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Original Research

## The 2022 Certified Transport Registered Nurse Pulse Survey

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## A B S T R A C T

**Objective:** The certified transport registered nurse (CTRN) credential independently validates a registered nurse's advanced knowledge, skills, and abilities in critical care ground transport nursing. After multiple years of mostly modest growth, the number of CTRNs surged in 2020 and 2021 and continues to post strong growth into 2022. The aim of the 2022 Certified Transport Registered Nurse Pulse Survey was to better understand the ways in which CTRN-certified registered nurses value this national ground transport specialty credential and gain insight into factors that may have contributed to the recent surge in CTRN certification.

**Methods:** The Board of Certification for Emergency Nursing e-mailed individuals in its database of CTRN credential holders and invited them to complete an 11-question online survey between March 15 and March 28, 2022. Participation in the survey was voluntary. Sixty-three of 297 verified CTRN holders who received the survey responded for a response rate of 21.2%. The survey instrument included discrete field and open-ended questions. Data were deidentified for analysis, and institutional review board exemption was received. Descriptive statistics were used, and counts and percentages are reported.

**Results:** The highest percentage of respondents (42.9%) have 10 or more years of experience in ground transport nursing, and nearly half (46%) are employed by a stand-alone transport program. Forty-three percent of all respondents reported that ground transport makes up at least 50% of their current role, whereas one third (33.3%) indicated they do ground transport 100% of the time. Critical thinking (87.5%) in the ground transport environment, confidence as a ground transport nurse (87.5%), and a sense of accomplishment and pride (94.6%) were the top 3 perceived benefits of being a CTRN-certified nurse.

**Conclusion:** The 2022 CTRN pulse survey identified current CTRN demographics, practice environments, and perceived benefits of the CTRN credential. The findings suggest CTRNs are highly experienced and perceive multiple intrinsic and extrinsic benefits of CTRN certification, many of which are essential to safe, evidence-based nursing practice in the autonomous, complex, and dynamic ground transport environment.

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Registered nurses (RNs) are core members of critical care ground transport teams.<sup>1</sup> Nursing practice in the out-of-hospital environment requires advanced assessment and intervention skills that are dependent on analytical thinking, complex decision making, and

prioritization.<sup>2</sup> To safely provide appropriate and evidence-based care to a high acuity patient population in the autonomous, complex, and demanding critical care ground transport setting, RNs must obtain knowledge, training, and experience beyond their initial education, licensure, and in-hospital experience.<sup>3,4</sup> National specialty certification offers an independent process whereby an RN may demonstrate their advanced knowledge, clinical judgment, and other skills and abilities within a well-defined specialty area. Importantly, the specialty certification process also provides a framework for ensuring the currency and relevance of specialty expertise over time through the renewal of certification. Specialty certification has been

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Figure 1. CTRN certification seal.

linked to improved patient outcomes and greater nurse career satisfaction and success.<sup>5,6</sup> The certified transport registered nurse (CTR) credential (Fig. 1), which has been offered by the Board of Certification for Emergency Nursing (BCEN) since March 2006, independently validates an RN's advanced knowledge, skills, and abilities in the critical care ground transport nursing environment.

The CTRN, initially developed in partnership with the Air & Surface Transport Nurses Association (ASTNA), continues to be recommended by ASTNA for both individual professional development and transport program accreditation<sup>3</sup> and has been an American Nurses Credentialing Center Magnet–accepted certification since 2009.<sup>7</sup> The Commission on Accreditation of Medical Transport Systems (CAMTS), a long-time and leading proponent of national certification for transport professionals, has required specialty certification for RNs as part of its accreditation standards since 2010<sup>8</sup> and has recognized the CTRN as an accepted credential since the year the CTRN was introduced.<sup>9</sup> In the CAMTS 12th edition accreditation standards, which went into effect on January 1, 2023, CAMTS exclusively requires transport-specific certification for transport nurses, with the CTRN being 1 of 3 accepted credentials listed and the only ground

transport–specific credential.<sup>10</sup> After multiple years of mostly modest growth, the number of CTRNs increased by 19% in 2020 and 28.4% in 2021. Annualization of the number of CTRN credential holders as of June 30, 2022, suggests a 20% growth rate for 2022 (Fig. 2).

