

High Reliability: A Primer for Athletic Training Educators

Christine Noller, PhD, JD, LLM; David C. Berry, PhD, MHA, AT, ATC
Saginaw Valley State University, University Center, MI

Context: Health care organizations are integrating employee training and educational programs to designate themselves as high-reliability organizations (HROs). HROs continually strive to evaluate and create an environment in which potential problems are anticipated, detected early, and virtually always responded to early enough to prevent catastrophic consequences.

Objective: This primer document introduces the concept of high reliability in health care (from a historical and foundational perspective) and establishes a framework for athletic training educators to introduce the concepts at the professional, postprofessional, or residency educational program level.

Background: While the theory of high reliability is new to athletic training, its quality and origins in health care are established. HROs use systems thinking to evaluate and design for safety and continuous improvement to create an environment where potential problems are anticipated, detected early, and responded to early enough to prevent tragic consequences.

Synthesis: The HRO focuses attention on emergent problems and deploys strategies to address those problems. HROs behave in ways that seem counterintuitive—they do not hide failures; instead, HROs celebrate them. HROs seek out problems and avoid focusing on just 1 aspect of work to see how all the parts fit together. They expect unexpected events and develop capabilities to manage them, deferring decisions to empowered experts. However, high reliability is only achieved through robust process improvement, which is only achieved with a complementary approach to Lean Six Sigma and change management.

Recommendation(s): Given the complexity of patient care in athletic training, the potential for medical error(s), and the need for quality improvement, HROs hold promise for athletic training.

Conclusion(s): As future health care leaders, athletic trainers should be educated to foster innovation and improve health care delivery to diverse patient populations. Athletic trainers should want to embrace the principles of HROs. Achieving high reliability can be accomplished with adequate exposure to and training within the classroom and during clinical education opportunities.

Key Words: Medical errors, patient safety, human error, collective mindfulness

Christine L. Noller, JD, LLM is an Associate Professor, Health Science Department Chair and MPH Program Coordinator at Saginaw Valley State University. Please address correspondence to Christine L. Noller, JD, LLM, Department of Health Science, Saginaw Valley State University, 7400 Bay Road, University Center, MI 48710. cnoller@svsu.edu.

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KEY POINTS

- Athletic training is not averse to any of the problems or challenges faced by large health care organizations; however, with the right processes, people, and systems in place, these mistakes and errors occur less frequently and improve patient experiences and outcomes.
- Athletic trainers and athletic training educators should begin to embrace the principles of HROs, robust process improvement, and the creation of a culture of safety. Embracing these concepts can be accomplished with adequate exposure to training which originates within the classroom and clinical education opportunities.
- Further work and conversations are required in this area, and we encourage athletic training educators to seek out and engage leaders, representatives, and patients who have experienced HROs to learn why and how this process works.

INTRODUCTION

While the theory of high reliability is new to athletic training, its quality impetus and origins in health care are well established.^{1–6} High-reliability organizations (HROs) are systems operating in complex, high-hazard professions for extended periods with severe accidents or catastrophic failures.⁷ The principles of HROs advance beyond standardization; *high reliability* is often described as a condition of persistent and collective mindfulness within an organization. In fact, HROs continually strive to evaluate and create an environment in which potential problems are anticipated, detected early, and virtually always responded to early enough to prevent catastrophic consequences.⁷

Why address the principles of HROs in athletic training education? Simply put, the historical and foundational work of developing a leadership commitment to 0 harm, establishing a positive culture of safety, and instituting a robust process improvement (RPI) culture is lacking. This historical and foundational information is lacking despite being tangentially addressed in the Commission on Accreditation of Athletic Training Education's Standards for the Accreditation of Post-Professional Athletic Training and Residency Programs (standards 2 and 4)^{8,9} and the Standards for Accreditation of Professional Athletic Training Programs (standard 91).¹⁰ As potential C-suite executives (ie, chief executive officer, chief operating officer, chief financial officer, chief medical officer, chief information officer, chief nursing officer) or leadership team members (Table 1),¹¹ it is paramount that we educate future athletic trainers at all levels (ie, professional, postprofessional, and residency) to be knowledgeable and able to converse about HROs.

