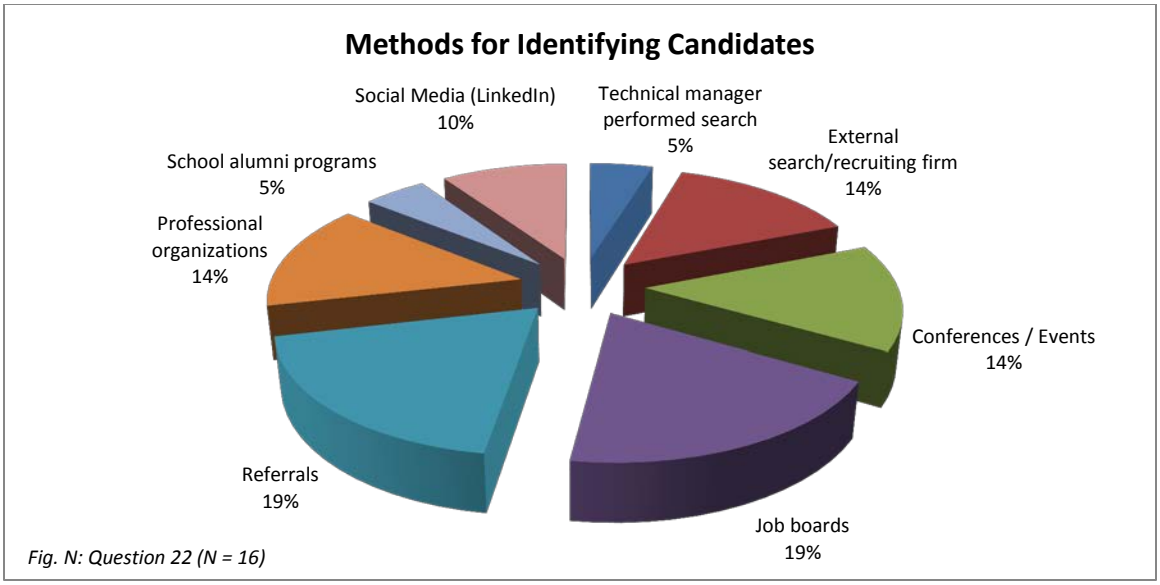


*Fig. N: Question 22 (N = 16)*

**Position Turnover**

The reported level of turnover in the three target positions at each HIE varies, but as a result of limited response to this question, it is difficult to identify any further insights regarding turnover for these roles. However, additional information provided by participants indicates that the workplace environment itself is important in reducing or eliminating turnover.

In response to an inquiry about which positions overall experienced the highest levels of turnover, participants listed the following roles:

- Data Administrator
- HIE Implementation Manager
- HIE Project Managers
- Physician Liaison
- Project Manager

The reasons for turnover ranged from poor performance or resignation, to promotion within the organization or recruitment for another opportunity.

**Ongoing and Future Staffing Challenges**

When looking toward the future of Connectivity, Data Integrity and Data Integration positions, survey participants identified a number of remaining challenges. The cumulative list below, presented in alphabetical order, represents a wide number of current and ongoing challenges for organizations looking to fill these roles. Although there were an insufficient number of responses to quantify the challenges, those that were mentioned most frequently are highlighted in bold text.

- **Cost of living / Location of HIE** *(e.g. certain geographic areas - city and/or state - have a high cost of living that can impact enticing qualified candidates)*
- Employee satisfaction
- Employee education and engagement

- HIE experience, both in terms of actual time working within an HIE and the ability to pay attention to details related to this work
- Health IT experience
- **Industry competition for qualified candidates**
- Expertise with specific platforms
- **Competitive salary and benefits**
- **Finding individuals with appropriate skill sets**
- Duration of training required to perform the role
- Finding candidates that are comfortable working in a virtual work environment

**Ongoing and Future Project-Specific Challenges**

While the previous list focuses on the challenges for staffing these positions as the industry moves into the future, the information that follows identifies challenges specific to Connectivity, Data Integrity and Data Integration projects within HIE organizations.

