

# FINAL REPORT: EXECUTIVE SUMMARY

## Evaluation of the Information Technology Professionals in Health Care (“Workforce”) Program - Summative Report

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## EXECUTIVE SUMMARY

To help address the increasing and evolving demands of the current health care and policy environments, the Office of the National Coordinator for Health Information Technology (ONC) developed the Information Technology (IT) Professionals in Health Care Program (referred to as the “Workforce Program”). The Workforce Program was authorized under Section 3016 of the Public Health Service Act (PHSA), as added by Title XIII in Division A of the American Recovery and Reinvestment Act (ARRA) of 2009.<sup>1</sup> The program’s primary goal is to rapidly and sustainably train a new workforce of health IT professionals to help providers implement and optimize electronic health records (EHRs) to improve health care quality, safety, and cost-efficiency.

The Workforce Program is comprised of four constituent programs: the Community College Consortia to Educate Information Technology Professionals in Health Care program (CCC program), the Program of Assistance for University-Based Training (UBT program), the Curriculum Development Centers program (the Developers), and the Competency Examination for Individuals Completing Non-Degree Training program (also known as the HIT Pro Examination). In total, ONC awarded \$116 million in funding across these four constituent programs. All four programs were funded in April 2010. ONC funded the CCCs, the Developers, and Competency Examination programs through two-year cooperative agreements, and the UBTs through grants of 39 months in duration. The four constituent programs are described below.

- *Program of Assistance for University-Based Training (UBT)*. This program provided grant funds totaling \$32 million to nine colleges and universities to create or expand health IT training programs focused on health IT roles that were determined to require a high level of training. The training programs focused on the following six professional roles: clinician or public health leader; health information management and exchange specialist; health information privacy and security specialist; research and development scientist; programmers and software engineer; and health IT sub-specialist. Over the course of the grants, these programs awarded nearly 1,700 master’s degrees or certificates of advanced study in health IT. (Period of performance: April 2010 – October 2013)
- *Community College Consortia (CCC) to Educate Information Technology Professionals in Health Care*. This program provided \$68 million to five consortia, which supported approximately 81 community colleges covering all 50 states, to establish or improve non-degree health IT training programs designed to be completed within six months. The overarching goal of the CCC program was to enhance the capacity of the nation's community colleges to train 10,500 health IT specialists annually. The training programs were designed for professionals with an IT or health care background and focused on training students for the following six professional roles: practice workflow and

information management redesign specialists; clinician/practitioner consultants; implementation support specialists; implementation managers; technical/software support; and trainers. (Period of performance: April 2010 – October 2013)

- *Curriculum Development Centers Program (the Centers)*. ONC awarded a total of \$10 million in cooperative agreements to five universities—four of which also received funding under the university-based training component of the program—to develop health IT educational materials for the CCC program. The materials were available to other schools outside of the Workforce Program for wider use across the country. Furthermore, ONC awarded one grantee additional funds to serve as the National Training and Dissemination Center (NTDC), who provided technical support to the grantee institutions and established a secure electronic site from which all materials were available for download through the end of 2012. (Period of performance: April 2010 – March 2013)
- *Competency Examination for Individuals Completing Non-Degree Training (HIT Pro Exam)*. ONC awarded one two-year, \$6 million cooperative agreement to Northern Virginia Community College (NOVA) to fund the design and initial administration of competency exams in health IT for the six professional roles that are the focus of the CCC program. NOVA worked with Pearson VUE and the American Health Information Management Association (AHIMA) to develop and administer the competency exams. NOVA made vouchers available to cover the cost of the Exam for individuals who completed one of the CCC programs. Other health IT professionals were eligible to sit for the examination. (Period of performance: April 2010 – March 2013)

## Evaluation Overview

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In 2010, ONC funded NORC at the University of Chicago (NORC) to design and conduct a formative and summative evaluation of the Workforce Program to understand and capture the processes used by grantees to implement the program, assess program effectiveness, and uncover best practices and lessons learned. The NORC evaluation was charged with addressing the following three basic research questions:

1. What processes did the grantees use to implement the programs and meet program goals (e.g., barriers, lessons learned, successful strategies, coordination, program satisfaction)?
2. To what extent did the grantees meet the requirements of the Workforce Program (e.g., implementing new educational programs, matriculating and training the expected number of students, developing adequate curriculum materials, and developing and administering a competency exam)?
3. To what extent did participants in the program gain and maintain employment in health IT (e.g., job placement, job retention, salary, promotion, job readiness, employer needs)?