Before embarking on the road to high reliability, we must first consider the fundamental question. Are we providing safe, reliable, and effective health care? This question leads us back to 1998 and Chassin and Galvin's seminal report, "The Urgent Need to Improve Health Care. Institute of Medicine National Roundtable on Health Care Quality,"¹ and the

Institute of Medicine's (IOM's) subsequent reports and the Joint Commission's focus upon RPI. For athletic trainers seeking leadership positions, they should be able to converse with executives and stakeholders on the fundamentals of patient safety and quality. Therefore, this primer document introduces the concept of high reliability in health care (from a historical and foundational perspective) and establishes a framework for athletic training educators to introduce the concepts in either a professional, postprofessional, or residency educational program. The paper will introduce and discuss the chronology of how we achieve high reliability in health care and why athletic trainers need to embrace the concepts and become part of the movement.

THE IOM REPORTS, CIRCA 1998–2001

"The Urgent Need to Improve Health Care Quality. Institute of Medicine National Roundtable on Health Care Quality"

Chassin and Galvin's landmark report, "The Urgent Need to Improve Health Care Quality. Institute of Medicine National Roundtable on Health Care Quality,"¹ identified severe and widespread quality issues occurring throughout the United States (US) health care system. Problems with underuse, overuse, and misuse of health services were occurring in large and small communities nationwide.¹ The National Roundtable on Health Care Quality concluded that approaches, at that time, to improve the quality of patient care were inadequate. Efforts were seen as sporadic, at best.¹ The quality challenge was always to provide effective care while refraining from providing inappropriate and redundant services and thereby eliminating all preventable complications and waste. Meeting this challenge required commitment to principles and strategies of quality improvement for which there was no discernable model. Rather, continuous quality improvement (CQI), advanced in the industrial sector via theories and tools to reduce production error, had yet to be adopted in health care.¹

The magnitude of the problem was vast, overwhelming at the very least. The question remained, where to begin? The roundtable concluded that health care professionals should take the lead in improving quality. Roundtable members believed that leaders, providers, clinicians, administrative, and support staff should share their commitment to improving health care quality. The impact of poor quality was deemed to be staggering, requiring the urgent attention of all stakeholders, including health care professionals, policymakers, consumer advocates, and purchasers of care.¹

To Err is Human: Building a Safer Health System

The IOM revealed the costs of medical error in its 2000 seminal report *To Err is Human: Building a Safer Health System*.¹² The IOM noted at least 44 000 people, upwards of perhaps 98 000 people die annually as a result of preventable medical error.¹² That represents between \$17 billion and \$29 billion in costs per year in hospitals nationwide.¹² The

Table 1. C-Suite Executive Positions¹¹

Position	Description
Chief executive officer	<ul style="list-style-type: none"> Oversees the implementation of long- and short-term strategic plans and serves as a key decision maker among senior leadership. Oversees or approves the budget and managing risk. Remains abreast of significant industry trends and empowers others in the organization to move forward strategically.
Chief financial officer	<ul style="list-style-type: none"> Leads the hospital or health system's financial team and is responsible for ensuring a positive financial future. Creates new policies for financial improvement in addition to balancing the ledgers. Advises on capital planning projects, mergers and acquisitions, and substantial growth initiatives and must have an understanding of how new risk-based payment models will affect the institution going forward.
Chief operating officer	<ul style="list-style-type: none"> Provides leadership, management, and vision for the hospital to ensure all procedures and systems are in place for effective growth. Ensures the hospital or health system has the financial strength and operational efficiency in carrying through its vision. Motivates and leads the high-performance management team to attract, recruit, and retain the best leaders.
Chief medical officer	<ul style="list-style-type: none"> Senior-level executive acting as a liaison between the physicians and hospital executives. Oversees the quality of care at the hospital and manages the hiring, training, and performance evaluation of physicians on staff. Supports new cost-effective strategies for the clinical staff and ensures medical interventions are efficient and medically necessary.
Chief information officer	<ul style="list-style-type: none"> Oversees information technology department and makes technology-related purchasing decisions. Works with other C-suiters to plan for the growing amount of digital data collected at hospitals and health systems and to support other health information technology initiatives, including telemedicine and remote patient monitoring. Determines where to invest the hospital's resources, how to train staff, and the most efficient workflow for implementing new technology.
Chief nursing officer	<ul style="list-style-type: none"> Supervises nurses and nurse managers across hospital departments and service lines. Oversees patient care delivery design and implementation and serves as a liaison between the nursing staff and hospital executives. Ensures nursing, medical, and operational strategies aligned and are performed efficiently and effectively.

