



Laerdal[®]
helping save lives

Improving Healthcare *Through Simulation*



Introduction

Our goal in putting together this e-book is for you to read each page feeling more and more empowered. Whether you are a current client, prospective client, or someone who just wants to learn more about patient simulation, our objective is to help you multiply your knowledge so that you can achieve your professional goals. We have purposefully selected themes that we hope will help you achieve success—whatever your role might be in simulation.

Change is a constant in healthcare. With change, of course, comes disruption, new learning curves, and even potential patient risk. In the context of our mission of *helping save lives*, we believe that simulation is an optimal means for mitigating the

impact of change. Through simulation, healthcare practitioners can train in realistic circumstances before ever taking into their care a human life. As healthcare continues to change, we continue to develop solutions to prepare learners for real-world situations.

In each of the following chapters, you'll find information surrounding the latest trends in healthcare. There will be hyperlinks that you can follow to read additional content varying from articles to infographics to videos. If you like what you read, we hope you'll share it!

Thank you for reading and being part of a community that is working hard to improve healthcare for all.

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Changes in Nursing Practice



Nurses are no longer caretakers to the healthcare team, carrying out tasks ordered by physicians. Now we are **leaders of the team as well as patient advocates and educators.**

*In the ED where I work, nurses are the first to assess patients and often establish the goals for their hospital stay. Physicians view us as **colleagues who make concrete observations and offer valuable suggestions.***

— Rosanne Greenan, RN, CEN, Northern Westchester Hospital

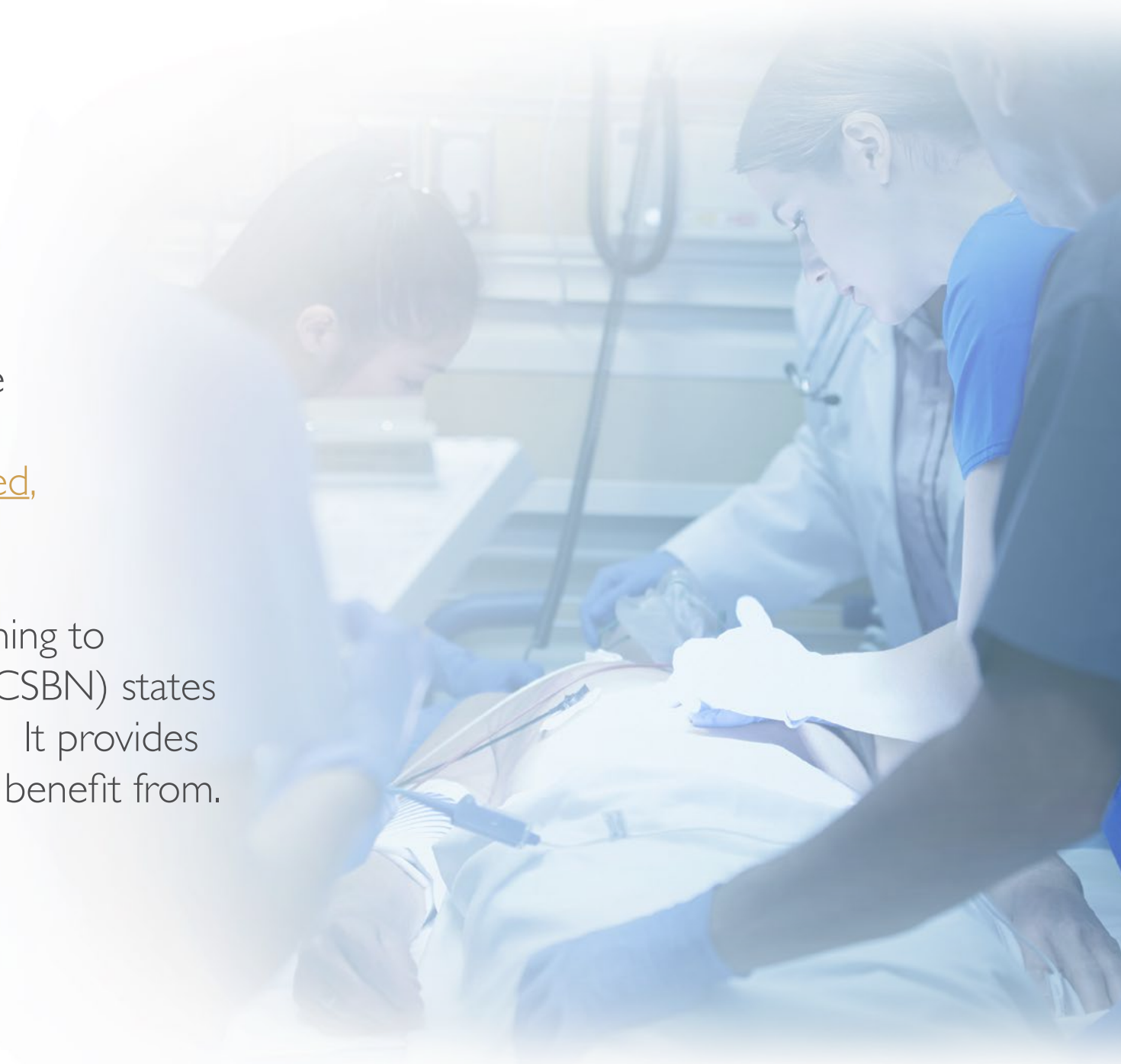
The [expectations](#) for nurses are higher today than 25 years ago.