In the course of its data collection efforts, the evaluation team gathered information on these items as well as other characteristics and outcomes of interest with respect to the programs' success. This report presents the findings of the national program evaluation, which used a mixed-methods approach that relied on a range of data sources, including the following:

- *Student surveys.* NORC surveyed CCC and UBT students after they completed their training program. A follow-up survey gathered additional information capturing employment outcomes.
- *Survey of faculty.* Instructors at the community colleges were asked to complete a survey about their use and satisfaction of the materials developed by the curricula development centers.
- *Site visits.* NORC conducted site visits to 18 community colleges and all 9 of the universities that received UBT grant funding. During these visits, the evaluation team conducted classroom observations, discussions with stakeholders, and focus groups.
- *Focus groups.* The evaluation team conducted focus groups with students, faculty members, and competency exam takers.
- *Interviews with stakeholders.* During the site visits, we interviewed program directors, career counselors, faculty, and employers about their experiences with the Workforce Program, successful strategies, and common barriers to program implementation.
- *Interviews with grantee leads.* In order to document how the program evolved over time, NORC interviewed the grantee leads during each of the three years.
- *Administrative data.* In order to supplement these primary data collection efforts, ONC provided NORC with administrative data that were routinely gathered from grantees to provide information regarding the characteristics and key design elements of each school's program and enrolled population. The administrative data also included information on the curriculum and HIT Pro Exam such as the number of downloads, tests administered, among other measures.

This Executive Summary includes a brief overview of the findings gathered over the course of the evaluation on each component of the overall program.

## **Program of Assistance for University-Based Training (UBT)**

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The universities that received funding through the Program of Assistance for University-Based Training (UBT) used their grants in a variety of ways, including transitioning existing programs to an online format, providing financial support to students, creating new courses to expand existing programs, and hiring faculty and support personnel. Most UBT programs used some form of online learning. Of note,

some UBTs had to devote additional resources to the implementation of online learning platforms, as some faculty and students had difficulty adjusting to the new formats. To help with this challenge, programs set up specific trainings for faculty teaching online for the first time, and faculty members worked closely with students to ensure they were able to easily navigate the online tools needed to complete course work.

UBTs applied many of the same application and recruitment processes they used for their existing programs. At the outset, some UBTs faced difficulty in communicating the program's rigor to students, especially to those enrolled in certificate programs. To ensure that students were prepared, UBTs worked to communicate the expectations during the application processes and used student orientations to further convey information regarding workload and expectations.

In general, universities successfully trained students across all of the UBT Workforce Program's roles, at both the certificate and master's levels. As of December 2013, 1,704 individuals had completed the program and 86 individuals were still enrolled in the training. The attrition rate across the UBT programs was 12 percent (certificate: 11 percent; master's: 15 percent). The majority of students were satisfied with the program, with 56 percent of students indicating they were very satisfied and 33 percent were somewhat satisfied with the program during the follow-up survey.

Based on data from the follow-up surveys of all three UBT cohorts, 89 percent of students reported being employed after completing the program, a significant increase from the share employed at the time of the first survey (64 percent). Similarly, students were more likely to be employed in the field of health IT after completing the program than they had been previously, with 35 percent of students reporting that they were employed in health IT at baseline, and 64 percent reporting that they were employed in health IT at follow-up. Students found employment in a number of settings, with the greatest proportion of students reporting being employed in a hospital setting.

