

CONCISE REPORT

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Value of Certification in Infection Prevention and Control (CIC®)

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ABSTRACT

The Certification Board of Infection Control and Epidemiology, Inc. conducted a marketing research study to determine the perceived value of the Certification in Infection Prevention and Control (CIC®) among infection prevention professionals and other stakeholders. Four thematic categories were identified: certification process and standards; professionalism, competency, and career growth; patient care, safety, and infection prevention and control; and regulatory compliance. Respondents stated that certification demonstrated professional competency, increased career growth, improved regulatory compliance, was important in influencing legislation, and improved the practice of infection prevention and control. Opportunities were to re-evaluate eligibility criteria and exam difficulty; demonstrate how certification increases financial compensation and organizational recognition; and offer recertification through continuing education. Based on the study findings, strategic recommendations and next steps were incorporated into the strategic plan. This paper is an overview and summarizes the study findings.

KEYWORDS

Competency; certification; professionalism; career growth; patient safety; infection prevention; regulatory compliance

INTRODUCTION

Specialty certification demonstrates competency and commitment to the profession [1]. Certification validates knowledge using standardized testing methods. Accredited certification further demonstrates the quality and integrity of the certification process. The Certification Board of Infection Control and Epidemiology, Inc. (CBIC) administers the only national accredited Certification in Infection Prevention and Control (CIC®). CBIC is accredited by the National Commission on Certifying Agencies (NCCA), a member of the Institute for Credentialing Excellence. NCCA accredits certifying agencies to ensure the health, welfare, and safety of the public through accreditation. CIC® is one measure of competency and mastery of healthcare infection prevention and control knowledge. Competency defines the professional role [1]. There are over 7,000 individuals certified in CIC®. While a majority of certificants are from the United States and Canada, there is a growing need for certification outside North America, including Europe [2].

Infection preventionist (IP) competencies assessed during the CIC® examination are: identification of infectious disease process; surveillance and epidemiologic investigation; preventing and controlling the transmission of infectious agents and healthcare-associated infections; employee and occupational health; management and communication;

education and research; environment of care; and cleaning, sterilization, disinfection, and asepsis [3]. The Association for Professionals in Infection Control and Epidemiology, Inc. (APIC) developed the IP Competency Model in 2012. That model states that the transition from novice toward proficiency is bridged once one passes the CIC® examination [4]. This statement supports the idea that certification is an important career milestone using the framework of the APIC Competency Model.

Certification represents both the individual's and their institution's commitment to continual improvement of infection prevention and control practices as well as the certificant's contribution to healthcare personnel and patient safety [5]. There are many ways to measure the value of certification. Bernard et al. (2018) described higher overall self-assessed competency among certified respondents ($p < 0.001$) [6]. Landers et al. (2017) reported the salary of those with the CIC® credential was 25% higher than those without (\$85,911 vs \$68,817; $p < 0.01$) [7]. Carrico et al. (2013) found that those with the CIC® credential scored significantly higher in overall program performance in five major program areas than respondents who were not certified (54% vs 43%; $p = 0.003$) [8]. The five major program areas were: immunization program management, vaccines provided to healthcare personnel,

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vaccine handling practices, training provided for the individual(s) responsible for the program, and quality indicators for the program. Krein et al. (2007) reported that hospitals with a certified IP on staff had a higher safety culture score. Hospitals with a CIC®-certified IP participated in infection prevention collaborations and were more likely to use evidence-based catheter-related bloodstream infection prevention practices [9]. Hospitals with a CIC®-certified IP director also had significantly lower incident rate ratio (IRR) of methicillin-resistant *Staphylococcus aureus* bloodstream infections (IRR = 0.32) [10]. Hospitals with a CIC®-certified IP supported evidence-based antimicrobial stewardship, device-associated and healthcare-associated infection interventions, nurse-initiated urinary catheters discontinuation protocols, and ventilator-associated pneumonia prevention practices [11].

There are more job opportunities for those who hold the CIC® credential than there are for those without the credential. In 2007, Goldrick reported that 30% of employers required the CIC® credential to apply for or maintain employment [5]. To compare the changes for CIC® requirements, a review of job postings on LinkedIn done in 2018 showed the CIC® requirement had grown to 46% (16% increase) (see Table 1). In summary, the CIC® certification supports higher compensation, increases job satisfaction through a structured career development framework, improves patient outcome, advances evidence-based infection prevention practices, and is valued by the public and the healthcare industry.

TABLE 1: Comparison of changes for CIC® requirement in infection preventionist job postings.