Nurses today are expected to have strong leadership, critical thinking, and decision making skills. This is far from what was common for nurses 25 years ago.

In addition, today's nurses are responsible for the diagnosis and assessment of a patient and safe patient-centered care. They are also more likely to be hired if they have earned an advanced degree. These are just a few of the ways that [nursing has changed](#), and why the way they train has had to change too.

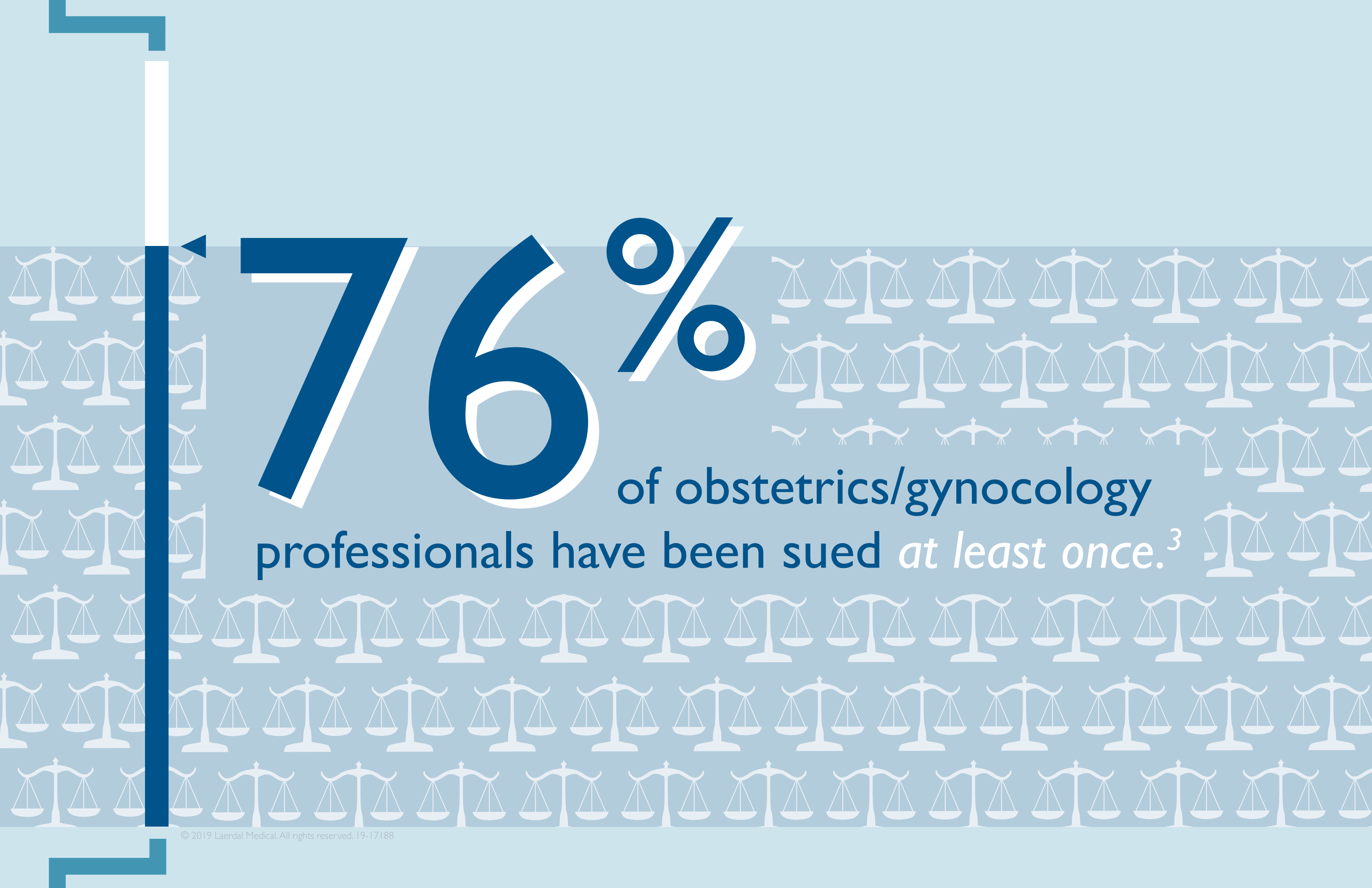
To meet these increasing expectations, nurse educators are turning to simulation. The National Council of State Boards of Nursing (NCSBN) states that up to 50% of clinical time can be replaced with simulation.² It provides the hands-on, inclusive, and immersive experience that learners benefit from.