Committee on Quality of Health Care in America (the Committee) of the IOM set forth a comprehensive strategy by which government, health care providers (of which athletic trainers were not part of this designation), industry, and consumers could reduce preventable medical errors.¹²

The Committee introduced the theory of high reliability within the context of health care. High reliability is based upon the premise that accidents are preventable through good organizational design and management. Characteristics of high-reliability industries, military aircraft carriers, commercial aviation, and nuclear power consistently included an organizational commitment to safety, a high degree of redundancy in personnel and safety measures, a robust organizational culture for continuous learning, and a willingness to change. As a result, in these industries, while accidents may occur, they are rare because systems have been designed to be safer and much more so than health care.¹²

In health care, the majority of medical errors do not result from individual recklessness or the actions of a particular group or even person. Instead, errors result from faulty systems, processes, and conditions that lead people to make mistakes or fail to prevent mistakes from happening. Mistakes are avoidable by designing and implementing systems that

make it harder for people to do something wrong and more comfortable to do it right and more efficiently. Errors that do not result in patient harm must be viewed as opportunities to identify system improvements. Incorporating safety into system processes is much more effective in preventing errors than blaming individuals once an error does occur. Instead of blaming individuals for past errors, the focus should be on learning from both adverse events and near misses to design safety into all processes. That does not mean that individuals bear no accountability for their actions. People (and organizations) must remain vigilant and responsible for their actions. However, when an error occurs, blaming the individual does little to make the system safer and does little to prevent someone else from committing the same error, this time resulting in a catastrophic adverse event.¹²

The Committee identified a series of 5 principles applicable in all health care settings. These principles include (1) providing leadership, (2) respect for human limits in the design process, (3) promoting effective team functioning, (4) anticipating the unexpected, and (5) creating a learning environment.¹² All of these principles apply to athletic training, but only when introduced and reinforced as part of the educational and clinical opportunities.

Table 2. Six Aims for Health Care Improvement

Aim	Description
Safe	Avoiding injuries to patients from care intended to help them.
Effective	Providing care that is respectful of and responsive to individual patient preferences, needs, values, and ensuring that patient values guide all clinical decisions.
Timely	Reducing waits and harmful delays for those who give and receive care.
Efficient	Avoiding waste of equipment, supplies, ideas, and energy.
Equitable	Providing care that does not vary in quality relative to gender, ethnicity, geographic location, and socioeconomic status.
Patient centered	Providing care that is respectful of and responsive to individual patient preferences, needs, values, and ensuring that patient values guide all clinical decisions.

Crossing the Quality Chasm: A New Health System for the 21st Century

The IOM in its 2001 report¹³ *Crossing the Quality Chasm: A New Health System for the 21st Century* focused more broadly on how the health system could be reinvented to foster innovation and improve the delivery of care. It set forth 6 aims for health care improvement, providing a working definition of quality. Health care they determined must be (1) safe, (2) effective, (3) patient centered, (4) timely, (5) efficient, and (6) equitable.¹³ Table 2 further examines the guiding principles of the 6 aims which athletic training health care organizations and educators must also seek to embrace and educate about moving into the future.

THE JOINT COMMISSION SEMINAL PUBLICATIONS, CIRCA 2011–2013

An Introduction to the Conceptual Framework Toward High Reliability in Health Care Organizations

Despite efforts to adopt a variety of models over the following decade, high levels of safety and quality improvement over time and across services and settings could not be maintained. The Joint Commission's President Mark Chassin and Executive Vice President for Health Care Quality Evaluation Jerod Loeb responded in 2011, proposing a framework by which hospitals and health care organizations could move toward high reliability.² They referred to studies of many HROs, revealing several standard features to maintain consistent performance excellence.²

Specifically, HROs have 3 things in common. First, they all exhibit the cultural attribute of collective mindfulness.

Collective mindfulness means everyone in these organizations, both individually and collectively, is acutely aware that even small safety protocol or process failures can lead to catastrophic outcomes for the patient, the workers, and the organization. Workers continually search for potential safety process failures requiring corrective action. Continuously seeking out safety concerns allows organizations to identify safety and quality issues at a point where they are easily corrected before harm or an adverse event occurs.² Second, HROs eliminate potential safety deficiencies through the use of powerful tools to improve their processes (ie, RPI). Third, they establish and maintain a culture of safety to sustain improved safety process performance.²

Thus, to achieve high reliability, 3 changes must occur. Leadership and upper management must be committed to change and willing to allow all members of the organization to be active contributors to an organization's success. A culture of safety must be established, and the tools of RPI must be adopted (Table 3).² The 2 latter concepts are discussed in greater detail in subsequent papers.