**Most Significant Challenges**

- Ability to determine business requirements, project scope and the corresponding deliverables to support the project
- Employee satisfaction
- Employee experience
- Government requirements and their impact on projects
- Skill sets (i.e. the right skills for the project)
- Ability to assume multiple types of responsibilities, or wear multiple “hats”
- Prioritization of tasks based on high demand

**Moderately Significant Challenges**

- Government impact (e.g. concern that some of the requirements being applied are difficult to implement in an actual HIE/HIO setting)
- Grant renewals
- Longer work hours / Prevention of burn-out
- Organization skills
- Organizational readiness to support project

**Additional Challenges**

- Meeting deadlines
- Government incentives for short-term initiatives that may not be sustained over time
- Obstacles related to servicing a variety of customers
- Resource availability and sustainability
- Service line expansion

**Additional Insights**

In conclusion, participants were asked whether they had any additional important insights regarding Connectivity, Data Integrity or Data Integration that may be helpful to other HIOs and IT professionals. Four relevant observations were provided:

- HIE-specific experience matters.
- The development of "sound requirements, planning, and execution" are essential.
- When forming an HIE, it is important to not "underestimate the amount of maintenance, monitoring and customer service activities and costs." This includes both initial and ongoing costs, such as updates and retesting as new standards and requirements are implemented.
- Activities and efforts such as marketing and outreach are "a long and on-going process."

# Conclusion

The 2014 HIE Technology Staffing Challenges Survey resulted in several interesting and relevant points of information for both HIE organizations and HIE professionals.

### *HIE Survey Participants*

When compared to the 2012 survey responses, the 2014 HIE survey participants represent organizations that are now primarily public-private entities. Their reach across other healthcare organizations has grown dramatically, with the majority of participants engaged with more than 500 entities providing a variety of healthcare services. In addition, the participants now serve large patient populations, with the majority providing data exchange for more than 1 million patients.

### *Current Staffing*

The total number of employees staffing the participating HIOs ranged from 1.5 to 47 Full-Time Equivalents (FTEs), with the number of dedicated IT staff ranging from 0 to 19 FTEs and the most common distribution including 2 to 5 full-time health IT staff members. The composition of the HIE IT staff does vary and may include:

- Full-time employees,
- Part-time employees,
- Contractors,
- Consultants, and
- Outsourced staff to a vendor.

The technology staffing model may also vary among HIOs for a specific combination of IT staff based on organizational requirements. Participants reported that the three roles – Connectivity, Data Integrity and Data Integration – most often include 1 to 5 FTEs, may range up as high as 6 to 10 FTEs across the three roles.

### *Connectivity, Data Integrity and Data Integration Roles*

When assessing whether the Data Integration role may also be combined with the Data Integrity role or the Connectivity role, participants pointed to combined efforts from these roles between 50 and 78 percent of the time. More often than not, the Data Integration role is paired with either Data Integrity or Connectivity roles.

**Role: Connectivity**
Connectivity roles reported by participants had the greatest diversity and number of titles of the three roles. The required education for the Connectivity role is most often a Bachelor's degree, with emphasis on Computer Science, while a Master's degree is required less often. Additional experience requirements identified include HIPAA/Security, Telecommunications or Health IT.

The required skills for the Connectivity role encompass a broader range of skills than any other role explored in this survey, and the required experience is also fairly broad. The level of experience that is most frequently cited is one to five years with a preference for Health IT expertise. The salary range for

reported Connectivity positions is also broader than the range for the other two roles, spanning from less than $75,000 to $119,999.

**Role: Data Integrity**
Several titles were identified for the Data Integrity role, including Data Analyst, (Healthcare) Database Administrator, HIE Operations and HIE Implementation Manager.

