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Executive Summary

Health information exchange (HIE) is the complex process of sharing healthcare-related information across different users and/or organizations. While the goal of HIE—to connect healthcare providers electronically in order to facilitate higher quality healthcare—is clear and constant, business models and implementation methods are continually evolving. Many initiatives are underway at the federal, state and local levels, and in the private sector, to foster and enable interoperable electronic health information exchange, most of which is facilitated through Health Information Exchange Organizations or Networks (HIO). Significant focus is placed on the governance, business models, policies, standards and technical infrastructure required for long-term sustainability; however, little attention is focused on the staffing of HIOs. This is an unfortunate oversight—even the most well-designed HIO cannot operate in a silo. It is therefore essential to consider current and future staffing needs of these organizations.

The Healthcare Information and Management Systems Society (HIMSS) and the American Health Information Management Association (AHIMA) formed a collaborative workgroup to analyze job opportunities and skill sets required in the HIO setting. This analysis aims to identify current environment staffing models, emerging staffing models and required skill sets to support these organizations. The results of this analysis will serve those who are seeking employment focused on data exchange or HIE activities, including those exploring opportunities in education, training and certification to enhance their knowledge and skills in this area.

The workgroup recognizes the need for additional research beyond this analysis to clarify and refine the education, training, resource talent and work experience necessary to provide a clear understanding of the professional skill sets and experience required for this area. Several recommendations for future research are offered within this document. In addition, the Office of the National Coordinator for Health Information Technology (ONC) Health IT Workforce Development Program will assist HIOs in addressing skilled workforce needs. This ONC program has defined several health IT workforce roles and competencies, with the corresponding training and curricula necessary to support skills development. The workgroup noted that three of the defined workforce roles seem particularly important to HIOs:

- Health information management and exchange specialists;
- Health information privacy and security specialists; and
- Programmers and software engineers.

Additional research, workforce development programs and other industry-related efforts facilitate the identification of skills and experience required to meet the demands and advance the profession of both current and future HIOs.

1 US Department of Health & Human Services. Office of the National Coordinator for Health Information Technology. Health IT Workforce Development Program.
The workgroup directly surveyed HIOs to explore various HIO staffing models, to examine current staffing environments and to identify any emerging trends. Specifically, the workgroup aimed to:

- Review available HIO job opportunities,
- Inventory required education and skills against health information management (HIM) and health information technology (HIT) education and expertise,
- Identify HIE-focused job roles that would benefit from HIM- and HIT-focused training, and
- Identify additional education and training opportunities that would prepare HIM and HIT professionals for positions in the HIO setting.

Representatives from 35 HIOs completed the survey in 2012. The responding HIOs represent diverse demographics, as discussed in the Principal Findings below. However, the survey results do not necessarily represent all types of HIOs operating in the United States. The primary purpose of this white paper is to present the findings from the 2012 survey, as reported by the 35 participants.

Principal Findings

HIO Survey Participants – General Demographics
Survey participants included organizations that have been operational since as early as 1994, with slightly more than half self-identified as state-designated entities (SDE). The significant majority of participants used not-for-profit governance structures and planned to use subscription and membership fees as part of their sustainability strategy. Primary care, inpatient, outpatient, Emergency Department (ED) and specialty care services were identified as the top types of organizations sharing information through an HIO.

HIO Survey Participants – Employee Demographics
The majority of HIOs are small organizations with 10 or fewer employees, and many use a mixture of staffing solutions including full-time and part-time staff, employees who job-share, on-site contractors and outsourcing. Very little hiring was planned at the time of this survey, but those organizations that were looking to hire were primarily seeking to fill roles in finance, accounting, HIM, HIT, business, provider relations and computer science or IT. Participants indicated that a lack of available candidates was the most common staffing challenge, and preferred referrals from colleagues and peers as a method for recruiting.

HIO Position-Specific Information
One interesting observation was a noticeable lack of both current hiring and proactive planning for security-related roles. Technology roles, such as software application support and data integration, were most prevalent in both current and planned positions, followed by operations roles, including marketing, sales and public relations positions, among others. Participant coordination positions of note included subject matter experts (SME), patient/member advocates and participant account management. Other roles included privacy and security, as well as HIM positions. Data integration, executive management and master patient/client index (MPI) roles were identified as most difficult to fill.
Methodology

The study methodology consisted of surveying HIO personnel and personnel services professionals. A joint workgroup of approximately 45 volunteers from AHIMA and HIMSS, supported by staff from both organizations, created and administered two surveys. Microsoft SharePoint and conference calls facilitated by WebEx were used for coordination and collaboration. Paper versions of the surveys are available in Appendix A: HIE Staffing Model Survey – HIEs and Appendix B: HIE Staffing Model Survey – Recruiters at the end of this paper.

The surveys were loaded into the CheckBox online survey tool and tested for usability by HIMSS staff. One survey targeted HIO staffing personnel, such as human resources coordinators and HIO directors, while the other survey targeted non-HIO staffing professionals who have worked to fill HIO technical data exchange-related positions. The survey content underwent numerous revisions before being finalized to ensure that (a) the information collected would provide useful demographic comparisons with existing HIE/HIO data, and (b) the two surveys were matched so that data could be easily compared across the two responder groups.

The joint AHIMA/HIMSS Workgroup compiled lists of operational HIOs and HIT personnel services professionals. Workgroup volunteers were then asked to contact a selected range of five to ten HIOs, requesting their assistance in completing the survey using a personalized version of a form introductory email (see Appendix C: Introductory Letter & Request for Participation). Volunteers then followed up with personal calls to encourage participation and answer the potential respondents’ questions. Respondents were offered three options for survey completion: telephone interview, online survey tool or paper. Additionally, flyers explaining the broad purpose of the HIO survey and providing the URL to the online survey were handed out during the 2012 Annual HIMSS Conference & Exhibition in Las Vegas, NV, during the week of February 20-24, 2012 (see Appendix D: Survey Participation Flyer).

Approximately 200 HIOs were initially contacted with the request to complete the survey, and 35 of those HIOs completed the survey. This represents a response rate slightly over 15 percent. Several representatives from HIOs in the process of forming during the time that the survey was administered also responded that they were interested in participating, but were not at a stage where staffing strategies had been developed or finalized. When possible, these respondents instead provided supporting documentation, such as job descriptions for existing positions.

Workgroup volunteers in the HIT recruitment and personnel industry sent the introductory letter to their contacts via mailing lists, newsletters and personal emails. Twelve recruiters participated in this effort and completed the survey. Due to this small sample size, recruiter responses are included in the following discussion only as a point of emphasis for the data reported by HIOs, and should not be considered representative of all health IT or the HIE/HIO recruiting industry. References throughout the paper to “the survey” are made in relation to the HIE/HIO survey unless otherwise noted.

The surveys were activated on February 15, 2012. Reminders were sent to individual organizations and potential participants as needed by volunteers and staff liaisons. The surveys closed on May 14, 2012.
This white paper reports the findings from the survey’s participants and is not intended to represent all HIOs. The work group recognizes and embraces the fact that HIOs by nature are not alike and will vary across business models, service offerings and overall technical strategies. All information developed and discussed in this paper was compiled by the authors based strictly on the survey responses, all of which were self-reported by the organizations that participated. No additional attempts were made to verify responses. The findings outline common themes, trends and issues as reported by the survey’s participants.
Basic Information

The 35 participating HIOs were located across the country, with representation from each of the 10 regions used by the Centers for Medicare and Medicaid Services (CMS). At least one organization from each region participated in the survey, with an average of three HIOs responding from each region.

The specific individuals listed as contacts for the survey held a wide range of titles, including Executive Assistant, Chief Operations Officer, Project Manager, HIT Director, Executive Director, President/CEO and others. However, because we were requesting detailed hiring and operations information, we recommended that the responders collaborate with other members of their HIO’s administrative team to complete the survey.