The importance of reporting potential risks, hazards, and errors (all types and sizes) cannot be overstated or overreported. Reports of unsafe conditions, faulty safety procedures, and workplace changes reveal issues early before they pose significant risks to patients and employees. Once affirmatively addressed and resolved, safety improvements (via CQI) can be made and reported back to the staff. These actions support a sense of trust among staff members, further encouraging a culture of safety, which results in improved patient outcomes.²

Table 3. Characteristics of High-Reliability Organizations

Characteristics	Description
Leadership commitment	Extends to the board of trustees and senior clinical and administrative managers. High reliability is not quickly or easily achieved, often involving a 10- to 15-y journey. This long-term commitment must be reflected in the organization's mission and vision statements. Measurable goals must be established and progress assessed at regular intervals.
Culture of safety	It requires a sense of trust, in which all frontline staff feels safe to identify a problem or uncover an error made by others. They must trust each other as well as management in that, once a problem is reported, it will be corrected.
Robust process improvement	Represents a collective application of Lean Six Sigma and change management philosophies, tools, and models to deconstruct complex safety problems and respond with highly effective tactics.

The RPI (addressed in a subsequent paper) approach involves measuring the magnitude of a problem, identifying the root causes of the problem and assessing the importance of each cause, finding solutions for the most critical cause, proving the effectiveness of each solution, and implementing programs to ensure sustaining process, quality, or safety improvements over time.²

USING RPI TO ACHIEVE HIGH RELIABILITY IN HEALTH CARE

As Chassin and Loeb first introduced in 2011,² RPI represent the best opportunity for health care organizations to achieve high reliability. *Lean*, with its employee-empowerment philosophy, removes process waste without compromising quality. *Six Sigma* tools are used to reduce variation and decrease the frequency of service errors and defects. *Change management* (CM) is a systematic approach that prepares an organization, and the employees therein, to accept, implement, and sustain process improvements. *Lean*, *Six Sigma*, and CM tools are complementary and together provide the means for a health care organization to achieve significant improvements and ultimately high reliability.³

Therefore, all employees should train in *Lean Six Sigma* tools and methods. Adoption should be universal throughout the organization. Robust process improvement tool proficiency is an expectation to be assessed in each employee's performance appraisal. Career advancement should be prefaced, in part, on acceptance and adherence of *Lean Six Sigma* principles. Quality and safety become personal responsibility for every staff member, regardless of position in the organization.³

The Joint Commission adopted all RPI tools as its internal method of improvement and worked directly with hospitals and health systems to address quality and safety problems. These techniques are by far more effective than their predecessors (ie, total quality management [TQM] and continuous process improvement).⁴ Historically, quality improvement activities consisted of a 1-size-fits-all strategy that led to some improvements. However, results were unimpressive and challenging to sustain over time.⁴

What makes RPI so compelling is the recognition that, for each problem, there are many causes and contributing factors associated with process and system failures. Each cause requires a different intervention. It is typical for 5 or 6 causes to explain a majority of the reasons for a particular problem in 1 hospital. However, a different group of causes may apply to another hospital. Thus, it is unlikely that a package of 5 or 6 targeted interventions would be equally successful for the same problem in another hospital.⁴

Together, *Lean Six Sigma* and CM techniques are far more effective than their predecessors, TQM and continuous process improvement.⁴ While many *Lean Six Sigma* tools have their origins in TQM and CQI, the distinguishing factor of *Lean* is its focus upon both culture and systems-creating paths. The culture of safety, as evidenced by HROs, is a direct product of *Lean*.

Athletic trainers who are frontline providers of patient care within the allied health care system may be well positioned to advance the quality and safety of patient care by engaging in

CQI initiatives.¹⁵ Engaging in strategies to measure outcomes and improve their patient care services, RPI strategies can assist athletic trainers in providing high-quality and affordable care to patients. However, the athletic training profession lacks high-quality, data-driven examples to demonstrate how value, quality, and patient safety affects outcomes when RPI is used. The lack of data-driven examples likely is the result of some nontraditional systems (ie, secondary school and intercollegiate athletics) working in isolation and feeling as though concepts of high reliability or RPI are not applicable.¹⁵ Developing strategies to improve standardized documentation, reduce the incidence of skin infections, improve patient compliance, and implement best-practice recommendations are some examples of how RPI can be used in traditional and nontraditional settings.¹⁵ These strategies are only effective when athletic trainers are both familiar with and comfortable with the process, thus one of the reasons for developing a primer document for educators and those interested in achieving high reliability.