BCEN's most recent transport nursing role delineation study, which was conducted in 2019, identified new tasks and knowledge essential for ground transport nursing practice and more explicitly described existing distinctions specific to critical care ground transport nursing and the ground transport setting.<sup>1</sup> As a result, for the first time, the CTRN certification program has a stand-alone examination content outline,<sup>11</sup> which went into effect in February 2022 and will have its own test item bank. Before 2022, there was a shared certified flight registered nurse (CFRN)–CTR examination content outline and test item bank. Considering the increase in CTRNs from 2020 to 2022, the stand-alone examination content outline in 2022, and the CAMTS transport-specific certification requirement for 2023, we sought to describe factors associated with holding the CTRN credential. The aim of the 2022 Certified Transport Registered Nurse Pulse Survey was 3-fold: 1) to describe CTRN experience and practice environments; (2) to gain fresh and additional insight into RNs' reasons

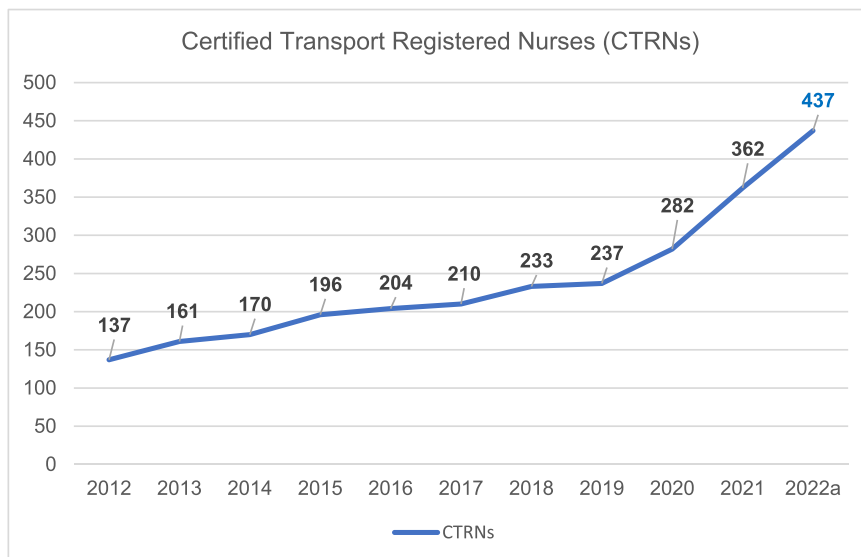


Figure 2. The number of CTRN credential holders at year end since 2012 based on BCEN CTRN database. As of June 30, 2022, there were 400 CTRNs. Annualization suggests a year-end total of 437 for a 20% growth rate for 2022.

for earning the CTRN, including specific factors that may be contributing to the recent surge in CTRN certification; and 3) to understand the perceived value and benefits of CTRN certification in general and during the coronavirus disease 2019 (COVID-19) pandemic.

**Methods**

Since 2016, BCEN has partnered with Alexandria, VA–based Human Resources Research Organization (HumRRO), an independent nonprofit research organization with over 60 years of experience in research design and performance. HumRRO conducted the 2017 Value of CEN [Certified Emergency Nurse] Certification Research Study and a follow-up study on CEN recertification. Questions from the CEN survey were modified for use in this CTRN survey. BCEN e-mailed individuals in its database of CTRN credential holders and invited them to complete an 11-question online survey between March 15 and March 28, 2022. Participation in the survey was voluntary. The data were deidentified and analyzed in the aggregate; the institutional review board determined the research to be exempt.

The survey instrument included 8 multiple-choice and yes/no quantitative questions and 3 open-ended questions to allow for comments. The survey questions included career and workplace demographics, perceived value of CTRN certification, reason for seeking the CTRN credential, frequency of ground transports during the COVID-19 pandemic, and perceived benefit of CTRN certification in treating patients during the COVID-19 pandemic. In advance of the effective date of the new (12th edition) CAMTS accreditation standards, which will, for the first time, require RNs to hold a transport-specific specialty credential, respondents were also asked if CAMTS accreditation was a factor in their decision to earn the CTRN. We performed descriptive analysis and report the number and percent for all quantitative questions using Stata 17 MP (StataCorp LLC, College Station, TX). Responses for open-ended questions were reported by category of response.

**Results**

Of the 297 verified CTRN holders who received the survey, 63 responded for a response rate of 21.2%.