Simulation can help nurses to meet the needs of [today's nursing environment](#).





Reducing Risk during Childbirth



76%

of obstetrics/gynecology
professionals have been sued *at least once*.³

Maternal mortality and morbidity remain a challenge in the United States.⁴

Approximately 700 women die each year in the U.S. due to pregnancy and delivery complications.⁵ Today, over 60% of these deaths are preventable.⁶

Risk has always been a major impetus for the use of simulation. Caring for two patients, the mother and the baby, creates double the possibility for complications and requires twice the amount of patient monitoring. And, now more is known about how women's general [health and lifestyle](#) can further affect the risk of complications.

Simulation can help prepare healthcare professionals for low-frequency, high-acuity emergencies. The multitude of [simulation fidelity options](#), which create varying degrees of realism, give educators tools to support experiential learning at all levels.

Each different simulation modality can support the needs of learners and help to reduce risk in maternal and newborn care.



Improving Newborn Resuscitation

10 million babies worldwide

will need help breathing when they are born.

10 thousand non-breathing babies
will need advanced methods of resuscitation.⁷

The “Golden Minute” highlights an essential training opportunity.

A newborn’s very first minutes outside of the womb are critical in predicting newborn outcomes. Only 60% of asphyxiated newborns can be predicted before birth, and the remaining 40% are identified during the [“Golden Minute.”](#)⁸

To make the most of these critical 60 seconds, it is important to have evidence-based care guidelines and to train for [effective neonatal resuscitation](#). In 1987, the American Academy of Pediatrics (AAP) created the Neonatal Resuscitation Program[®] (NRP[®]) for just this reason. Now, an estimated 200,000 learners complete the NRP Provider Course every year.⁹



