Certification of Imaging Informatics Professionals (CIIP): 2010 Survey of Diplomates

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Abstract The Certification for Imaging Informatics Professionals (CIIP) program is sponsored by the Society of Imaging Informatics in Medicine and the American Registry of Radiologic Technologists through the American Board of Imaging Informatics. In 2005, a survey was conducted of radiologists, technologists, information technology specialists, corporate information officers, and radiology administrators to identify the competencies and skill set that would define a successful PACS administrator. The CIIP examination was created in 2007 in response to the need for an objective way to test for such competencies, and there have been 767 professionals who have been certified through this program to date. The validity of the psychometric integrity of the examination has been previously established. In order to further understand the impact and future direction of the CIIP certification on diplomats, a survey was conducted in 2010. This paper will discuss the results of the survey.

Keywords PACS administration · Informatics training · Medical informatics applications

Introduction

Picture archiving and communication systems (PACS) are now firmly established, with a recent survey of 600 health-care professionals reporting PACS installations in up to 96 % of their healthcare facilities of varying sizes [1]. In spite of the integral role of PACS in contemporary clinical imaging—as evidenced by its widespread adoption—its successful implementation and maintenance still depend on the knowledge and ability of individual PACS administrators. In the past, this meant that a PACS administrator had to have vendor-specific technical knowledge and experience. The commoditization and maturation of PACS have mitigated this historical emphasis on site- and vendor-specific technical expertise. In so doing, it has facilitated the development of a standardized skillset among PACS administrators that can be used to maintain quality across different institutions and PACS vendors. The Certification for Imaging Informatics Professionals (CIIP) program is sponsored by the Society of Imaging Informatics in Medicine (SIIM) and the American Registry of Radiologic Technologists through the American Board of Imaging Informatics (ABII). The ABII certification program is designed to objectively test and certify PACS administrators based on competency criteria established through prior analysis of their job tasks and requirements [2, 3]. There are 150 questions in the 10 major knowledge domains. Candidates must meet eligibility criteria based on health IT experience, education, and credentialing [4]. To date, 767 professionals have been certified through this program. A survey was conducted in 2010 to understand the impact and future direction of the CIIP certification on diplomats. This paper will discuss the results of the survey.

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Table 1 Question 1

Is your leadership aware of CIIP certification?		
Radiology chairman	86	35 %
Department administrator	167	69 %
Chief information officer	71	29 %
Human resources	55	23 %
Other	55	23 %

Results are presented in both the number of respondents and percentage out of total, selecting the checkbox/choice.

More than one may be selected, so percentages may add up to more than 100 %.

Methodology

The study was designed as an online survey using Google Survey (Google, Inc., Mountainview, CA). All 541 diplomates, at the time of the survey, were invited to participate via an email alert. The survey comprises of eight questions, as follows: (1) Is your leadership aware of CIIP certification? (2) Please describe what motivated you to take the examination? (3) How have the credentials benefited you? (4) To what extent has your certification improved your organization's operations? (5) How are you doing in fulfilling your CIIP continuing education requirements (CE)? (6) What ways do you prefer to get information from ABII? (7) What could we do to encourage you to be more involved in ABII? and (8) Would you be willing to mentor individuals interested in certification? The first six questions were assessed as multiple choice questions where the responder could select one or more options. The final two questions were recorded as free-text comment fields.

Results

There were a total of 243 responders out of 541 diplomates who received the survey for a response rate of 45 % (Tables

Table 2 Question 2

Please describe what motivated you to take the examination?		
Professional growth	219	90 %
Peer recognition	133	55 %
Employment requirement	21	9 %
Career advancement	120	49 %
Job security	81	33 %
Other	25	10 %

Results are presented in both the number of respondents and percentage out of total, selecting the checkbox/choice.

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Table 3 Question 3

How have the credentials benefited you?		
Salary	31	13 %
Responsibility	30	12 %
Promotion	9	4 %
Job performance	37	15 %
Respect/recognition	147	60 %
Expand professional network	114	47 %
Other	48	20 %

Results are presented in both the number of respondents and percentage out of total, selecting the checkbox/choice.

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1, 2, 3, 4, 5, and 6). Over 90 % responded within 7 days of being invited to participate. The majority (69 %) indicated that knowledge learned as part of the certification process directly translated to improvements made to their clinical organizations' operations (question 4). One hundred sixty-seven responders (68 %) indicated that their radiology administrators were aware of their CIIP certification (question 1). Recognition also came from radiology chairmen (35 %), chief information officers (29 %), and human resource personnel (23 %). The majority (219 (90 %)) indicated that the desire for professional growth motivated them to take the exam (question 2). Other motivations were peer recognition (55 %), career advancement (49 %), job security (33 %), and employment requirement (9 %). The majority of responders (60 %) felt that certification accorded respect and recognition (question 3). Another benefit perceived by the responders is expanded professional networking (47 %). A smaller percentage reported practical benefits of job promotion (4 %), increased salary (13 %), or increased responsibility (12 %). Overall, compliance with CIIP continuing education requirements (question 5) were high (85 %).