	CIC® Required	CIC® Preferred	CIC® Not Mentioned
Goldrick, 2007 [5]	30%	38%	38%
LinkedIn, 2018	46%	31%	31%
Difference	+16%	-7%	-9%

OBJECTIVE

The purpose of this study was to determine the perceived value of the CIC® credential among North American IPs and healthcare executives. The target audiences were senior-level managers, public health officials, current and previous CIC® certificants, and those who were never certified. The results of the survey were to be used to reshape and update CBIC's five-year strategic plan.

METHODS

CBIC engaged the consulting company IMPAQ Strategy in February 2018. IMPAQ Strategy provides strategic consulting to non-profit organizations and associations. To prepare for this market research survey, an environmental scan was performed and current CBIC Board members were interviewed. Three primary question domains were developed: What is the current value of the credential? What are the barriers to attaining and maintaining the credential? How can the value of the credential be increased? These three primary domain questions were then divided into two to three secondary domain questions for a total

of eight subdomains. The final questionnaire comprised 28 Likert scale multiple choice, two open-ended, and 21 demographic questions. Free text responses were reviewed for thematic information and, where possible, were mapped to pre-existing categories from the primary question in the survey.

A list of potential survey respondents was gathered through membership rosters provided by APIC, Infection Prevention and Control Canada (IPAC Canada), CBIC contact lists, and a purchased database from the IQVIA Institute for Human Data Science for healthcare executives. IQVIA coordinates alliances between life science companies, medical researchers, government agencies, payers, non-profit organizations, and other healthcare stakeholders to deliver insights and solutions using human data science. Eligible respondents were limited to those with a paid membership in APIC or IPAC Canada, contacts provided by CBIC, and the purchased mailing list from IQVIA. The survey/questionnaires were sent out by direct email to senior-level managers, public health officials, current and previous CIC® certificants, and those who were never certified. The survey response window was limited to 12 days. The survey was also available through CBIC's social media sites, including LinkedIn, Facebook, and Twitter. Market research techniques using both qualitative and quantitative methods were used to collect and analyze data.

Follow-up 15-minute telephone interviews were conducted on 12 randomly selected respondents from each of the following categories: executives and administrators; individuals with a lapsed CIC® credential; young professionals with > 10 years of professional experience; public health officials; Canadians; and individuals who have never held the CIC® credential. Unique questions were developed for each cohort. The interviews were used to dive deeper into opinions and interests regarding the CIC®'s role in infection prevention and control and the respondents' personal experiences with the credential.

RESULTS

A total of 34,778 surveys were distributed by email to potential respondents in mid-May 2018; 30,409 were sent to IP professionals and 4,369 were sent to health executives, senior-level managers, and public health officials. There was a 12-day response window from May 21 to June 1, 2018. A total of 4,372 surveys were returned (12.6% response rate). Of the 4,372 respondents, 2,032 (46%) currently hold a CIC®, 238 (5.5%) respondents previously held a CIC®, and 1,960 (45%) respondents never held a CIC®. Respondents' years of experience were: less than five years (28.6%); five to ten years (39.3%); 11 to 20 years (17.4%); 21 to 30 years (10.3%); and over 30 years (4.2%). The majority of respondents (62%) were between the ages of 30 and 60; 12.8% were under 30; and 25% were older than 60.

The majority of respondents support the value of a CIC®, particularly in the following types of organizations: Academic and Non-Academic Hospitals, Universities, Public Health Agencies, None/Retired, and Other. Responses from community-based hospices, dental practices, and freestanding Emergency departments and surgical centres were similar and tended to

be more negative. Respondents from the Long Term Care and Skilled Nursing Facilities types looked similar and tended to show mixed answers when compared to both groups of respondents noted above.

Four thematic categories were identified: certification process and standards; professionalism, competency, and career growth; patient care, safety, and infection prevention and control; and regulatory compliance.

Certification process and standards

The majority of respondents felt positively about the current standards, processes, and requirements. Eligibility and the certification process for both initial and recertification were clear. The study preparation process and time to complete the examination were also reported as clear, reasonable, and adequate. One opportunity was to re-evaluate eligibility criteria and exam difficulty.

Professionalism, competency, and career growth

Respondents reported that certification demonstrated professional competency and increased career growth; however, they were less positive as to whether certification would lead to monetary compensation and increased organizational recognition.

Patient care, safety, and infection prevention and control

Respondents reported that the certification improved the practice of infection prevention and control, patient care, and patient safety.

Regulatory compliance

Respondents stated that certification improved regulatory compliance and was important in influencing legislation. Other improvement recommendations were to offer specialized learning tracks, to increase CIC® brand awareness, for regulatory agencies to endorse certification, and to incorporate continuing education into the recertification process (Table 2).