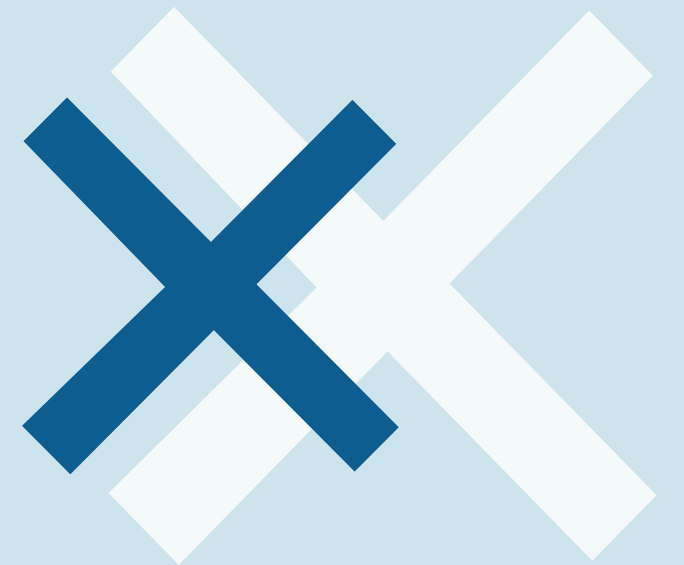


Better Training for Pediatric Emergencies



Root Causes of Pediatric Errors:¹⁰

- × Impaired calculation ability under stress
- × Inaccurate weight estimate
- × Faulty recall of doses
- × Unaided calculations



Children are not just small adults.

Over the past twenty-five years, emergency departments have seen an increase in patients, and nearly 25% of these are children.¹¹ Because children are brought primarily to facilities that do not specialize in pediatric care, experts worry that children may not be receiving the specialized care they deserve.¹²

More and more, educators are turning to simulation, which can prepare healthcare professionals to appropriately treat and care for pediatric patients.

Simulations can be made more impactful with a focus on:

- the decision-making process in a clinical pathway
- administering small doses of medication
- working with an interdisciplinary team

Incorporating each of these elements can provide learners with the opportunity to exercise the caution, decisiveness, and collaboration required to treat high-risk pediatric patients.

Administering medication to **small patients** is a **big concern**.

The single most commonly cited error in pediatrics is incorrect medication dosing.¹³ Research suggests that medication errors among pediatric patients can be as high as 1 in every 6 orders.¹⁴

Children can vary greatly in size, weight, and organ system maturity. Each of these factors can affect their ability to metabolize and excrete medications. Practicing calculations and preparing medications as part of a simulation can improve a learner's proficiency in [administering medications](#).

By integrating medication management into a scenario, learners can see what an adverse medication reaction might look like and how to prevent one.