Operational Status

Of the 35 organizations surveyed, 28 respondents stated that their HIO was operational at the time the survey was administered in Spring 2012. (Fig. B)

Of these, 27 reported a date of first data exchange. The survey responses clearly indicated that some organizations have been exchanging data since as early as 1994. New growth was represented as well, with the most recent initial data exchange reported as April 1, 2012. (Fig. C)

Figure C illustrates the trend in reported date of first data exchange, by year:

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3 Centers for Medicare & Medicaid Services. Regional Offices.

© 2012 Healthcare Information and Management Systems Society (HIMSS) and American Health Information Management Association (AHIMA)
The data presented on this chart is indicative of the gap that normally exists between early adopters and the more mainstream adoption of new technologies. The first of two industry initiatives which may have impacted these HIOs came in March 2010, when the ONC announced the State Health Information Exchange (State HIE) Cooperative Agreement Program awardees. In total, 56 states, eligible territories and qualified SDEs received awards. On January 27, 2011, a second initiative with an additional $16 million was made available to states through ONC’s new Challenge Grants program. This program provides funding to states to encourage breakthrough innovations, and to State HIE Cooperative Agreement Program grantees to develop innovative and scalable technical solutions.

**Size of HIO**

In response to questions about the size of the HIO, one organization reported significantly higher numbers than the others. Although this outlier does somewhat skew the overall results, it was left in the analyses below in a “greater than” range to demonstrate the full spectrum of HIOs.

All but one of the participants reported the total number of employees in their organization. The average number of employees reported was 11.6 (accounting for both full-time and part-time staff), and the two organizations with the largest staff reported 73 and 48 full- and/or part-time employees, respectively.

Based on the information provided by respondents, the majority of HIOs (70 percent) appear to be small organizations with 10 or fewer employees. (Fig. D)

All 28 operational and three not-yet-operational HIOs reported third-party organizations participating in their HIO, including stakeholders such as hospitals, physician practices, first responders and/or payers. Nearly half of the respondents reported 50 or less participating organizations, while the five largest responding HIOs reported 400 or more participating organizations. (Fig. E) Survey results were not specific enough to identify the patient encounter activities that were directly supported by the HIO.

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4 Office of the National Coordinator for Health Information Technology. [State Health Information Exchange Cooperative Agreement Program](http://www.healthit.gov/).  

5 Office of the National Coordinator for Health Information Technology. [Health Information Exchange Challenge Grant Program](http://www.healthit.gov/).
Operations – Transactions, Governance & Consent

Survey participants identified both the types and percentages of transactions that their organizations process. The top five transaction types identified were primary care at 63 percent of services rendered, inpatient at 57 percent, outpatient at 51 percent, ER at 49 percent and specialty care at 46 percent. (Fig. F) Also interesting to note were the number of HIOs (31 percent) that reported exchanging behavioral health data, considering the sensitive nature of behavioral health information and the prevalence of state laws restricting its access and use.

All survey participants responded to a question about governance structure. Options included governance by a state agency, for-profit, not-for-profit 501(c)(3) or other not-for-profit. Twenty-four of the responding organizations reported governance by not-for-profit 501(c)(3) entities; six participants answered ‘other not-for-profit;’ and only one was governed as a for-profit entity. (Fig. G) No respondents described their governance structure as a state agency or other government organization.

These results reflect the notion that HIOs share a mission of providing a neutral public utility service. Under not-for-profit governance, they can maintain their primary mission and vision—to provide equitable service to all providers in the community—similarly to most public utilities. However, this may or may not apply to all for-profit HIOs.
Respondents were also asked to indicate whether theirs was a state-designated or regional HIO. State-designated HIOs represented slightly over half (54 percent) of the 35 HIO participants. (Fig. H)

Survey respondents were asked to identify the consent method used by their organization as opt-in; opt-out with affirmative documentation required; opt-out with no affirmative documentation required; no consent method currently in place; or another method not listed. Their responses support the notion that the “opt-out” consent model is the most prevalent across HIOs. (Fig. I)

Some stakeholders feel that the opt-out model ignores patient control of their own health information by not providing sufficient granularity of choice. General industry experience demonstrates that, when implemented properly, this consent model can be a less administratively burdensome solution for the organization and participating providers, while still allowing patients to exercise meaningful choice regarding the sharing of their own data.

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6 Opt-in: Typically requires affirmative authorization from the consumer, often through signing a standardized consent form, before a consumer’s health information may be exchanged through the network. Opt-out: Typically requires that the consumer is given notice—through mailings, brochures, posted notices or other means—and allows a consumer’s health information to be exchanged through the network unless and until the consumer formally requests that it not be. Source: Missouri Department of Social Services, “Opt-in Versus, Opt-out: Consent Models for Health Information Exchange through Missouri’s Statewide Health Information Exchange Network.”
One organization that indicated use of an “Other” consent method described their approach as a hybrid consent model, where the hospital uses an opt-out approach, the personal health record (PHR) is opt-in, and each practice determines its own method for consent.

Operations – Funding & Sustainability
It has become widely understood that survivability requires the identification and implementation of solid means to fund and maintain the HIO from the initial planning or evolutionary stages. Survey respondents were asked how they initially funded their HIO and, more importantly, how they plan to sustain the HIO long-term. A variety of funding methods were presented as options, and most respondents indicated plans to use a combination of grants, membership dues/fees and subscription service fees. (Fig. J)

These responses indicate that more HIOs are planning to use subscription and membership fees as part of their sustainability strategy than any other approach. Traditionally, subscription and membership fees are charged to the participants as a flat rate amount for a specified level of service or access. Utilizing subscription or membership fee pricing allows the organization to lower the overall cost of participation, and allows for simplified long-term planning. Also, because these types of fees do not require ongoing monitoring and tracking of individual transactions, administrative costs can be kept lower than when transaction fees are implemented.

Participants were asked to identify the specific funding sources they currently use or are planning to use. The most common funding sources reported were ONC funding grants and awards, provider fees and hospital fees. (Fig. K)
Several organizations reported plans to use funding sources in addition to those listed above. Grants were the most common write-in response, and several organizations named state-specific funding sources that they intend to leverage. Other notable funding sources included contracts with Veterans Affairs, the Social Security Administration, and various research organizations, as well as CMS Innovation Grants. The development of additional service offerings, such as lab and radiology solutions, was also mentioned as a source of funding.

**HITECH Workforce**

In order to meet the growing need for HIT professionals, the ONC introduced the Health Information Technology for Economic and Clinical Health (HITECH) Workforce Development Program. The program’s goal is “to train a new workforce of skilled HIT professionals who will be able to help providers implement electronic health records and achieve meaningful use.” Survey participants were asked to indicate their involvement with this program through partnerships, use of program interns, and hiring of program graduates. (Fig. L1-L3)

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7 [Health IT Workforce Development Program](https://www.hhs.gov/), Office of the National Coordinator for Health Information Technology. US Department of Health & Human Services.
Of those who indicated partnerships with HITECH Workforce Development Consortiums, most (60%) identified their partners as community-based consortiums, while 33% identified private college or university consortiums and 27% identified state college or university consortiums. Based on the responses provided, it appears that the HITECH Workforce Development Consortiums are demonstrating some limited success in placement of interns and new graduates with these organizations, regardless of the relatively small number of survey participants.
Existing Organization

Current Staffing
To better understand the current staffing practices of HIOs, participants were asked to identify the number of positions currently held as full-time, part-time, job sharing, on-site contractor or outsourced through third party organizations. (Fig. M)

While the sample size of HIOs responding to this survey was only a small subset of organizations nationwide, the level of detail in their answers proved valuable. Respondents provided keen insight into the staffing decisions these organizations are making, as well as the rationale behind those decisions.

All 35 of the HIOs participating in the survey provided responses describing their current organizational staffing. (Fig. N) The great majority (86 percent) of those surveyed had a staff of 25 people or less, while only a few (9 percent) were significantly larger with staff size of 51 or more people.

Organizational Make Up
Respondents were asked about current staffing within four major role classifications:

- Technology
- Operations
- Participant Coordination
- Other
Technology positions (41 percent) dominated current staffing as reported by the survey participants, with operations positions (34 percent) close behind. (Fig. O) Staffing distribution analysis across these categories based on the date of each organization’s first data exchange found no clear identifiable patterns. (Fig. P)

These four major staffing classifications were then further broken down into primary roles that would be expected within each category.