Variability in local job markets affected some students' ability to find employment. A number of students overcame this obstacle by relocating. While neither ONC nor the UBTs can control local job markets, increased coordination and communication with local employers could have mitigated this challenge. Further, a number of employers were not aware of the UBT programs. Several program leadership teams had recommendations for combating this issue, including having ONC assist with publicizing the programs to employers and encouraging them to post job opportunities on a centralized website, and collaborate with organizations such as the Health Information and Management Systems Society (HIMSS) and the American Medical Informatics Association (AMIA) to educate their members about the

programs. Overall, students, faculty members and employers felt the content of the courses provided students with a good baseline understanding of the field and poised them well to find employment.

## **Community College Consortia (CCC) to Educate Information Technology Professionals in Health Care**

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The community colleges participating in the CCC program approached implementation of the programs in a variety of ways. The flexibility afforded grantees in terms of the learning format and use of the Workforce Program's roles proved critical to the ability to launch the programs in a timely manner and to students' satisfaction. For instance, online learning was a popular learning format among many students, with two-thirds of students taking courses exclusively online. While students appreciated the flexibility that online learning provided, others desired face-to-face opportunities for in-person and hands-on training and networking.

For-credit programs generally appealed more to students than did those that did not offer credit, as did the opportunity to receive government funding to pay for the training. Colleges found success with informal word-of-mouth marketing to recruit students and found student orientations a valuable way to set student expectations regarding the workload. Nearly all faculty members were adjunct instructors who also worked in the field of health IT and whose real-world experience was of great value to students.

Students had diverse backgrounds in terms of their prior employment and educational backgrounds. In general, those with a health care background found some of the IT course material especially challenging, whereas those with an IT background had challenges breaking into the health care field upon graduation (and often had higher salary expectations as well). Schools that either proactively placed students in roles depending on their background or modified roles to meet employers' needs reported more success in terms of students completing the program and finding employment.

The CCC program was effective in enabling colleges to offer non-degree health IT training programs. Across all five consortia, 19,773 individuals had completed the program as of October 2013. The attrition rate across regions was 37.7%, but varied by region. In general, students expressed high rates of overall satisfaction with the CCC program, with 26 percent of students reporting they were very satisfied and 46 percent reporting they were somewhat satisfied with the program during the follow-up survey. More than six in ten students agreed strongly or somewhat that their instructors were knowledgeable in the subject matter (69 percent) and were effective teachers (63 percent). Similarly, majorities of students strongly or somewhat agreed that the courses met their general expectations of the program (68 percent), the required

courses fit together to form a cohesive training program (68 percent), and the courses had given them a clear understanding of the subject matter (70 percent).

CCC instructors had similarly positive feedback about the program. One issue that did affect student and faculty satisfaction, as well as attrition rates, was that many students were not sufficiently prepared for the level of difficulty of the courses and/or the workload. Indeed, many students, faculty members, program leadership teams, and employers alike found the requirement that students complete their training in six months to be a challenge. These stakeholders were also skeptical that a six-month, non-credit program without a certification would provide students sufficient health IT training to be able to find jobs in the field, especially ones that offer acceptable salaries.

As was the case with the UBT students, students from the community college programs were more likely to be employed, and in health IT in particular, after the program than they had been beforehand. At baseline, 77 percent of students reported having a job; at follow-up, a similar proportion of respondents were employed (80 percent). At follow-up, overall, 34 percent of students reported employment in health IT. The third cohort received a unique question at follow-up, asked only of those who responded that they were not working in health IT, which asked about health IT responsibilities. Among this group, 28% reported working in health IT and an additional 40% reported having health IT related responsibilities. Cohorts 1 and 2 may have had a similar proportion of students with health IT responsibilities had the question been asked of them as well.

Students who found a job with a different employer after completing the program believed that their program participation had a strong impact on obtaining their new job or job title. Students still seeking a job felt strongly that the skills they had learned in the program would help them obtain a job in health IT and perform well in it.