Diagnostic Imaging



17%

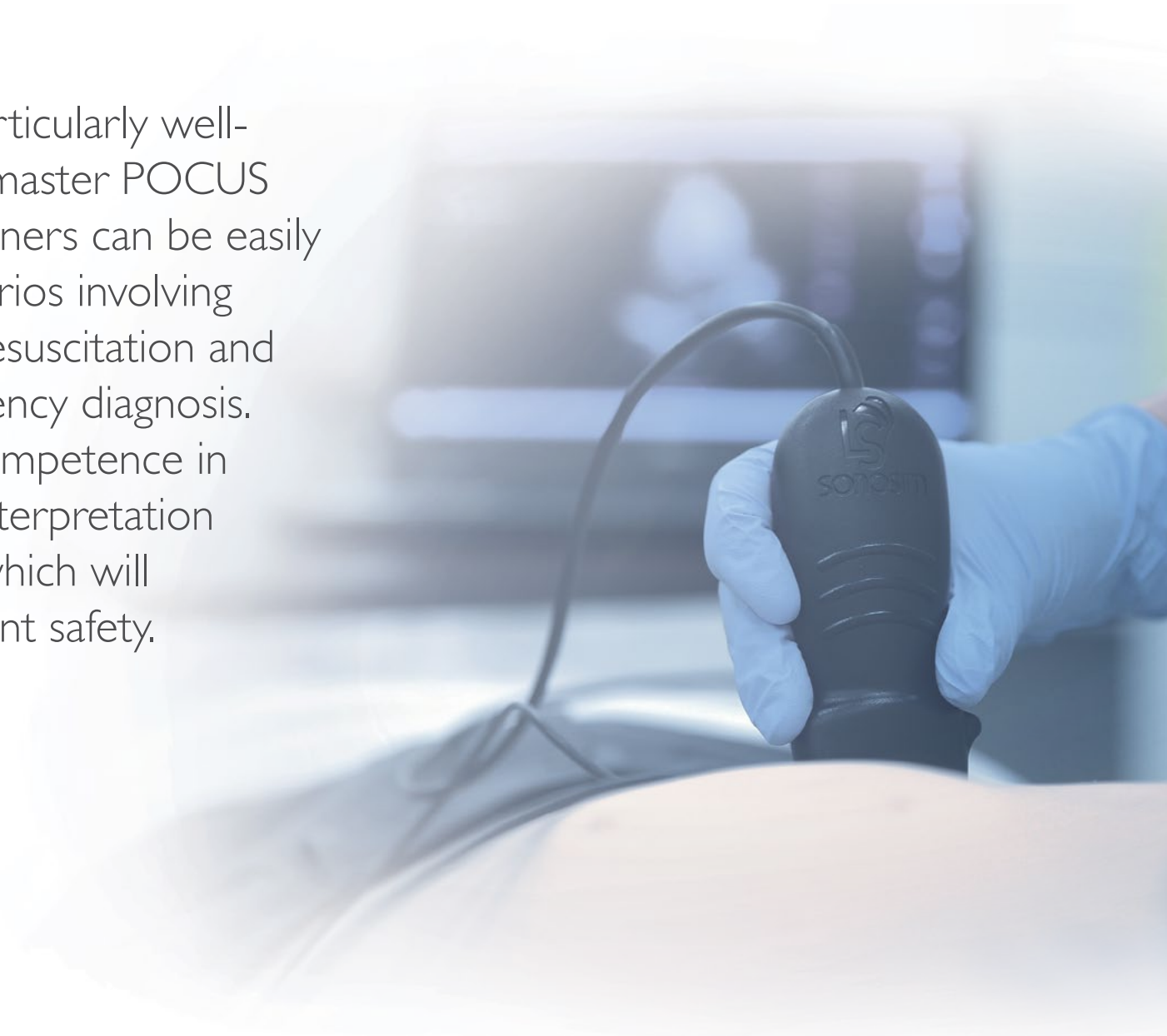
**of patient harm
stems from improper
diagnosis alone.¹⁵**

Point-of-Care ultrasound is a valuable addition to an acute care clinician's toolbox.

Ultrasound has historical applications in military and industrial settings, but today it is also well-established in healthcare. The technology is integrated among a wide-range of diagnostic and therapeutic uses.

As ultrasound equipment becomes more portable, bedside point-of-care ultrasound (POCUS) can be used to improve diagnostic accuracy and influence treatment plans in emergency and intensive care areas.

Simulation training is particularly well-suited to help learners master POCUS use. Ultrasound task trainers can be easily incorporated into scenarios involving physical examinations, resuscitation and stabilization, and emergency diagnosis. Learners can achieve competence in image acquisition and interpretation *and* develop practices which will ultimately improve patient safety.



Assessing your Simulation Program



*We anticipated that there would be faculty who were unfamiliar with simulation education, which was revealed in the assessment, but we also learned that almost **all of our faculty were eager to learn and become proficient in simulation.***

— Southern Illinois University Edwardsville (SIUE)¹⁶

Enhance the student learning experience with expert assessments and recommendations.


For any organization, simulation can be quite a large undertaking. Faculty who already have limited time can become overwhelmed by the added responsibility. Today, though, experts are available to help provide guidance.

Programs have been developed to help make the process of implementing change more smooth. The [Needs Assessment and Strategic Planning Workshop](#), as an example, provides an initial assessment, the implementation steps, and regularly scheduled pulse checks to customers. Each of these components is geared toward those who want help expanding the use of their simulations.