**Technology**

Roles within this category included:

- Security
- Data Integration
- Data Integrity
- Connectivity
- Data Quality / Compliance
- Payment Processing
- Technical Project Management
- Software Application Support
- Business Intelligence / Reporting
- Specification / Design / Coding / Testing
- Help Desk / Support
- Other
Technology positions had the highest density within the organizations surveyed, representing 41 percent of all currently held positions. (Fig. Q). As one might expect with organizations devoted to technical efforts like health information exchange, technology skills dominated both the full-time and outsourcing roles in most of the organizations surveyed, with an average of 2.04 full-time and 1.86 outsourced positions.

The most prevalent roles, based on the average number of positions held within each surveyed organization, were Software Applications Support (average 2.89 positions), Help Desk / Support (1.89) and Data Integration (1.71). Data Integration also stood out as the most likely role to be outsourced, with an average of three outsourced positions per organization compared to two or fewer outsourced positions for all other technology roles.

The technology positions most commonly held in a full-time capacity were “Other” roles (average 3.67 positions), Help Desk / Support (3.01), Specification / Design / Coding / Testing (2.9) and, once again, Data Integration (2.45). “Other” roles were identified by respondents in a follow-up question, and included specialties in project management, implementation and HIE technical architecture.

![Figure Q](image)

**Operations**

Roles within this category included:

- Executive Management
- Product / Services Management
- Marketing / Sales / PR
- Finance
- Human Resources
- Legal
- MPI
- Documentation
- Adult Education
- Other

Representing the second most prevalent staffing category with 34 percent of the total staffing across respondents, operations roles were consistently represented across the organizations surveyed with an
average of 1.23 full-time staff for each identified role. *(Fig. R)* Full-time positions were dominated by Marketing / Sales / PR (average 1.93 positions), “Other” roles (1.67) and Executive Management roles (1.37), with 78 percent of Executive Management staff in full-time positions. “Other” roles identified included project management and administrative assistant positions.

Operations roles were the second most likely to be outsourced of the four staffing categories, with Finance (average 1.5 positions) and MPI (1.33) most frequently outsourced.

**Participant Coordination**

Roles within this category included:

- Fundraising / Capital / Sustainability
- Participant Account Management
- Data Governance
- Operations Governance
- Government Regulations
- Industry-specific SMEs
- Patient/Member Advocates
- Other

Driving participation with the HIO, participant coordination roles resulted in a uniquely mixed composition of staffing for the 15 percent of all staff that they represented. *(Fig. S)* Job sharing was most common in this category, particularly in Operations Governance (average 2.5 positions). On-site contractors were also most common for participant coordination, due to the average two on-site coordinator positions held by industry-specific SMEs across the survey participants.

Industry-specific SMEs (job roles and responsibilities defined by individual HIO participants) were, somewhat surprisingly, the most common full-time position in participant coordination (average 1.83 positions), followed by Patient/Member Advocates (1.67) and Participant Account Management (1.52). No “Other” roles were identified in this staffing category.
Other

Roles within this category included:

- Privacy / Security
- Health Information Management (HIM)
- Business Development / Sales
- Other

These skills represented only 10 percent of all staffing for the responding organizations. (Fig. T) Privacy / security positions were most common and, not surprisingly, most likely to be filled by on-site contractors (average two positions).

Staffing Practices

The current staffing composition of the surveyed HIOs was as diverse as their size. While more than 90 percent of organizations have full-time employees, participants identified a broad range of staff mixes including full-time and part-time employees, employees who job-share, on-site contractors and outsourcing. This mix is consistent with practices of many start-up organizations, which often rely on part-time staff, contractors and other alternatives to full-time staffing. Most organizations utilized a
combination of all variables, with the exception of job-sharing, which was only used by 22.6 percent of the participants. (Fig. U)

**Contracted or Outsourced Labor**
Surveyed participants revealed different approaches to staffing their organizations, with varied reasons to engage contractors and outsourcing solutions. The top areas identified to engage contractors and outsourced solutions were:

- Non-core support functions that included, across the population of surveyed organizations, accounting, payroll, marketing, HR and legal roles.
- Technical skill sets difficult to acquire based on amount of work, availability and location.
- Positions that could not be justified as full-time hires in the operational budget. This also included positions within organizations affected by state hiring freezes.
- Use of contracted employees during the recruiting process for a permanent staff member.
- Supplemental support for project work when internal resources are at capacity.

**Vendor Support**
All survey participants provided input on engaging vendors for product support and development. Of the organizations surveyed, 77 percent said they currently use a specific vendor for product support or development, and 40 percent indicated that they are currently seeking vendor support or development. (Fig. V1-V2).
While no dominant vendor product or corresponding skill set was identified in the survey results, the general use of vendor support for the organization is clearly significant. Survey participants reported that they are currently using and/or seeking data exchange, data analytics and business intelligence support from vendors, as well as other technical vendor services such as software development and support with messaging tools.
Staffing Needs

Specific Skills and Roles

Survey questions on future staffing focused primarily on the present staffing needs of the HIO. The survey asked specific questions based on the four staffing categories outlined above: technology, operations, participant coordination and other. (Fig. W)

Overall, the organizations surveyed were planning very little hiring at the time of the survey. Technology and operations positions ranked highest for those who had hiring plans. Of the 35 survey participants, 45 percent of the respondents were seeking skills in technology, 20 percent were seeking positions in operations, and 14 percent were seeking positions in coordination activities while 21 percent indicated other.

Looking at the staffing needs of our respondents according to the date of their first data exchange, a few interesting trends emerge. (Fig. X) Technology skills, for instance, appear to be an ongoing need, with at least some planned hiring of technology-focused positions reported by participants at all stages of development. Participant coordination skills, however, were reported as a need only by those organizations that have recently (since 2010) become operational and those still ramping up to their first exchange of data, indicating that this is a relatively new position for these organizations.

Also interesting to note is the distribution of staffing needs across the country. Although each CMS region was represented in the survey by at least one organization in our survey, with an average of three participating organizations from each region, current staffing needs were heavily weighted toward Regions 2 and 5. In contrast, participants from Regions 7, 8 and 9 reported no plans to hire in the near future. (Fig. Y)
These results indicate that it would be valuable to follow this study with a more in-depth look at regional hiring practices among HIOs to confirm, expand upon and identify the potential causes for this skewed distribution. This additional investigation would clarify whether the survey results are reflective only of these survey participants, geographic characteristics specific to these areas, or if the results truly could be a potential geographic trend. There are not a significant number of participants in each geographic region to make a determination of trends.

![Staffing Needs by CMS Region](image)

**Technology**

Showing a trend similar to the current staffing makeup of the participating organizations, Data Integration and Help Desk / Support positions dominated the technology skill sets currently being pursued. *(Fig. Z)* In order of demand, the technology roles sought at the time of the survey included:

1) Data Integration, Help Desk / Support  
2) Data Integrity, Connectivity, Software Support, Business Intelligence / Reporting  
3) Data Quality / Compliance, Technical Project Management  
5) Payment Processing, Other
It is interesting to note that only three of the 35 organizations surveyed were anticipating hiring for Security positions. The status of security staffing is expected to change as these organizations mature. The ONC recently issued Program Information Notice (PIN) 003, “Privacy and Security Framework Requirements and Guidance for the State Health Information Exchange Cooperative Agreement Program.” This guidance provides a common set of privacy and security policies intended to ensure provider and public trust by providing clear national guidance for the consistent application of core privacy and security policies, procedures and safeguards.

**Operations**

Although operations positions were the second largest category for existing staff among survey participants, very few participating organizations were actively seeking additional operations staff. (Fig. AA) While only four respondents were seeking Executive Management positions, 26 of the organizations already had full-time Executive Management personnel on staff, and other organizations had part-time, shared or outsourced executives.