The IMPAQ Strategy team conducted follow-up interviews with a randomly selected group of respondents at the

conclusion of the survey. Key findings from the 12 interviews across the identified seven groups of respondents were as follows:

Executives and administrators

- Have an option to either take the exam after five years or do continuing education option. Most well-known certifications have this option.
- Need to add laboratory personnel as potential for certification.
- CIC® credential desired but not required: organization will pay for study materials and meetings but not the exam.
- CIC® credential is competing for professionals; is more difficult to attain and maintain due to amount of experience and study.

Never held a CIC® credential

- One interviewee stated she was denied participation in the exam prep class for having too much experience.
- Others wanted continuing education units instead of an examination option.
- The enrollment process is smooth and helpful.
- CBIC has a lot of information on its website.
- Many leaders do not support funding for a CIC® credential.
- Hospitals have the best support.
- Long-term care facilities, local public health levels, and outpatient facilities do not have support.
- Providing some test-taking tips would be helpful.
- Certification is cost prohibitive, especially toward end of career.
- One barrier is the requirement to have two years of experience prior to taking exam. It is a time-sensitive barrier.
- There is a need to be able to access resources and materials without having to pay for them, such as study guides and other infection prevention information.
- Recertification as either a very brief exam or continuing education units every two to three years instead of a full exam at five years.
- CBIC being at conferences is good for marketing, but would also market at educational institutions so that new graduates know this is a next step in career advancement.
- There is too much information on the exam.
- Would need more experience to be prepared to take the examination.

TABLE 2: Recommended ways to improve the CIC®.

Improvement Recommended	Currently Hold	Previously Held	Never Held
Specialized learning tracks.	816 (43.4%)	95 (48.7%)	1,003 (60.4%)
Greater brand awareness.	856 (45.5%)	76 (39.0%)	653 (39.3%)
Endorsement of CIC® by accrediting agencies.	1,050 (55.9%)	89 (45.5%)	603 (36.3%)
Incorporate CE/CEU for recertification.	805 (42.8%)	104 (53.3%)	722 (43.5%)
Increase published research supporting CIC® and its benefits.	611 (32.5%)	50 (25.6%)	513 (30.9%)
Incorporate CIC® into higher education curriculums.	367 (19.5%)	53 (27.2%)	575 (34.6%)
Meet legislative requirements (mandates for the CIC®).	626 (33.4%)	52 (26.7%)	356 (21.4%)
Partnerships with other certifying organizations.	356 (18.9%)	55 (28.9%)	480 (28.9%)
More rigorous certification requirements.	97 (5.2%)	5 (2.6%)	33 (2.0%)
More rigorous examination requirements.	56 (3.0%)	56 (3.0%)	42 (2.5%)

Legend

CE: continuing education

CEU: continuing education unit

For those with a lapsed CIC® credential

- Many would like to see continuing education units for recertification.
- Many would like to drop the prerequisite of two years of experience for exam.
- The CIC® certification was not required for their position.
- CIC® certification is too expensive and is not reimbursed by employers.
- Consider those who work outside of hospitals and direct patient care.
- Lack of time to study.
- Failed the exam.
- Struggle to maintain continuing education units in smaller towns.
- Would not cover enough information for the infection preventionist.
- Getting close to retirement. Currently, CIC® certificant respondents who do not plan to recertify or who plan to let their certification lapse stated it was due to upcoming retirement.

DISCUSSION

The main takeaway from this study was an increased sense of professionalism, competency, and career growth associated with obtaining the CIC® credential, as well as improved patient safety. In addition, there were several opportunities identified for CBIC to consider incorporating into the upcoming strategic plan. Some main opportunities identified by the respondents include promoting the credential to accrediting agencies, increasing brand awareness externally and internally as familiarity of the credential grows and as individuals gain experience within the profession, considering continuing education credits for recertification, and offering specialized certification tracks across the continuum of care. Results were presented to the CBIC Board of Directors and staff in September 2018 and the CBIC strategic plan for 2019-2021 was updated in November 2018.

One limitation of the study was the sample population. Because the majority of respondents came from the CBIC, APIC, and IPAC Canada contact lists (95.6%), the results may only reflect the value of certification to those already familiar with certification and not the larger healthcare audience or the public. This marking research study was not able to assess the value of certification to the consumer, healthcare regulators, or senior healthcare leadership. Another limitation was the short, 12-day response time frame.

The CIC® credential has grown in volume, relevance, and significance throughout the past 35 years. This is evidenced by the value of certification study results as well as previous published literature highlighting key facts and sentiment within the infection prevention and control community. In addition, external activities by legislatures have increased their focus on certification requirements, as it continues to validate one's competency within the profession. The outcome of this study provides a pulse of current CIC® credential standing within the infection prevention and control community and allows for additional research to be conducted in order to further highlight the value of certification.

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