Identifying areas for improvement is the first step to growing a simulation program.



Virtual Simulation



65% of nursing programs
are using virtual simulation.¹⁷

To meet the needs of modern day learners, you need to deliver on their terms.

Today, information is at a learner's fingertips with Google and other search engines. 77% of adults in the United States own a smartphone, which is a substantial increase from 35% of adults in 2011.¹⁸

Learners of all ages are exposed to more information in a day than previous generations were, and they are more prone to multitasking.¹⁹ Because digital media has made such a tremendous impact in the daily lives of learners, nursing programs have begun to implement virtual simulation in their training curricula.

Virtual simulation, one of the more prominent forms of eLearning, helps learners to conceptualize safe care practices and develop critical-thinking skills.





Doing More with Less

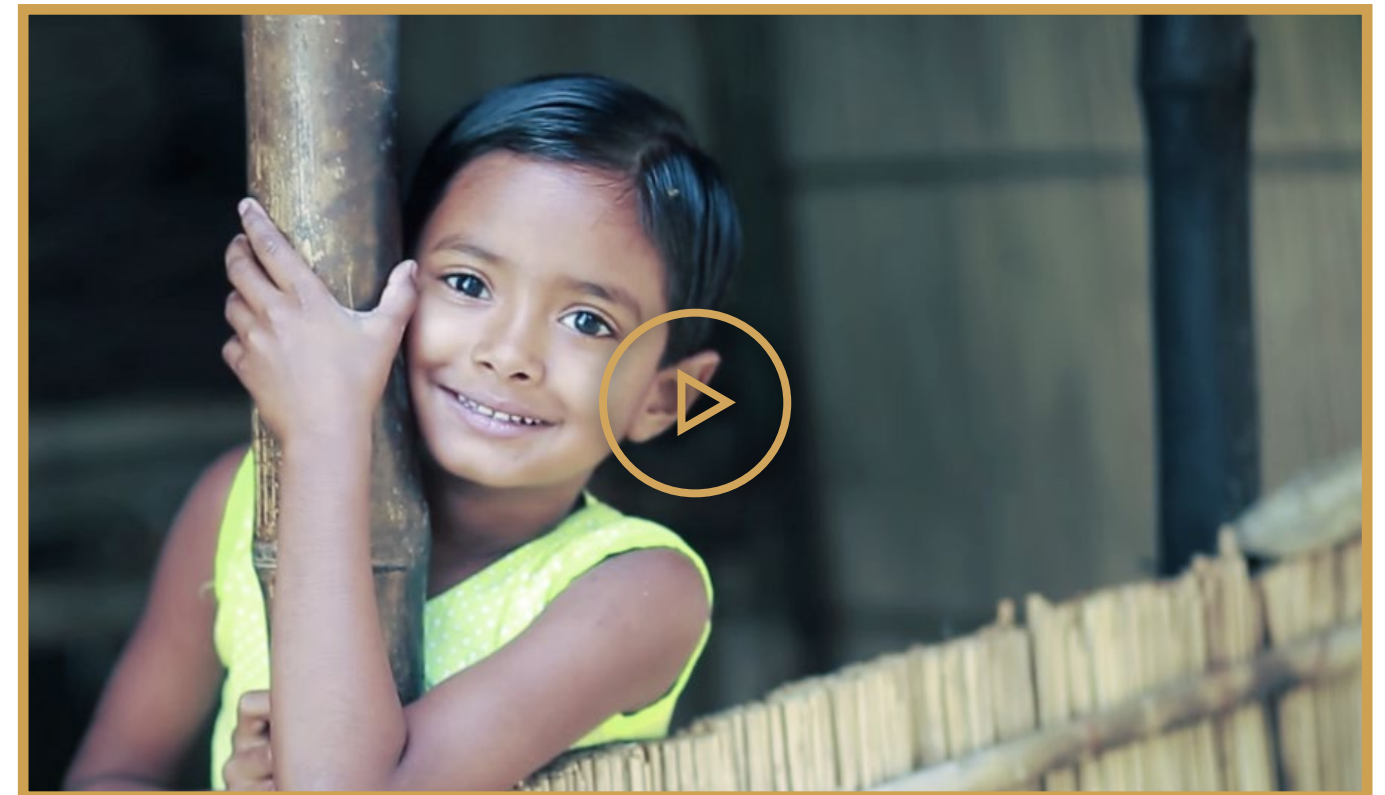
700

women die each year
in the U.S. before or
during childbirth.²⁰

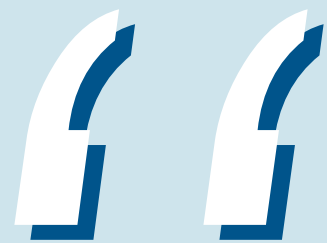
Simulation experience in low-resource countries can be **just as effective** in the U.S.

Laerdal Global Health (LGH), a not-for-profit organization funded by Laerdal Medical, develops programs to reduce maternal and infant mortality rates in low-resource countries. Thus far, they have seen success with their programs. For example, a study in Tanzania showed a 47% decrease in newborn mortality after using LGH's products to train.²¹

In the United States, women are more likely to die from childbirth or pregnancy-related causes than other women in the developed world.²² While LGH's efforts are focused on low-resource countries, **their experience** shows that simulation training is effective in any setting—at any level of fidelity.



Professional/Staff Development



*Faculty development must be viewed as a **diffusion process**. If the fundamentals for success are put into place and **practiced consistently**, then the faculty development program will be **successful both in terms of institutional impact and faculty career satisfaction**.*

— Henry W. Smorynski, PhD²³

Organizations must recognize **the value** of investing in faculty and staff development.

Programs continue to invest in simulation equipment and lab space, but research shows that the investments toward faculty development are often underfunded or neglected entirely.²⁴ Because of this, many current simulation faculty members have received very little formal training and may feel overwhelmed in their role.²⁵