*Certified Ground Transport Nurse Demographics*

Respondents were asked to indicate years of ground nursing experience and percentage of ground transport responsibilities in their current role and define their current employer (Table 1). The highest percentage of respondents (42.9%) have more than 10 years of experience in ground transport nursing roles. Nearly half (46%) are employed by a stand-alone transport program, whereas 25% work for a university/academic hospital or university/academic trauma program.

One third of all respondents reported that critical care ground transport makes up 75% or more of their current role, and of these 21 respondents, 16 (76.2%) indicated they do ground transports 100% of the time. Nearly half (47.6%) indicated critical care ground transport makes up less than 25% of their current job; furthermore, of these 30 respondents, 6 (20%) reported that 100% of their work is flight nursing, and 10 (33.3%) reported that flight nursing comprises 90% to 99% of their work.

*Value of Certification*

Respondents were asked to indicate if earning the CTRN made a positive difference in 10 value of certification categories (Table 2). Fifty-six of the original 63 respondents completed this multi-item question. Critical thinking (87.5%) in the ground transport environment, confidence (87.5%) as a ground transport nurse, and a sense of accomplishment and pride (94.6%) were the top 3 perceived benefits of being a CTRN-certified nurse. A large majority of respondents (83.9%) also reported that being CTRN certified made a positive

**Table 1**  
Certified Transport Registered Nurse Demographics

Demographics	n (%)
Critical care ground transport nursing roles over course of career (y)	
< 2 years	13 (20.6)
2-5 years	13 (20.6)
5-10 years	10 (15.9)
> 10 years	27 (42.9)
Total	63 (100)
Current employer	
Children's hospital	1 (1.6)
Community hospital (< 200 beds)	7 (11.1)
Large hospital (> 200 beds)	5 (7.9)
University/academic hospital and/or university/academic trauma center	16 (25.4)
Transport program	29 (46.0)
Trauma center	4 (6.4)
Military	1 (1.6)
Total	63 (100)
Current critical care ground transport work (% of current role)	
75-100	21 (33.3)
50-74	6 (9.5)
25-49	6 (9.5)
< 25	30 (47.6)
Total	63 (100)

difference in both their critical care ground transport clinical knowledge and their ability to provide expert care for their patients during ground transports.

Fifty-two respondents opted to expand on their answers through an open-ended question. Responses regarding the value of CTRN certification included: 1) increases/enhances/validates confidence in ground transport knowledge, 2) demonstrates to patients/instills faith in families that patients are getting the best possible care, 3) being best prepared with current knowledge to deliver expert care, 4) garners high regard and respect from medical professionals, and 5) how challenging it is to earn the CTRN credential.

*Ground Transport Nursing During the COVID-19 Pandemic*

Of the 55 CTRNs who responded to the question on COVID-19 –related transport volume, just over half (50.9%) reported completing more ground transports since the start of the COVID-19 pandemic. Nearly two thirds (61.8%) said having the CTRN credential contributed to their ability “to deliver the best possible care” for their patients with COVID-19.

When asked to describe how the CTRN benefitted them, their team, and/or their patients during the COVID-19 pandemic, responses included the following: 1) provided specific knowledge and skills, as well as overall confidence, to safely and efficiently

**Table 2**  
Value of CTRN Certification: Intrinsic and Extrinsic Benefits

Value of Certification Category	n (%)
Confidence as a ground transport nurse	49 (87.5)
Critical care ground transport clinical knowledge	47 (83.9)
Ability to anticipate and manage the challenges of the ground transport environment	46 (82.1)
Ability to provide expert care for your patients during ground transports	47 (83.9)
Ability to ensure the safety of your patient, yourself, and your team	46 (82.1)
Ability to communicate and collaborate with your transport team	45 (80.4)
Ability to communicate and collaborate with clinical staff at sending and receiving facilities	44 (78.6)
Critical thinking in the ground transport environment	49 (87.5)
Self-efficacy in the ground transport environment	46 (82.1)
Sense of accomplishment and pride	53 (94.6)

package patients with COVID-19 and transport them by ground over long distances; 2) ability and confidence in making ventilator changes based on patient complexity and criticality; 3) better understanding of lung-protective ventilation strategies critical to patient outcomes; 4) studying/preparing for the examination alone resulted in knowledge gains; 5) confidence in ground transport knowledge and abilities when traveling by air was not an option because of weather, equipment, or patient body habitus; and 6) elevated the abilities and skills of the transport team.