In order of demand, the primary operations roles currently being sought include:

1) Executive Management, Marketing / Sales / PR, Finance
2) MPI
3) Legal, Documentation
4) Product / Services Management

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Based on the average one or more full-time operations positions reported as currently held under each role, it is likely that a base of operations staff is brought on early in the life of the organization, with additional hiring in this category on a limited basis. The complete absence of human resources roles currently being pursued also leads to supporting this theory.

**Participant Coordination**

A limited number of respondents indicated openings in participant coordination roles, suggesting that this is not a high priority area for staffing needs among HIOs. *(Fig. AB)*

**Other**

A limited number of organizations reported needs for positions in the “Other” category, as well. However, Business Development and/or Sales stood out as the most in-demand of these skill sets, with
more organizations (4) reporting needs in this area than any other roles under this or the Participant Coordination category. *(Fig. AC)* The need for business development and sales most likely ties to the current significant challenge of securing long-term business sustainability for HIOs.

**Education Requirements**

Participants were asked specifically about hiring staff with various levels of higher education for the positions they were seeking to fill. *(Fig. AD)* All 35 participating organizations responded to this question, and many respondents noted the particular specializations they were seeking. Over half (58 percent) of the organizations were hiring positions at the bachelor’s level, with desired areas of specialization in finance, accounting, HIM, HIT, business, provider relations and computer science or IT. At the master’s level, the range of specialties included HIM, business administration, and computer science or IT. One organization also indicated that they were seeking an individual with a JD and a focus in compliance. No PhD-level positions were being sought by participants at the time of this survey.

**Certifications**

In addition to bachelor and advanced degrees, participants were asked which industry certifications they were seeking, if any. The survey inquired about the following specific certifications, including several common vendor-specific certifications:
Six of the 35 participants indicated that they were seeking individuals with a PMP certification, with four participants seeking either Health Informatics or CPHIMS certifications and three participants seeking RHIA certifications. (Fig. AE) No organizations indicated a need for certified Medical Informatics professionals or individuals with Oracle certifications.

Compensation
Survey participants were asked to identify the salary ranges they planned to offer for the various positions being sought by their organizations. The vast majority of positions (84 percent) were under the $90,000 salary mark, though a few organizations were seeking to hire at higher salaries. (Fig. AF) The majority of technology positions were in the $75,000-$89,999 range, while all other positions were weighted heavily under $75,000. Only one open position was being offered at a salary greater than $150,000, which fell under the Operations category and was most likely a senior management position.
Please indicate the salary ranges for positions your HIE organization is currently seeking.
Hard-to-Fill Positions or Skill Sets

For this particular section, the results of the Recruiter survey add an interesting contrast to the organization responses. The discrepancies in staffing needs as perceived by the participating organizations and professional recruiters were an important finding from this survey. The two sets of survey results have therefore been combined for the analyses under the “Hard-to-Fill Positions or Skill Sets” heading.

Generally, the survey responses among participating organizations and recruiter participants followed industry trends in the larger HIT sector. In the “Operations” and “Other” categories, HIOs and recruiter participants responded similarly.

Technology

The old adage, “it depends on who you ask, and what you ask of them,” rings true in the responses received for the questions within this portion of the survey. Not so surprisingly, perhaps, the widest discrepancy was seen in the categories of technology skills or positions. As defined in the survey criteria, “technology” positions included everything from the help desk and security to developers and technical project management levels. (Fig. AG)

Data Integration roles stood out as the most difficult to fill, as reported by both HIO and recruiter participants. While few positions are generally titled “Data Integration,” the skills required for this function encompass a broad range of responsibilities that may make it difficult to find qualified applicants. As defined by this workgroup, “Data Integration” consists of skills ranging from business and technical analysis to project management, as well as more technical skills in security and testing.
The data integration professional must be able to coordinate and integrate data from various sources, identify gaps and omissions, and ultimately formulate proposed data quality, completeness and validation solutions. The data integration professional is a multi-disciplinary resource focused on the development of informatics applications, functioning as the in-house technical SME on existing and emerging technologies. Ultimately, the individual(s) in this role must serve as interpreter and translator, providing effectual synopses of information, presentations and communications for both internal and external audiences. It is interesting to note from an earlier survey question that the data integration position appears to be most likely outsourced. This may support the notion that the position is difficult to fill, driving the trend toward outsourcing. Also, it appears that data integration roles and responsibilities may vary across HIOs based on the survey results.

One HIO respondent identified a technology position with the title of “Director of Integration Services,” and this may suggest a potential explanation for the challenges in filling these positions or skill sets. First, at the director level, data integration requires a certain level of business and technical maturity and development. Second, data integration necessarily incorporates all or most of the other positions/skills identified under the technology classification for this survey. And third, as suggested by the title above, “data integration” may be more of an orchestrating position or skill set than a narrowly defined role. Thus, one emerging trend from these responses suggests that identifying and filling hard to fill positions or skill sets may require the intentional cultivation of a workforce with the skill sets necessary to meet existing and future needs of HIOs.

A second emerging trend is the need to reconcile the actual staffing needs of HIOs (as expressed in the HIO responses) versus the anticipated needs (captured in the recruiter responses) to ensure viability, stability and progressive growth in this sector. HIO and recruiter responses diverged most in this section of the survey. This is not surprising, due to the highly technical needs of these organizations, but the gap in responses does suggest possible disconnects between actual and perceived needs.

**Operations**

Among the HIO survey respondents, no position or skill set under the operations heading emerged as a clear stand-out problematic hiring area compared to the technology roles discussed above. Within this category, the two skill sets that were more difficult to fill with qualified individuals than the rest were Executive Management and MPI. (*Fig. AH*)
Approximately 11 percent of HIO respondents and 8 percent of recruiter respondents selected “Executive Management” as the most challenging position to fill. As HIOs are relatively new in the healthcare sector, defining or hiring leaders involves a rapidly evolving set of criteria. The discrepancy between HIO and recruiter responses is statistically close, and the fact that approximately 10 percent of each respondent group identified executive management positions as particularly hard to fill should be noted by organizations and their stakeholders.

The “Master Patient/Client Index” skill set was identified by 17 percent of recruiters and 9 percent of HIOs as notably difficult to fill, possibly indicating the need for more skilled workers as HIOs evolve and MPIs become more complicated and sophisticated. The key to a successful MPI is patient identity integrity, which includes the accuracy, quality and completeness of data attached to or associated with an individual patient. This is a significant function of an HIO due to the required accuracy and quality of the data as it relates to the individual, as well as the accuracy in matching all existing records for that individual within and across software systems—both within the HIO and across participating organizations. Accurate identification of individuals within an MPI is critical. Patient safety and care quality may be compromised if the individual’s data cannot be quickly, correctly and uniquely matched for access to all of his or her health information.9

Another interesting finding was the disparity in responses for the “Marketing / Sales / PR” position. While three HIOs (9 percent) selected this as a hard-to-fill skill set, no recruiters made the same indication. Although the survey does not provide enough detailed response to formulate an explanation for this gap in responses, one possibility may be the “boots on the ground” knowledge of HIOs vs. the requirements known or developed by recruiters to fill these positions. This disparity may also be explained in part by recruiter specialization, as technology-specific recruiters typically do not also work on recruiting for marketing positions.

Participant Coordination
HIO participants identified “Fundraising / Capital / Sustainability” as the most challenging Participant Coordination role to fill. (Fig. AI) This is a surprising finding, in part because no recruiter participants selected these types of positions as hard to fill. Again, the evidence is inconclusive as to why the gap between HIOs and recruiters exists for this skill set, and the “boots on the ground” knowledge may be only a partially valid explanation. This would be another area for additional investigation.

If these discrepancies are indicative of a potential gap in understanding between the HIOs and recruiters, this can be changed through open communication and clear articulation of the skill sets and functional roles of these positions.

Other
Taking into account some overlap between the Technology (e.g., “Privacy / Security”) and Operations (e.g., “Business Development and/or Sales”) staffing categories, the Other category demonstrated the most similarity in responses among HIO and recruiter participants. (Fig. AJ) In terms of individual responses, the majority of respondents to the surveys did not identify Other positions as difficult to fill.
General Staffing Challenges
In addition to roles that have proven difficult to fill, HIO participants were asked about general challenges with filling open positions. (Fig. AK)

The most commonly identified staffing challenge was a lack of available candidates. One possible explanation for the elevated number of respondents indicating this challenge may well be attributed to the unique professional skill set sought by HIO leadership.