Data Integrity roles focus on staff with educational backgrounds ranging from a high school degree to a Bachelor's or a Master's degree. The type of experience that was the highest priority for the role of Data Integrity include Health IT and Health Information Management (HIM), with a broad range of required experience levels. Desired IT experience fell between 2 and 5 years, while desired Health IT experience varied between 0 and 10 years.

The salary range most commonly cited for Data Integrity roles was less than $75,000, with one exception ranging up to $119,000.

**Role: Data Integration**
Data Integration roles reported by survey participants typically fell under the title of Interface Engineer, with 10 years of IT experience and a minimum educational requirement of a Bachelor's degree. The reported salary for the Data Integration role ranges from $75,000 to $89,999.

### *HIE Technology Staff Recruitment*

**Staffing Resources**
The most common resources used to identify HIE technology candidates were job boards and referrals, with external search or recruiting firms, industry conferences or events, and professional organizations also cited. Additional, but less frequently used, recruitment methods included searches run by technical (internal) managers, school alumni associations and programs, and posting on the HIO's website and LinkedIn.

**Staffing Challenges**
Challenges in recruitment for the positions of Connectivity, Data Integrity and/or Data Integration remain. The most frequently identified challenges include cost of living / location of the HIO, industry competition for qualified candidates, salary and benefits competitive within the industry, and finding the right skill sets.

**Project Challenges**
When reflecting on operational needs and performance within the HIO, participants identified several challenges specific to the projects pursued by Connectivity, Data Integrity and/or Data Integration roles. Project-specific challenges identified as being of greatest importance included the ability to determine business requirements, project scope and the corresponding deliverables to support the project; employee satisfaction; experience; governmental requirements and their impact on projects; skill sets; the ability of the resource to assume several types of responsibilities; and prioritization of tasks based on demand.

**Position Turnover**

The positions that were identified as experiencing the highest levels of turnover were Data Administrator, HIE Implementation Manager, HIE Project Managers, Physician Liaison, and Project Managers.

# Acknowledgements

### *2013-2014 AHIMA/HIMSS HIE Technology Staffing Workgroup*

This white paper was developed by a joint Workgroup of volunteers from the American Health Information Management Association (AHIMA) and the Healthcare Information and Management Systems Society (HIMSS). **Special thanks to Lucy Mancini-Newell for serving as data analyst and initial author of this paper.** The volunteers who participated in development of the white paper are:

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# Appendix A: HIE Technology Staffing Challenges Survey

## *Basic Information*

**1. What is the official name of your HIE/HIO? Please list any Nicknames also.**

**2. What is your title and your role in the HIE/HIO?**

**3. Please provide an email address so that you can receive a copy of our results.**

**4. What was the date of your HIE/HIO's first data exchange?**

**5. What is the total number of employees in your HIE/HIO? In your IT Department?**

**6. How would you best qualify/quantify your HIE/HIO operational reach?**

- total number of hospitals,
- total number of physician practices
- total number of patients
- total number of customers
- other organizations (e.g., payers, employers, first responders, etc.)

**7. How would you best define the type of HIE/HIO you are representing.**

- Public
- Private
- Combination of Public/Private
- Other

## *Connectivity, Data Integrity, Data Integration*

Three roles were identified by HIE/HIOs as roles where qualified talent was hard to fill. The HIE/HIOs identified these roles/skill sets as Connectivity, Data Integrity, and Data Integration. Please help us understand how your organization defines these roles within your organization. We understand that some organizations will combine these roles into less than 3 categories and will provide options to address this possibility.