Employers and instructors highlighted the importance of both hands-on training and real-life experience as necessary to prepare individuals for the health IT workforce. In order to create hands-on experiences for students, some program administrators had reached out to providers and vendors in the community to set up internship programs for their students. Employers hiring program graduates were generally pleased with their performance, but many noted the graduates needed to work on their “soft skills” that are usually acquired through real-world experiences.

## Curriculum Development Centers (the Developers)

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All of the Developers funded to support the Workforce Program had significant prior experience in health IT training programs before the launch of this program. Developers worked with community colleges' advisory boards or committees composed of stakeholders to develop the materials. The five Developers worked together and with ONC to design a cohesive set of components using a consensus-based decision-making process. Although they collaborated with one another, with community colleges (some of which were CCC grantees), and with their advisory boards, many wished they had more chances to communicate with both the CCCs and the HIT Pro Exam grantee during the development process. They noted that stronger partnerships with the CCCs would have helped them target the materials to the correct audience, as many Developers struggled to create materials appropriate for the types of students who ended up enrolling in the CCC programs.

The elements created by the Developers included PowerPoint slides with voice-over narration and recordings; class activities and homework assignments; self-assessment questions; and links to supplemental readings and other resources. Over the course of the grant, the Developers created three versions of the materials, using feedback collected by the National Training and Dissemination Center (NTDC) from users to make improvements to each version. The NTDC surveyed CCC instructors to collect feedback, and users were able to submit ad-hoc feedback using a function on the NTDC website.

Across the board, the Developers felt the materials should have been developed prior to the start of the CCC program, as opposed to in parallel with the CCC program's implementation. Additionally, while the Developers felt the "buffet" approach to the curriculum was effective in allowing community colleges to select which materials to teach, some noted drawbacks of having five universities design separate components, including issues with consistency. The Developers also noted that the short development timeline limited collaboration among the Developers, as they did not have time to review one another's materials prior to distribution.

All in all, the Curriculum Development Program was successful in providing materials to the CCCs and members of the general public alike. In general, instructors felt the materials were comprehensive and would provide students with a foundation in health IT. The evaluation team also gathered information about CCC administrators', faculty members', and students' perceptions of the materials through site visit discussions and surveys of CCC students and faculty. From November 2011 to March 2013, the NTDC site received 113,982 visits and saw 187,683 downloads.



Stakeholders had some issues and concerns with the materials, but noted that many of these issues were corrected in later versions of the materials. The NTDC contracted with the American Medical Informatics Association (AMIA) to do a “gaps and overlaps” analysis of the existing materials across the set of 20 components. This analysis identified useful information that was missing from the materials as well as instances where multiple components covered the same content. The Developers used this information to revise the materials.

Many of the grantees (the Developers and CCCs alike) appreciated that it can be difficult to create materials for a rapidly evolving field and that the revision cycles helped ensure that new information could be incorporated into the materials; however, they also acknowledged the need for individual instructors to augment the materials with new information as the field evolves. Many instructors did modify the materials, and integrated information from other sources such as recent YouTube videos and publications into their courses. Even in a rapidly evolving field, the materials and programs were able to provide a foundation upon which students can continue to build upon throughout their careers. Despite these concerns, all of the CCCs were happy to have received the materials, and many noted they would not have been able to implement the programs in such a short timeframe without them.

### **Competency Examination for Individuals Completing Non-Degree Training**

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NOVA partnered with AHIMA to develop a competency exam for each of the six CCC-targeted roles. They in turn worked with Pearson VUE to secure test locations and widespread dissemination of the examinations. The exam developers established an advisory council of 22 industry stakeholders that included representatives from the Developers, the CCCs, RECs, the Department of Labor, and various employers and then convened teams to work on each role-specific exam. In consultation with industry leaders, these teams identified the knowledge, skills, and abilities necessary to fulfill the responsibilities associated with each role. The development team used this information to draft the six role-specific exams, which were then reviewed by subject matter experts, and cross-walked against a jobs analysis (previously performed by AHIMA) and the materials created by the Developers. These cross-walking exercises yielded largely consistent results, suggesting that their initial work aligned well with the learning objectives in the curriculum materials.