In general, HIOs may parallel the characteristics of small start-up organizations. Both environments seek to recruit individuals possessing experience and background that is both entrepreneurial and multi-talented. Identifying the right mix of skills, education and talent can be difficult. In addition, potential candidates may possess a degree of anxiety about the certainty of the HIE model.

Finding Candidates
As a final question on staffing practices, survey participants were asked about their methods for finding available candidates.
Given the unique environment and skill sets essential for employment in most HIOs, it is not unusual that HIO respondents indicated that they favor referrals (27 percent) as the method of recruiting for open positions. (Fig AL) Professional peers with a keen understanding of the HIO environment are more likely to identify strong potential candidates for employment. Candidates seeking employment, in turn, would be wise to network with individuals associated with HIOs and related exchange initiatives. Job Boards (19 percent) and Professional Organizations (16 percent) were other popular sources utilized.

In addition to the options provided, several respondents indicated that they also use social media and personal networks to find qualified candidates. State application processes were also noted as a reliable resource, and would be a valuable addition to the process for staffing any HIO located in a state that supports these targeted efforts.
Conclusion

Summary of Key Findings
It appears that this may be one of the first in-depth industry studies focused around staffing in HIOs. The key findings outlined below from this study could be used as a baseline for any future industry studies in this area.

HIO Survey Participants – General Demographics
- 80 percent of respondents indicated their organization was operational at the time of the survey, with dates of first data exchange as early as 1994.
- Most governance structures (69 percent) were not-for-profit.
- 80 percent of responding organizations indicate they are planning to use Subscription and Membership fees as part of their sustainability strategy over any other approach.
- HIO types were closely divided with 46 percent claiming a regional status, while 54 percent claimed SDE status.
- The top five types of organizations sharing information through an HIO were Primary Care (with 63 percent of services rendered), followed by Inpatient (57 percent), Outpatient (51 percent), ER (49 percent) and Specialty Care (46 percent).
- While the “opt-out with affirmative documentation required” consent model is the most prevalent across HIOs, there were a variety of responses on how organizations handle consent.
- The most common funding sources reported were the ONC, provider fees and hospital fees.

HIO Survey Participants – Employee Demographics
- The majority of HIOs (70 percent) appear to be small organizations with 10 or fewer employees.
- While over 90 percent of organizations have full-time employees, responses showed a broad mix of staffing solutions including full-time and part-time employees, employees who job-share, on-site contractors and outsourcing.
- The vast majority of positions were compensated at or below the $90,000 salary mark.
- Although the HIOs surveyed were planning very little expansion through hiring at the time of this survey, over half of the organizations were hiring positions at the bachelor’s level, with desired areas of specialization in finance, accounting, HIM, HIT, business, provider relations and computer science or IT.
- The most commonly identified staffing challenge was a lack of available candidates.
- Referrals were identified as the preferred method of recruiting for open positions.
- Of the organizations surveyed, most said they currently use a specific vendor for some form of product support or development.
HIO Position-Specific Information

- Active recruiting efforts at the time of the survey showed a need for positions at the bachelor’s level with areas of specialization such as finance, accounting, HIM, HIT, business, provider relations and computer science.
- The lack of hiring, and lack of proactive planning, for security-related roles was noted as an unexpected observation.
- Emerging trends shown in the survey included hiring and placing interns and new graduates from the HITECH Workforce Development Consortiums.

Technology

- Technology positions dominated both current staffing and the most sought-after skill sets, as reported by the survey participants, with operations positions close behind.
- The most prevalent existing technology roles were Software Application Support, Help Desk/Support and Data Integration. The most prevalent existing operational roles were Marketing, Sales and Public Relations, project management, administrative assistant and executive management roles.
- At the time of the survey, these job roles were being actively recruited: Data Integration, Help Desk/Support, Data Integrity, Connectivity, Software Support, Business Intelligence, Reporting, Data Quality, Compliance, Technical Project Management, Security and functions supporting Specification, Design, Coding and Testing.
- Data Integration positions were the most difficult to fill in the technology category.

Operations

- Executive Management and MPI roles were most difficult to fill in the operational category.

Participant Coordination

- Driving participation within HIos, participant coordination roles resulted in a uniquely mixed composition of staffing for the 15 percent of all staff that they represented. Specific roles included SMEs, Patient/Member Advocates and Participant Account Management.

Other

- Other skills, representing 10 percent of all staffing, were Privacy and Security and HIM positions most likely to be filled by on-site contractors.

Recommendations

The workgroup, in preparation for this survey effort, found very little evidence of existing research on HIO staffing practices. In addition to specific recommendations for HIO staffing professionals and job seekers, the results of this survey may serve as a baseline for further research into this important topic, especially as new exchange and care models emerge and the demand for HIE services increases.

Recommendations to HIE Organizations

Specific resources and recommendations for HIos and their recruiting and hiring staff include the following:
• Reach out to trusted peers and colleagues for recommendations when trying to fill key positions.
• Utilize job boards and connect with professional organizations to reach a large audience of relevant potential candidates.
• Engage with social media (Twitter, LinkedIn, etc.) to spread the word about job openings.
• Make use of available resources to understand and plan for the hiring process (i.e., skill set requirements, salary budget estimation, sustainability planning, recruiting best practices, etc.).

Suggested resources include:
  o The Health Information Exchange Formation Guide10 (HIMSS)
  o HIMSS HIE Toolkits11
  o HIMSS Workforce Development12
  o Understanding the HIE Landscape13 (AHIMA)

Recommendations to HIE Professionals

All HIOs go through a start-up period during which they strive to become sustainable and financially viable. During this storming and forming period, HIOs seek to define privacy and security practices, establish stakeholder engagement, craft data governance compliance guidelines, and navigate HIE system selection, implementation and deployment. However, as HIOs establish themselves within a community or region, move toward financial sustainability and expand or refine their service offerings, the organizations’ priorities, including staffing needs, are likely to shift to reflect these new needs. HIE professionals should endeavor to understand the varied and changing priorities of these organizations.

• Given the start-up nature of HIE initiatives, candidates able to apply a diverse set of skills and knowledge successfully in an uncertain entrepreneurial environment may be best suited for the demands of working in an HIO.
• For non-technical professionals, newly forming HIOs may be more likely than established organizations to have open positions that focus on business, operations and marketing activities.
• Due to financial sustainability challenges, mature HIOs may continue to require skill sets and expertise that resemble those of start-up organizations in addition to highly skilled and experienced technical staff.
• Do some research on the HIOs before applying. HIO service offerings will directly reflect some staffing needs, giving candidates a starting point for placing their own skill sets and potential value within the organization.
• Join non-profit professional associations (such as HIMSS and AHIMA) and network with specific communities of practice (such as HIMSS Emerging Professionals Community14) to stay current on news and information regarding HIE and HIE workforce topics.

11 HIM, Ambulatory HIE and Enterprise HIE Toolkits. HIMSS Health Information Exchange.
12 Health IT Workforce Development. Body of Knowledge. HIMSS Professional Development.
13 AHIMA. “Understanding the HIE Landscape.” Journal of AHIMA 81, no.9 (September 2010): 60-65.
• Check valuable industry resources for current information and opportunities regularly. A few suggestions include:
  o HIMSS State HIT Dashboard\(^{15}\) (interactive map of HIE organizations, Regional Extension Centers (REC), other HIT initiatives and resources around the United States and US Territories).
  o AHIMA Health Information Career Map\(^{16}\) (interactive career planning tool to identify possible career paths and training goals for HIT professionals).
  o HIMSS Professional Development\(^{17}\) resources.
  o National / federal organizations and agency resources, such as the ONC website\(^{18}\).
• Take advantage of HIT industry certifications and certificate programs, such as:
  o HIMSS Certified Professional in Healthcare Management (CPHIMS)\(^{19}\).
  o AHIMA Commission on Certification for Health Informatics and Information Management (CCHIIM)\(^{20}\).
  o HIMSS HIT State Dashboard\(^{21}\) (listings, locations and other detailed information on academic HIT programs around the country).
• Reach out to peers and colleagues as referrals.
• Use social media to investigate potential employers and look for job opening announcements.