#### Reason for Being CTRN Certified

In an open-ended question, respondents were also asked to describe what prompted them to earn the CTRN credential. Many of the 55 responses included multiple reasons. Responses included the following:

- Pursuit of excellence and knowledge/provide best care
- Personal accomplishment and satisfaction/pride
- Makes sense for role/hiring edge
- Stand apart/hold all 5 emergency nursing credentials (BCEN owns, maintains, and offers 5 nursing specialty certification programs: the CEN, certified pediatric emergency nurse, trauma certified registered nurse, certified flight registered nurse, and CTRN)
- Lead by example/set the example

Eighty-nine percent (n = 49) of respondents indicated CAMTS requirements were not a factor in their decision to earn the CTRN.

#### Discussion

As described by Esslinger et al,<sup>1</sup> RNs are “core members of critical care ground transport teams because of their education, experience, and scope of practice.” A confluence of factors including medical and equipment advances, regionalization, specialization, and the COVID-19 pandemic have underscored the need for ground transport specialty expertise and, specifically, the valuable roles and contributions of RNs in critical care ground transport. Ground transport can accommodate the sickest of patients and, unlike most air transports, can involve very long transport times. Because of the larger cabin size, ground transport can accommodate most sizes of patients and uniquely can accommodate multiple and larger pieces of equipment, an extended care team, and even a family member on board.

The CTRN is 1 of the few certification programs whose body of knowledge spans not only clinical knowledge and professional issues but also safety, survival, disaster preparedness, scene operations management, communications, and equipment and vehicle knowledge. This makes the CTRN 1 of the most complex and multifaceted nursing specialty certification programs.

In 2017, HumRRO conducted a large-scale value of certification study of the CEN credential on behalf of BCEN. Responses from over 8,800 certified and noncertified RNs and over 1,000 of their supervisors were recorded.<sup>12</sup> In that survey, 90% of emergency nurses said holding the CEN gives them a feeling of accomplishment and pride; 80% said holding the CEN makes it easier to have the knowledge needed on the job. The CTRN Pulse Survey found that nurses holding the CTRN felt similarly on these two points, with 95% reporting the CTRN made a positive difference in their sense of accomplishment and pride, and 84% reporting the CTRN made a positive difference in their critical care ground transport clinical knowledge. In the CEN study, holding the CEN was significantly and positively correlated with nursing self-efficacy (by the nurses) and emergency nursing expertise (according to their supervisors). In the Certified Transport Registered Nurse Pulse Survey, 82% of respondents reported that the CTRN certification makes a positive difference in their self-efficacy in the ground transport environment. HumRRO also designed and conducted the 2019 Emergency/Trauma/Transport Nursing Workforce

Survey, partnering with BCEN, ASTNA, the Emergency Nurses Association, and the Society of Trauma Nurses, who jointly funded and partnered with the MedEvac Foundation International on the research. Findings from the CEN value of certification survey have been published in various BCEN white papers. Findings from the Emergency/Trauma/Transport Nursing Workforce Survey were published in *Nursing Management*<sup>13</sup> and *Nurse Leader*.<sup>14</sup>

The limitations of this study include the small sample size and moderate response rate. Although we are unable to draw definitive conclusions, we believe this is the first study to try to define the value of the CTRN credential by those who hold it. More research is needed to address the current literature gap on the value of specialty certification in the specialty of transport. Ideally, such research will, like the profession, be multidisciplinary.

#### Conclusion

The 2022 Certified Transport Registered Nurse Pulse Survey provided data to describe CTRN experience and practice environments; gain insight into RNs' reasons for earning the CTRN certification, including specific factors that may be contributing to the recent surge in CTRN certification; and understand the perceived value and benefits of CTRN certification in general and during the COVID-19 pandemic. Reasons why RNs earn the CTRN credential included the pursuit of clinical and patient care excellence, being well prepared for the ground transport environment, competitive hiring advantage, and leading by example. The findings also suggest that nurses who have earned the CTRN perceive multiple intrinsic and extrinsic benefits of CTRN certification, many of which are essential to safe, evidence-based nursing practice in the autonomous, complex, and dynamic ground transport environment.

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