THE ATHLETIC TRAINING LEADER OF THE FUTURE

Fellow, American College of Healthcare Executives Credential

Health care leaders, including athletic trainers, who wish to stand out among their peers and advance their careers and seek to become HROs pursue board certification in health care management as a Fellow of the American College of Healthcare Executives (FACHE). The FACHE credential provides a complete grounding in the competencies and body of knowledge needed to be an effective health care leader. The credential reflects leaders' expertise, experience, and commitment to continuing education and professional development. The credentialing system is multifaceted and involves academic preparation, health care management experience, American College of Healthcare Executives tenure, passing the Board of Governors Examination in Healthcare Management, continuing education, references and community, and civic involvement.¹⁴

Candidates with approved applications are authorized to sit for the Board of Governors Exam. The Board of Governors Exam consists of 10 core knowledge areas: (1) business, (2) finance, (3) governance and organizational structure, (5) health care, (6) health care technology and information management, (7) human resources, (8) laws and regulations, (9) management and leadership, professionalism and ethics, and (10) quality and performance improvement.¹⁵ The quality and performance improvement area of the Board of Governors Exam concentrates on the development, implementation, and evaluation of organizational accountability, including quality improvement theories and frameworks programs, quality assessment and assurance philosophies, policies programs, and procedures.¹⁶

The FACHE is the gold standard to become a C-suite executive. The content provided within this article is meant to introduce the essential concepts addressed within the certification exam. Athletic trainers who meet the eligibility criteria can sit for the exam. Success on the exam is dependent upon their understanding of the 10 core knowledge areas listed above, including the information described in this manuscript.

Table 4. Health Care Administration Core Competencies

Competencies	Description	General Examples	Athletic Training Examples
Communications and interpersonal effectiveness	Communication competencies are associated with giving and receiving of information between an individual and other individuals or groups. Interpersonal effectiveness competencies are those associated with developing and maintaining effective working relationships with others.	Collaboration, oral communications, relationship building, and written communications between professional and patients.	Oral and written communication with patients, athletes, and senior leadership team members. Serving as an integral member of a disciplinary health care team.
Critical thinking, analysis, and problem solving	Related to the appropriate use of information, data, and judgment to inform sound management decisions.	Analytical thinking, financial management, information seeking, performance measurement, and process management.	Develops best practice guidelines for professional interactions to negotiate differences related to a patient's unique characteristics, needs, and goals. Develops organizational policies and education to support respect for a patient's unique characteristics, needs, and goals.
Management and leadership	Related to a student's ability to pursue organizational goals through collaboration with others successfully.	Change management, human resource management, impact, and influence, initiative, information technology management, innovative thinking, organizational awareness, project management, strategic orientation, and talent development.	Leads the development of clinical pathways for the delivery of high-quality, affordable health care. Coordinates evidence-based research to inform best practices for patient care. Introduces innovation in diagnostic testing and procedures in athletic training. Role models continuous quality improvement of personal practice, as well as larger health systems or complex projects, using advanced methodologies and skill sets.

Commission on Accreditation of Healthcare Management Education Accreditation

High reliability and RPI (ie, Lean Six Sigma and CM), are now common themes in undergraduate and graduate health care administration curriculums. Athletic training educators wishing to prepare athletic training students for health administration positions (eg, athletic health care administrator) should consider designing a curriculum with core competencies consistent with the Commission on Accreditation of Healthcare Management Education (CAHME) accredited master's in health administration programs. The CAHME, the accrediting body for health care administration programs, requires core competencies within 4 domains. Said domains include (1) communications and interpersonal effectiveness; (2) critical thinking, analysis, and problem solving; (3) management and leadership; and (4) professionalism and ethics (Table 4).^{2,17-19} Patient safety, quality, and process improvement (ie, the elements of high reliability and RPI) are topics addressed in coursework designed to meet each domain's core competencies. Again, these core concepts have overlap with Commission on Accreditation of Athletic Training Education standards, especially at the postprofessional and residency level.

The themes of empowerment, collaboration, accountability, strategy, performance measurement, CM, and accountability are reflected in both CAHME accreditation competencies and the principles of high reliability. Health care executives and leaders at all levels and settings must become fully versed in these concepts and expectations.