Future Research Recommendations
It is recommended that more studies should be conducted on the staffing and skill needs for supporting HIOs. For instance, a longitudinal study of an HIO that has been operational since 1994 would be a valuable resource. Additional research topics that would benefit the industry include the following:

• A focus on the evolutionary paths of HIOs over an extended period of time, including trends and shifts in staffing needs as the HIO matures and service offerings are added.
• Identification of any major differences in services and staffing requirements between for-profit and non-profit HIOs.
• Identification of key differences between regional, state and other (i.e., interstate or national) HIOs.
• Identification of the impact on staffing and skills required for service offerings that include both traditional and emerging registries (e.g., cancers, transplants, etc.). These were not specifically identified as areas of growth by the participating HIOs.
  o Investigate the roles of surveillance and public health for HIE sustainability, including their connection with registry organizations and how these service offerings may affect

\(^{15}\) HIMSS State HIT Dashboard, Healthcare Information and Management Systems Society (HIMSS).
\(^{16}\) Health Information Careers – Career Mapping, Health Information Careers. AHIMA, 2012.
\(^{17}\) Professional Development website, Healthcare Information and Management Systems Society (HIMSS).
\(^{18}\) The Office of the National Coordinator for Health Information Technology, US Department of Health & Human Services.
\(^{19}\) Certified Professional in Healthcare Information and Management Systems (CPHIMS), Healthcare Information and Management Systems Society (HIMSS).
\(^{20}\) AHIMA Commission on Certification for Health Informatics and Information Management (CCHIIM), American Health Information Management Association (AHIMA).
\(^{21}\) HIMSS State HIT Dashboard, Healthcare Information and Management Systems Society (HIMSS).
the staffing requirements for HIEs, as well as for registries and public health organizations.

- Investigate the impact on staffing and skill requirements by new service offerings that may be used to support future HIE financial sustainability models.
- Investigate whether there is any direct correlation between an HIO’s consent model and their staffing requirements, with the understanding that consent models help to form an underlying “fabric of trust” between HIOs and their participants.
- Determine how the rise of clinical informatics and analytics (i.e., clinical data mining and analysis of “big clinical data”) affects staffing requirements, and identify relevant changes in roles or staffing needs within HIOs that incorporate these services.
- Identify future sources for experienced and skilled staff in the most sought-after positions and skills sets, such as technology and data integration.
- Identify specific job training and education requirements that bridge clinical and IT skills, including specific requirements and consideration for different levels of expertise.
  - Investigate ways that HIOs and recruiters can work together to identify gaps.
- Create and administer a comparative survey between HIOs and their partner/member healthcare providers, since they will (in many cases) work closely together and share work efforts as a result of variables like skill sets, operational viability of the HIO, etc. Consider additional issues, such as relocation and salary, in either the initial survey or future studies.
- Investigate ways to leverage workforce development programs to fill staffing needs and integrate new program graduates quickly into the work setting.

Additionally, the results of this survey indicate that it would be valuable to follow this study with a more in-depth look at regional hiring practices among HIOs to confirm, expand upon and identify the potential causes for skewed geographic distributions. This additional investigation would clarify whether the survey results are reflective only of these survey participants, geographic characteristics specific to these areas, or if the results truly could be a potential geographic trend.

The inclusion of an organization name, product or service in this publication should not be construed as a HIMSS or AHIMA endorsement of such organization, product or service, nor is the failure to include an organization name, product or service to be construed as disapproval. The views expressed in this white paper are those of the authors and do not necessarily reflect the views of HIMSS or AHIMA. This white paper presents findings from the survey as self-reported by the survey’s participants, and is not intended to represent all HIE organizations. This paper is also not intended to represent scientific research, nor is it a statically accurate representation of the entire HIO population across the country.
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Appendix A: HIE Staffing Model Survey – HIEs

**Basic Information**

1. What is the official name of your HIE/HIO?

2. If the organization has been known by any other names or aliases, please list them here.

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

4. Please provide an email address so that you can receive a copy of the final white paper.

5. Is your HIE/HIO currently operational? 
   Yes / No

6. What was the date of the first data exchange?

7. What is the total number of employees in your HIE/HIO?

8. What is the total number of hospitals, physician practices and other organizations (e.g., payers, employers, first responders, etc.) participating in your HIE/HIO?

9. What is the estimated total number of patients and/or customers represented by these participating organizations?

10. Please indicate the types of transactions your HIE processes and, if known, indicate the percentage of total transactions each category represents.

   - Inpatient
   - Primary care physician office / medical practice
   - Public health
   - Behavioral health
   - Payers / Third-party administrators
   - Other
   - Outpatient clinic
   - Nursing home / Long-term care / Rehab facility
   - Emergency room
   - Specialty care physician office / medical practice
   - Government reporting

11. What is the governance structure of your HIE/HIO?

   - State agency or other government organization
   - For-profit
12. Is yours a state-designated HIE or a regional HIE?
   - State-designated HIE
   - Regional HIE

13. What method of consent do you use for participation?
   - Opt-in
   - Opt-out – affirmative documentation required
   - Other (please describe)
   - None
   - Opt-out – no affirmative documentation required

**Funding & Sustainability**

14. How does your HIE plan to become financially sustainable?
   - In-kind resources
   - Fees for service provided to 3rd party organizations (e.g., clinical trials)
   - Transaction fees
   - Contracts and cooperative agreements with non-participants
   - Grants
   - Membership dues / fees
   - Subscription service fees
   - Financial contributions / Donations
   - Cash loans or other valued resources which will have to be paid back
   - Other (please describe)

15. What are your HIE funding sources and, if known, what is the current and projected percentage of annual income from each source?
   - ONC
   - Other government grants / funding*
   - Payer membership fees
   - Hospital membership fees
   - Endowment income
   - Medicaid
   - Private grants / funding
   - Provider membership fees
   - Transaction fees
   - Other source (please describe)**

16. *If you selected “Other government grants / funding,” please list the specific funding sources that you intend to use.

17. If “Other source” is greater than 5%, please describe.
### HITECH Workforce Development

18. Are you partnering with one of the HITECH Workforce Development Consortia?*
   - Yes / No

19. Have you used, or are you currently using, HITECH Workforce Development interns?**
   - Yes / No

20. Have you hired any of the HITECH Workforce Development graduates?
   - Yes / No

21. *Please name the consortium(s) with which you’ve partnered.

22. **How many HITECH Workforce Development interns have you used / are you currently using?

### Existing Organization – Current Staffing

23. How many full-time employees do you currently have?

24. How many part-time employees do you currently have?

25. How many full-time positions are currently filled through job-sharing?

26. Do you currently have any on-site contractors or outsourced positions?*
   - Yes / No

27. *How many on-site contractors do you currently have?

28. *How many outsourced positions do you currently have?

29. *How do you determine the number of staff positions to be outsourced?

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

31. Please indicate the number of positions that are currently held by full-time employees, part-time employees, on-site contractors, job-sharing and/or are filled through outsourcing.
   - Technology
     - Security
   - Data integration
**Specific Vendor Product Support / Development**

32. Do you currently use any specific vendor product support and/or development?*
   - Yes / No

33. Are you currently seeking any specific vendor product support or development?**
   - Yes / No

34. *Please describe the specific vendor product support or development you currently use.

35. **Please describe the specific vendor product support or development you are currently seeking.