Experts recommend continual competency development for educators, coordinators, and administrators involved in simulations. Periodic trainings can help to build confidence among faculty and staff. And, [professional development](#) can also help to address turnover, standardize training, and improve agility.

In order to determine the training frequency and subject matter for a specific facility, it's also recommended to perform a [risk assessment](#).



Peer-to-Peer Learning



Peer learning may be an equally, if not more, effective method of delivering information in undergraduate nursing education.²⁶



Enhance learning opportunities through formalized peer-led activities.

Peer teaching is a method by which one student instructs another. Over the past 30-40 years, this method of learning has become increasingly popular. In simulation labs, [peer-to-peer learning](#) can provide more flexibility for faculty and more hands-on skill development for students.

Studies show that undergraduate nursing students can benefit from peer learning. These benefits include:²⁷

- Increased confidence
- Improved competence
- Decreased anxiety
- Heightened satisfaction





Patient Safety

Medical error is now
estimated
to be the

3rd

leading cause of
death in the U.S.²⁸

Poor teamwork and communications are the root cause for most patient harm.

If you look at healthcare organizations who are leaders in delivering safe, patient-centered care, a common characteristic is that they place a premium on creating great teams. Often this is in response to the finding that most cases of patient harm are attributable to a breakdown in teamwork and communications.²⁸

Preventable medical error in U.S. hospitals accounts for an estimated 250,000 patient deaths and over one million injuries annually.²⁹ And, many are now turning to team-based simulation as a means to achieve their best possible performance—with the goal of reducing potential patient harm.



Simulation is effective at creating better teams and reducing patient risk.

Using simulation as an intervention to [improve team training](#) is a growing trend in healthcare. Medical schools, nursing schools, and hospitals have all started to agree that multidisciplinary team training needs to be part of the curriculum. The objective: to create experiences where clinicians who work with each other irregularly, and who have different clinical backgrounds, can have the chance to practice teamwork

and communication skills before they ever encounter a real patient.

Multidisciplinary team simulations turn a team of experts into an expert team. If you have not considered using this approach, evidence indicates that it yields major benefits.

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