The Athletic Training Milestones Project¹⁹ capture the breadth and depth of athletic training knowledge, skills, attitudes, and behaviors and are similar to CAHME's core competencies. The Athletic Training Milestone Project's 6 general competencies include (1) patient care and procedural skills, (2) medical knowledge, (3) practice-based learning and implementation, (4) interpersonal and communication skills, (5) professionalism, and (6) systems-based practice. These are the foundational behaviors appropriate for every athletic trainer entering general practice. Moreover, these Athletic Training Milestones and CAHME core competencies are also criteria established by the IOM to ensure quality care which involves the delivery of safe, timely, effective, efficient, equitable, and patient-centered care, the characteristics of an HRO, something all athletic training health care organizations should strive to achieve.

CURRICULUM CONSIDERATION FOR ATHLETIC TRAINING

Athletic training is not averse to any of the problems or challenges faced by large health care systems or organizations. Adverse event(s), medical error(s), waste, and system inefficiencies and process problems exist, just not in the same magnitude and frequency. However, when they do occur, they are often not readily identified.

Nevertheless, why do they exist? Is it a lack of awareness or knowledge preparation, or support for change and movement toward HRO from leadership, or ignorance and the it-will-not-happen-to-me mentality? Regardless of the reason(s), even 1 medical error is 1 error too many. Moreover, like large health care systems and organizations, the majority of medical errors do not result from individual recklessness or the actions of a particular group or even person. Instead, errors result from faulty systems, processes, and conditions that lead people to make mistakes or fail to prevent them. However, with the right processes, people, and systems in place, these mistakes and errors occur less frequently and improve patient experiences and outcomes.

As future C-suite team members, athletic trainers should be educated to foster innovation and improve the delivery of care to a diverse patient population. Athletic trainers must begin to embrace the principles of HROs, RPI, and a culture of safety. However, this can only be achieved through adequate exposure to training which originates within the classroom, clinical education, and continuing professional development.

Additionally, as athletic trainers progress in their management careers, they too may consider pursuing the prestigious FACHE credential to distinguish themselves as individuals and representatives of the athletic training profession. For that reason, athletic training curriculums should consider addressing the concepts of high reliability, RPI, and culture of safety content in their coursework. This work could be addressed from day 1 and reinforced during each clinical opportunity with the integration and facilitation of the Athletic Training Milestones.¹⁸ Immersive clinical experiences should not only focus on patient care, but opportunities should be afforded to students to identify and integrate the characteristics and principles of high reliability, which will be presented in subsequent papers. Furthermore, we encourage the development of professional education programming for those currently in the workforce who have the desire to move their organization to the next level of quality improvement and patient care.

LIMITATIONS AND FUTURE RECOMMENDATIONS

We acknowledge this paper only scratches the surface of much larger topics and is framed more as content for entry-level health care business journals. However, this primer document creates a foundation for understanding and working toward high reliability in athletic training.

We also acknowledge that there appears to be a lack of examples focused on athletic training provided within the paper. The lack of examples is due to the paucity of published work regarding the achievement of high reliability in athletic training. Thus, we challenge athletic trainers to seek out

training and resources (ie, Lean Six Sigma and CM) to be able to apply the concepts associated with HROs. Furthermore, we challenge athletic training educators and the professional association to introduce and facilitate conversations revolving around HROs, a culture of safety, and RPI. Starting the hard conversation may allow future athletic training professionals to speak to, act on, and publish work in areas on how one achieves high reliability in athletic training health care organizations, thereby creating evidence-based examples to fill a current knowledge gap in athletic training.

CONCLUSIONS

The educational preparation of athletic trainers at any professional level has standards (standards 2 and 4 for postprofessional and residency, standard 91 for professional) that address the need to be knowledgeable and able to converse about high reliability in all settings. As athletic training programs transition from undergraduate to graduate degrees and as athletic trainers pursue and acquire more executive leadership roles, athletic training students and professionals need sufficient academic preparation with requisite coursework. Arguably, athletic training curriculums should include high-reliability content similar to that of a master's of health care administration. As addressed herein, quality and process improvement are essential domains (with corresponding competencies) in all types of health care management curricula.

As first introduced by the Joint Commission in 2011, high reliability can only be achieved through RPI, which is only achieved with a complementary approach to Lean Six Sigma and CM, 2 concepts addressed in Lean Six Sigma and Athletic Training: A Primer for Athletic Training Educators²⁰ and Change Management and Athletic Training: A Primer for Athletic Training Educators.²¹ Further work and conversations are needed in this area. We encourage athletic training educators to use this primer document as a resource to introduce the concept of what and why high reliability is important in athletic training within their curricula across multiple levels of educational preparation.

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