**Your Staffing Needs – Skills and Qualifications**

36. Please indicate which specific skills and qualifications your HIE organization is currently seeking.

**Technology**
- Security
- Data integrity
- Data quality / Compliance
- Technical project management
- Business intelligence / Reporting
- Help desk / Support
- Connectivity
- Payment processing
- Software application support (e.g., EHR)
- Specifications / Design / Coding / Testing
- Other (please specify)

**Operations**
- Executive management
- Marketing / Sales / PR
- Human resources
- Master patient/client index
- Adult education
- Product/services management
- Finance
- Legal
- Documentation
- Other (please specify)

**Participant Coordination**
- Fundraising / Capital / Sustainability
- Data governance
- Patient/member advocates
- Governmental regulations (federal / state / regulatory / standards bodies)
- Participant account management
- Operations governance
- Industry-specific subject matter experts (SMEs)
- Other (please specify)

**Other**
- Privacy / Security
- HIM skills (e.g., managing duplication of medical record numbers)
- Business development and/or Sales
- Other (please specify)
- Help desk / Support
  - Other (please specify)

**Operations**
- Executive management
- Marketing / Sales / PR
- Human resources
- Master patient/client index
- Adult education
  - Product/services management
  - Finance
  - Legal
  - Documentation
  - Other (please specify)

**Participant Coordination**
- Fundraising / Capital / Sustainability
- Data governance
- Patient/member advocates
- Governmental regulations (federal / state / regulatory / standards bodies)
  - Participant account management
  - Operations governance
  - Industry-specific subject matter experts (SMEs)
  - Other (please specify)

**Other**
- Privacy / Security
- HIM skills (e.g., managing duplication of medical record numbers)
  - Business development and/or Sales
  - Other (please specify)

37. Please indicate the salary range for positions your HIE organization is currently seeking.
- Below $75,000
- $75,000 - $89,999
- $120,000 - $149,999
- $150,000 and above

38. Please identify the advanced degrees your organization is currently seeking, and indicate the area(s) of specialization.
- Bachelor’s Degree
- Doctor of Philosophy (PhD)
- Juris Doctor (JD)
  - Master’s Degree
  - Doctor of Medicine (MD)
  - Other (please specify)

39. Please identify the certifications your organization is currently seeking.
- CPHIMS
- CISSP
- CHPS
- Health Informatics Certification
- Nursing Informatics Certification
- Vendor-specific – Oracle
- Vendor-specific – Other**
  - PMP
  - RHIA
  - RHIT
  - Medical Informatics Certification
  - Vendor-specific – Microsoft*
  - Vendor-specific – Cisco

40. *If you selected “Vendor-specific – Microsoft” please describe.

41. **If you selected “Vendor-specific – Other” please describe.
Your Staffing Needs – Problem Areas

42. Please indicate which specific skill sets and/or job positions you find difficult to fill with qualified and experienced people.

Technology
- Security
- Data integrity
- Data quality / Compliance
- Technical project management
- Business intelligence / Reporting
- Help desk / Support
- Data integration
- Connectivity
- Payment processing
- Software application support (e.g., EHR)
- Specifications/Design/Coding/Testing
- Other (please specify)

Operations
- Executive management
- Marketing / Sales / PR
- Human resources
- Master patient/client index
- Adult education
- Product/services management
- Finance
- Legal
- Documentation
- Other (please specify)

Participant Coordination
- Fundraising / Capital / Sustainability
- Data governance
- Patient/member advocates
- Governmental regulations (federal / state / regulatory / standards bodies)
- Participant account management
- Operations governance
- Industry-specific subject matter experts (SMEs)
- Other (please specify)

Other
- Privacy / Security
- HIM skills (e.g., manage duplication of medical record numbers)
- Business development and/or Sales
- Other (please specify)

43. Have you faced any of the following staffing challenges within the past 6 months?

- Lack of available candidates
- Salary requirements too high
- Narrow skillset / career focus of candidates
- No healthcare experience
- Local competition for same talents
- Losing good employees / contractors to other opportunities
- Other (please specify)

Recruiting Practices

44. How do you find candidates for open positions?

- Recruiting firms
- Referrals
- School alumni programs
- Other (please specify)
- Job boards
- Professional organizations
- Conferences / Events
## Final Thoughts

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>45. Would you be willing to provide us with a current organizational chart?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>46. Would you be willing to provide job descriptions?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>47. Are you interested in further participation?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>48. Please provide any additional thoughts, recommendations or concerns that you’d like to share with AHIMA, HIMSS, HIE job candidates, recruiters and other readers of this white paper.</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B: HIE Staffing Model Survey – Recruiters

Basic Information

1. What is your title?

2. Please provide an email address so that you can receive a copy of the final white paper.

3. How are you typically selected to recruit for an HIE?
   - Referral from previous client
   - Experience in IT placements
   - Previous recruiting with client for non-HIE positions
   - Previous recruiting with client for HIE positions
   - Proactive outreach to potential clients
   - Other (please describe)

Recruiting History

4. Which of the following positions have you previously recruited for an HIE/HIO? 
(Please indicate whether these were full-time, part-time, contract or job-sharing.
   Technology
   - Security
   - Data integrity
   - Data quality / Compliance
   - Technical project management
   - Business intelligence / Reporting
   - Help desk / Support
   - Data integration
   - Connectivity
   - Payment processing
   - Software application support (e.g., EHR)
   - Specifications / Design / Coding / Testing
   - Other (please specify)

   Operations
   - Executive management
   - Marketing / Sales / PR
   - Human resources
   - Master patient/client index
   - Adult education
   - Product/services management
   - Finance
   - Legal
   - Documentation
   - Other (please specify)

   Participant Coordination
   - Fundraising / Capital / Sustainability
   - Data governance
   - Patient/member advocates
   - Governmental regulations (federal / state / regulatory / standards bodies)
   - Participant account management
   - Operations governance
   - Industry-specific subject matter experts (SMEs)
   - Other (please specify)

   Other
   - Privacy / Security
   - HIM skills (e.g., managing duplication of medical record numbers)
   - Business development and/or Sales
   - Other (please specify)
5. Please indicate the salary range for positions you have previously recruited for an HIE organization.

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

6. Which of the following positions are you currently recruiting for an HIE/HIO?

**Technology**
- Security
- Data integrity
- Data quality / Compliance
- Technical project management
- Business intelligence / Reporting
- Help desk / Support
- Data integration
- Connectivity
- Payment processing
- Software application support (e.g., EHR)
- Specifications / Design / Coding / Testing
- Other (please specify)

**Operations**
- Executive management
- Marketing / Sales / PR
- Human resources
- Master patient/client index
- Adult education
- Product/services management
- Finance
- Legal
- Documentation
- Other (please specify)

**Participant Coordination**
- Fundraising / Capital / Sustainability
- Data governance
- Patient/member advocates
- Governmental regulations (federal / state / regulatory / standards bodies)
- Participant account management
- Operations governance
- Industry-specific subject matter experts (SMEs)
- Other (please specify)

**Other**
- Privacy / Security
- HIM skills (e.g., managing duplication of medical record numbers)
- Business development and/or Sales
- Other (please specify)

7. Please indicate the salary range for positions you are currently recruiting for an HIE organization.

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

**Industry Demand**

8. Based on the positions you have previously recruited, or are currently recruiting, for an HIE organization, which of the following skill sets are in demand?

**Technology**
- Security
- Data integrity
- Data integration
- Connectivity
AHIMA/HIMSS  Trends in Health Information Exchange Organizational Staffing

13. Please indicate which specific sets and/or job positions you find difficult to fill with qualified and experienced people.

Technology

Data quality / Compliance
- Technical project management
- Business intelligence / Reporting
- Help desk / Support

Payment processing
- Software application support (e.g., EHR)
- Specifications / Design / Coding / Testing

Other (please specify)

Operations
- Executive management
- Marketing / Sales / PR
- Human resources
- Master patient/client index
- Adult education

Product/services management
- Finance
- Legal
- Documentation

Other (please specify)

Participant Coordination
- Fundraising / Capital / Sustainability
- Data governance
- Patient/member advocates
- Governmental regulations (federal / state / regulatory / standards bodies)

Participant account management
- Operations governance
- Industry-specific subject matter experts (SMEs)

Other (please specify)

Other
- Privacy / Security
- HIM skills (e.g., managing duplication of medical record numbers)

Business development and/or Sales
- Other (please specify)

9. Which of the following advanced degrees are in demand?
- Bachelor’s Degree
- Doctor of Philosophy (PhD)
- Juris Doctor (JD)

Master’s Degree
- Doctor of Medicine (MD)
- Other (please specify)

10. Which of the following professional certifications are in demand?
- CPHIMS
- CISSP
- CHPS
- Health Informatics Certification
- Nursing Informatics Certification
- Vendor-specific – Microsoft*
- Vendor-specific – Oracle
- Vendor-specific – Other**

PMP
- RHIA
- RHIT
- Medical Informatics Certification
- Vendor-specific – Microsoft*
- Vendor-specific – Cisco

11. *If you selected “Vendor-specific – Microsoft” please describe.