**8. How many people does your organization currently have in roles that span the skills/roles of Connectivity, Data Integrity, and Data Integration?**

- # people
- # position types/roles

**9. How would you best describe role(s) your organization has related to "Connectivity?"**

- Title
- IT Exp Required (years)
- Healthcare IT Exp Req'd (years)
- Skills Required (top 5)
- We combine this role with Data Integrity
- Education Req'd (Level)
- Education Req'd (Course of Study)
- Technology Exp Req'd (top 5)
- Other
- We combine this role with Data Integration

**10. In order of priority, what variables are most important for you in your Connectivity roles?**

- Education Level
- Education Degree/Course of Study
- Experience in IT
- Other
- Exp in Healthcare IT
- Experience with specific skills
- Experience with specific technology

**11. Please indicate the salary range for positions your HIE organization is currently seeking.**

- Below $75,000
- $75,000 - $89,999
- $90,000 - $119,999
- $120,000 - $149,999
- $150,000 and above

**12. How would you best describe role(s) your organization has related to "Data Integrity"?**

- Title
- Education Req'd (Level)
- IT Exp Required (years)
- Education Req'd (Course of Study)
- Healthcare IT Exp Req'd (years)
- Technology Exp Req'd (top 5)
- Skills Required (top 5)
- Other
- We combine this role with Data Integration
- We combine this role with Connectivity

**13. In order of priority, what variables are most important for you in your Data Integrity roles?**

- Education Level
- Exp in Healthcare IT
- Education Degree/Course of Study
- Experience with specific skills
- Experience in IT
- Experience with specific technology
- Other

**14. Please indicate the salary range for positions your HIE organization is currently seeking.**

- Below $75,000
- $75,000 - $89,999
- $90,000 - $119,999
- $120,000 - $149,999
- $150,000 and above

**15. How would you best describe role(s) your organization has related to "Data Integration?"**

- Title
- Education Req'd (Level)
- IT Exp Required (years)
- Education Req'd (Course of Study)
- Healthcare IT Exp Req'd (years)
- Technology Exp Req'd (top 5)
- Skills Required (top 5)
- Other
- We combine this role with Data Integrity
- We combine this role with Connectivity

**16. In order of priority, what variables are most important for you in your Data Integration roles?**

- Education Level
- Exp in Healthcare IT
- Education Degree/Course of Study
- Experience with specific skills
- Experience in IT
- Experience with specific technology
- Other

**17. Please indicate the salary range for positions your HIE organization is currently seeking.**

- Below $75,000
- $75,000 - $89,999
- $90,000 - $119,999
- $120,000 - $149,999
- $150,000 and above

**18. Did the variables that you prioritized in your search for talent change either during the interview process or after you had made your hire/engaged a consultant?**

- Yes
- Explain (if yes)
- No

## *Identifying Talent, Recruiting, Filling Need*

**19. How did your organization satisfy your needs in these areas?**

- Hired full-time (perm) employees
- Engaged consultants
- Both. We hired perm employees and engaged consultants
- Outsourced work to the Vendor
- Other

**20. *How do you distinguish which functions/positions should be outsourced or contracted vs. those that are internal staff positions?**

**21. Please explain your recruiting/hiring experience**

**22. What methods did your organization use to identify/find talent**

- Internal recruiter
- External search/recruiting firm
- Independent Consultant
- Recruiting firms
- Referrals
- School alumni programs
- Technical manager performed search
- Consulting firm
- Conferences / Events
- Job boards
- Professional organizations
- Other (please specify)

**23. Have you experienced turnover in these positions?**

- Yes
- No

**24. What roles did you experience turnover**

- Position
- Position
- Position
- Turnover reason
- Turnover reason
- Turnover reason

**25. As you look forward, what are your biggest challenges regarding these roles?**

**26. As you look forward, what are your biggest challenges regarding the projects these people perform within your organization?**

**27. Is there anything else that you believe is important regarding Connectivity, Data Integration, and Data Integrity that you can share to help other HIEs and IT professionals?**

## *Final Thoughts*

**28. Would you be willing to provide us with a current organizational chart?**

**29. Would you be willing to provide job descriptions?**

**30. Are you interested in further participation?**

**31. Please provide any additional thoughts, recommendations or concerns that you'd like to share with AHIMA, HIMSS, HIE job candidates, and other readers of the results of this survey.**