At the outset of the program, ONC set a goal of administering 10,000 exams. Initial progress toward this goal was slow. However, the grantees issued more than 9,500 vouchers and there were more than 10,400 exams scheduled as of March 31, 2013, marking a large increase from March of 2012. The exam's pass rate was 62%. When the evaluation team spoke to the exam developers in 2012, they reported that the

number of exams administered at the time was well below the numbers they had expected. They attributed this to several factors, including: community colleges not placing an emphasis on program graduates taking the exam; the fact that the exam was not a graduation requirement; lack of advertising about the exam; the fact that passing the exam would not confer any credential; and employers' lack of awareness of the exam or its value. Indeed, while many students elected to take the exam because they hoped it would help to make them more marketable, the employers the evaluation team interviewed over the course of the evaluation remained largely unaware of the exam and were not sure what it demonstrated in terms of an applicant's skill set.

The HIT Pro exam has since been transitioned to the AHIMA-Certified Healthcare Technology Specialist (CHTS) credential, which does confer a certification.<sup>ii</sup> The team held a follow-up conversation with AHIMA in late 2013 about the large increase in the number of exams scheduled at the end of the funding period. Notably, during the final three months of grant funding, AHIMA changed the initial policy of allowing only one free exam per student. They then allowed anyone to take the exam and as many as they wanted, free of charge. Additionally, the grantees changed the messaging in their outreach efforts. During the final three months of the grant funding, email outreach emphasized the exam would no longer be free after March 2013 and that individuals should "act quickly" if they wanted to take the exam without a fee. Providing all exams free of charge and allowing exam takers to sit for more than one exam, in combination with promoting the fact that individuals would have to pay for exams in the future, led to a large increase in the number of exams delivered at the end of the period of grant funding. Employers' general lack of awareness of the exam remained a challenge, however.

## Cross-Cutting Findings and Sustainability

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Looking across the findings and information gathered from the full array of evaluation activities across all four components of the program, a number of common themes shed light on the program's success as a whole—and can be readily applied to other schools looking to launch or improve workforce training programs.

First, individuals associated with all four components of the program voiced the importance of communication with other grantees and clarity of purpose at the outset. Second, given the overarching purpose of the training program, all grantees and stakeholders noted the extreme importance of forging solid connections with the employer community. Third, the flexibility that ONC provided the grantees emerged as one of its greatest assets and this manifested in several ways, including allowing for different

learning formats and providing the CCCs the ability to adapt the curriculum materials to their needs and capacities.

Although grantees are no longer receiving grant funding, at present, 63 of the original CCCs and all nine of the UBTs that received grant funding are continuing their health IT educational offerings. As noted above, the HIT Pro exam has been transitioned to the AHIMA Certified Healthcare Technology Specialist (CHTS) credential. The curriculum materials are now publicly available and are thus not limited to those affiliated with the Workforce Programs. Looking forward, colleges and universities have a variety of plans in place for their training programs, including creating longer training programs with more of a focus on hands-on learning, transitioning certificate programs to master's programs, and combining various training programs in strategic ways. Program leadership teams all noted that they look forward to continuing to adapt their programs to the rapidly evolving field of health IT.

## References

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<sup>i</sup> Section 3016 of the Public Health Service Act (PHSA), as added by Title XIII in Division A of the American Recovery and Reinvestment Act of 2009, calls for “assistance to institutions of higher education (or consortia thereof) to establish or expand medical health informatics education programs, including certification, undergraduate, and master’s degree programs, for both health care and information technology students to ensure the rapid and effective utilization and development of health information technologies (in the United States health care infrastructure).”

<sup>ii</sup> AHIMA. Certified Healthcare Technology Specialist (CHTS) Exams. Accessed 1/13/2014 from: <http://www.ahima.org/certification/chts>