12. **If you selected “Vendor-specific – Other” please describe.
14. Have you and/or the HIE organization(s) with whom you work faced any of the following staffing challenges within the past 6 months?

- Lack of available candidates
- Salary requirements too high
- Narrow skillset / career focus of candidates
- No healthcare experience
- Local competition for same talents
- Other (please specify)
- Losing good employees / contractors to other opportunities
- Other (please specify)

Advice to HIE Job Seekers

15. Through your experience and observations, what should potential candidates do to position themselves for HIE opportunities?

- Additional education (please describe)
- Additional credentials (please describe)
- Additional experience (please describe)
- Availability for relocation
- Other (please describe)

Final Thoughts

16. Are you interested in further participation?

Yes / No
17. Please provide any additional thoughts, recommendations or concerns that you’d like to share with AHIMA, HIMSS, HIE job candidates, recruiters and other readers of this white paper.
My name is ________________, and I am reaching out to you today as a volunteer with the HIMSS/AHIMA Health (HIE) Staffing Model Joint Workgroup project. The national vision of health data exchange, mediated by regional or statewide Health Information Exchanges (HIE), continues to be a central approach to sharing health information. The Healthcare Information and Management Systems Society (HIMSS) and the American Health Information Management Association (AHIMA) are providing organizational oversight of a collaborative Joint Workgroup project with the objective of identifying and investigating the universe of possible job opportunities and corresponding skill sets required in HIE settings. The findings of this study will be delivered in the form of a report published in the Journal of Healthcare Information Management (JHIM) and the Journal of AHIMA (JAHIMA).

**About the Project**

This Joint Workgroup seeks to identify HIE staffing models in the current environment and emerging trends in HIE staffing models and required skill sets. The surveys target individuals who are responsible for recruiting, as well as those responsible for staffing HIE organizations. To achieve this goal, we’ve developed one survey specifically for recruiters and another survey targeted specifically for HIE organizations. The surveys are designed to collect information on the following topics:

- Identification of skill sets unique to HIE organizations
- Required education and skills, particularly HIM- and HIT-related education and expertise
- Collection of organizational charts & job descriptions
- Distribution of part-time and full-time staff in organizations
- Identification and classification of job skills
- Analysis of current and planned use of outsourcing and contractors
- Review of available HIE job opportunities
- Identification of HIE job roles that would benefit from HIM- and HIT-focused education and expertise
- Additional education and training that would prepare Health Information Management (HIM) and Health Information Technology (HIT) professionals for jobs in the HIE settings

**Participation Details**

Your participation in the HIE Staffing Model Environmental Scan survey will provide valuable workforce insight that will benefit both HIE organizations and healthcare professionals seeking opportunities in the emerging HIE domain. We anticipate that completion of this survey will take
fifteen to twenty (15-20) minutes. Participants in this study will receive a complementary pre-publication copy of the project white paper.

Your participation in this survey is voluntary. Your organization will not be identified in the results and all related information about your organization will be de-identified in the white paper. Additionally, your individual privacy will be maintained in all published and written data resulting from the study. If we are interested in using a specific response or example in the paper, we will first contact you for consent.

*Please note:* There are two surveys below. Please choose the survey that best fits your relationship to health information exchanges.

Thank you for your participation in advance,

**Name & contact information**

**HIE Staffing Model Survey – HIEs/HIOs**

[CLICK THIS LINK FOR INSTRUCTIONS AND TO START THE SURVEY](#)

(If you would prefer to have assistance in completing this survey, we would be happy to schedule a one-on-one telephone interview instead. **To schedule a time for your interview, please contact me using the phone number or email address listed above.**)

**HIE Staffing Model Survey – Recruiters**

[CLICK THIS LINK FOR INSTRUCTIONS AND TO START THE SURVEY](#)

**Contact information for research supervisors and support:**

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Julie A. Dooling, RHIT – AHIMA

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Julie Moffitt, Coordinator, Regional Affairs – HIMSS

[jmoffitt@himss.org](mailto:jmoffitt@himss.org) / (312) 915-9537
Appendix D: Survey Participation Flyer

The Healthcare Information and Management Systems Society (HIMSS) and the American Health Information Management Association (AHIMA) are providing organizational oversight of a collaborative Joint Workgroup project with the objective of identifying and investigating the universe of possible job opportunities and corresponding skill sets required in HIE settings. The findings of this study will be delivered in the form of a report published in the Journal of Healthcare Information Management (JHIM) and the Journal of AHIMA (JAHIMA).

The Joint Workgroup seeks to identify HIE staffing models in the current environment and emerging trends in HIE staffing models and required skill sets. The surveys target individuals who are responsible for recruiting, as well as those responsible for staffing HIE organizations. To achieve this goal, we’ve developed one survey specifically for recruiters and another survey targeted specifically for HIE organizations.

RECRUITERS: To participate in the survey, please visit http://ow.ly/8Ut64

HIEs/HIOs: To participate in the survey, please contact us.

We would like to reach out to you to schedule a one-on-one telephone interview to assist you in completing the survey.

To schedule a time for your interview, please contact us (see below).

Questions? Please contact us:

Pam Matthews pmatthews@himss.org
Julie Moffitt jmoffitt@himss.org
Harry Rhodes Harry.Rhodes@ahima.org
Julie Dooling Julie.Dooling@ahima.org
### Appendix E: Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>AHIMA</td>
<td>American Health Information Management Association</td>
</tr>
<tr>
<td>CHPS</td>
<td>Certified in Healthcare Privacy and Security <em>(certification)</em></td>
</tr>
<tr>
<td>CISSP</td>
<td>Certified Information Systems Security Professional <em>(certification)</em></td>
</tr>
<tr>
<td>CMS</td>
<td>Centers for Medicare and Medicaid Services</td>
</tr>
<tr>
<td>CPHIMS</td>
<td>Certified Professional in Healthcare Information and Management Systems <em>(certification)</em></td>
</tr>
<tr>
<td>ED</td>
<td>Emergency Department</td>
</tr>
<tr>
<td>EHR</td>
<td>Electronic Health Record</td>
</tr>
<tr>
<td>HIE</td>
<td>Health Information Exchange</td>
</tr>
<tr>
<td>HIO</td>
<td>Health Information Exchange Organization</td>
</tr>
<tr>
<td>HIM</td>
<td>Health Information Management</td>
</tr>
<tr>
<td>HIMSS</td>
<td>Healthcare Information and Management Systems Society</td>
</tr>
<tr>
<td>HIT</td>
<td>Health Information Technology</td>
</tr>
<tr>
<td>HITECH</td>
<td>Health Information Technology for Economic and Clinical Health</td>
</tr>
<tr>
<td>MPI</td>
<td>Master Patient Index</td>
</tr>
<tr>
<td>ONC</td>
<td>Office of the National Coordinator for Health Information Technology</td>
</tr>
<tr>
<td>PHR</td>
<td>Personal Health Record</td>
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<tr>
<td>PIN</td>
<td>Program Information Notice (ONC)</td>
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<tr>
<td>PMP</td>
<td>Project Management Professional <em>(certification)</em></td>
</tr>
<tr>
<td>REC</td>
<td>Regional Extension Center</td>
</tr>
<tr>
<td>RHIA</td>
<td>Registered Health Information Administrator <em>(certification)</em></td>
</tr>
<tr>
<td>RHIT</td>
<td>Registered Health Information Technician <em>(certification)</em></td>
</tr>
<tr>
<td>SDE</td>
<td>State-Designated Entity</td>
</tr>
<tr>
<td>SME</td>
<td>Subject Matter Expert</td>
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