About 10 % of the responders made comments about the CE requirements for the CIIP. There were comments ranging from requests for more opportunities to gain CEs, specifically free opportunities, to questions on what the CE requirements were. Some responders did not agree with ABII requiring CEs to retain the CIIP certification as it was considered costly and

Table 4 Question 4

To what extent has your certification improved your organization's operations?			
1	Not at all	75	31 %
2		36	15 %
3		81	33 %
4		45	19 %
5	Significantly impacted	6	2 %

Table 5 Question 5

How are you doing in fulfilling your CIIP continuing education requirements (CE)?

I am on top of it.	115	47 %
I am getting there.	92	38 %
What CE requirements?	36	15 %

difficult to earn sufficient CEs throughout the year. Most who commented on CEs were only aware of CE opportunities at conferences such as SIIM, Radiologic Society of North American (RSNA), and HIMSS. Their concern was with a lack of funding available to attend these conferences. Many feel that there needs to be more communication about educational opportunities in the form of newsletters or email.

Over 22 % of responders commented that they would like to see more regional CIIP activities and professional networking opportunities. The ideas for regional activities ranged from user group meetings, local study groups, conferences, and educational opportunities.

Three percent of responders commented that the certification was too expensive. These responders commented on the cost of the annual fees, CE requirements, and the 5-year re-testing. Since this survey was preformed, the re-testing requirements have been changed from every 5 years to every 10 years. For the 5-year cycle, 60 CE credits are required to retain the CIIP certification. Others cited concerns over the lack of recognition from their organization after obtaining the CIIP. Several requested educational material about the CIIP for their management and HR departments.

Discussion

Awareness

Overall, the survey indicates that there is a high perception of the value of certification among diplomates for professional growth. Currently, PACS administrators are choosing to take the CIIP certification as part of their own career development leadership (90 % question 2). A clear opportunity lies in the lack of awareness in the CIIP certification in human resources departments (23 % question 1) that correlates with the still relatively small percentage of organizations using CIIP as an employment requirement (9 %).

Upon certification, there is significant awareness by the radiology management (administrators, chairs, and CIOs). This resulted in perceptions of increased peer recognition, and professional respect and recognition. While half of the responders desired career advancement with certification, only a minority actually experienced tangible benefits such as promotions, increased salaries, or responsibilities. This

Table 6 Question 6

What ways do you prefer to get information from ABII?

LinkedIn CIIP Group	69	28 %
ABII website	134	55 %
SIIM news	116	48 %
Direct email	202	83 %
Other	7	3 %

Results are presented in both the number of respondents and percentage out of total, selecting the checkbox/choice.

More than one may be selected, so percentages may add up to more than 100 %.

occurred despite most of the responders reporting improvement of their organizations' operations. There is a clear opportunity to increase awareness of CIIP among the leadership across organizations of varying sizes. Potential marketing campaigns can target industry-specific journals and websites.

Critical Vendor and Institutional Support

CIIP is vendor agnostic and encompasses universal concepts applicable to the various components of Hospital Information Systems, Radiology Information Systems, and Picture Archiving and Communication Systems (PACS). Vendor support could be in the form of requiring service professionals to be CIIP certified, while institutions can require the same of hospital based IT support personnel. This would effectively enable CIIP to become the standardized qualification for both industry and hospital based professionals.

Limitations of the Study

First, all responders were self-selected from the total pool of CIIP diplomates at the time of the web survey; there were no face-to-face interviews conducted, nor was there any randomization of a sample from a larger group of imaging IT professionals.

Secondly, the potential for self-selection bias is inherent in the study design. Since most of the responses were received within 7 days of receiving the survey, there is a potential source of bias in that highly motivated and self-driven individuals may be overrepresented in the sample. Secondly, because the survey occurred during the national SIIM meeting, SIIM members may be overrepresented in the sample, due to increased awareness of the survey among them.

While these present potential sources of bias, the overall response rate is high (45 %), thus making responses to be more likely representative of the total sample pool, and potentially eliminating some bias. Response rates for

surveys whose primary mode is email and web delivery may often be as low as 13–20 % [5, 6].

Finally, the roles of the responders were not recorded. The diplomates may be functioning as PACS administrators, radiologists, technologists, physicists, and managers. Stratification can be useful in understanding whether the degree to which diplomates benefit from CIIP certification is dependent on what their roles are. For instance, do PACS administrators experience greater career benefits when they become CIIP certified as opposed to radiologists? Since the survey data cannot be stratified by their respective roles, differential impact cannot be investigated.

Future Directions

There is a significant percentage of the diplomates (37 %) who expressed interest in serving in a mentoring role to help professionals in their area to become certified and more effective CIIPs. In addition, many individuals expressed a desire for further networking opportunities and regional activities.

While ABII holds responsibility for the certification of imaging IT professionals, by design it does not have a direct role in their training and education. An analogous situation can be seen in the relationship between the American Board of Radiology which is the main accreditation body for radiologists, and the American College of Radiology, the American Roentgen Ray Society, and the RSNA, which together share responsibility for the educational, advocacy, and political missions. Therefore, requests for educational and networking initiatives may be better undertaken by SIIM and other bodies.

Efforts by the American Medical Informatics Association to institute a formal medical informatics subspecialty fellowship for physicians [7, 8] are well underway. With the support of its sponsoring and sister organizations, it is easy

to envision that CIIP certification can become the focus and target of an analogous career training pathway for imaging IT professionals. There could be separate career and training tracts, all culminating in CIIP certification. It is therefore important to establish the value of CIIP certification, such as through this survey.

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