In November 2006, a Simulation Summit was convened in Chicago, IL by the Society for Simulation in Healthcare. The purpose of this gathering was to bring together stakeholders from the widest possible range of societies, organizations, and regulatory agencies with an interest in healthcare simulation. Thirty-three organizations were represented by over 50 participants. Through structured small and large group discussions, eight major themes emerged for the advancement of simulation into the mainstream of healthcare education. Four of these were unanimously agreed upon, and four were widely accepted by the group. This paper summarizes the results of this Summit including future plans to advance the integration of simulation into the mainstream of healthcare.

The Society for Simulation in HealthCare (SSH) convened a North American Simulation Summit in Chicago on November 14, 2006 to foster dialogue among a wide range of stakeholders interested in a robust future for simulation in health care. Fifty-five individuals participated, representing 33 organizations including specialty societies, regulatory bodies, and industry (Appendix A). Those attending were invited by SSH with the goal of representing a cross-section of stakeholders in healthcare simulation in the United States. In addition to the multidisciplinary, multispecialty representatives from the organizations listed, the SSH was represented by members of the SSH Board of Directors and members of the editorial board of Simulation in Healthcare.

SSH chose to host the summit both because of its mission to lead in facilitating excellence in multidisciplinary health care education, practice, and research through simulation and its vision to move simulation into the mainstream of healthcare. SSH is an international organization that was established in January 2004 to represent the rapidly growing group of educators, scientists, and clinicians who use a variety of simulation techniques for education, testing, and research in health care. The membership, now over 1,500, is united by its desire to improve practitioner performance and reduce errors in patient care using all types of simulation such as task trainers, human mannequin and flat-screen simulators, virtual reality, and standardized patients. Although this initial summit focused on the United States, its precedent-setting format will likely be copied in the future with international collaboration.

Except for a short “ice-breaker” simulation, there were no presentations made at the summit. Instead, a professional facilitator (JV) led a series of working sessions where participants were encouraged to discuss their ideas, position, and interest related to simulation. Participants at the summit completed a series of exercises aimed at generating ideas. Discussion was first undertaken in groups of eight and then results were shared with the entire body. The facilitator summarized and documented the conversation at each stage and provided a distillation of themes throughout the day.

RESULTS OF THE SUMMIT

Participants at the Simulation Summit worked diligently and collaboratively in a workshop mode. Their initial task was to create a shared definition of simulation and a sense of common uses. Working in small, diverse groups, participants defined simulation as: “A surrogate for reality that, being safe, eliminates patient risk” “A recreation of reality in a controlled environment based on learning objectives” “An activity that mimics reality for education, research, and improving outcomes”

Participants indicated their current uses for simulation in the following areas: testing, evaluating, and credentialing (94%); teaching (86%); research (60%); and product safety assessment (29%). The most common types of simulation employed by participants were: full mannequin patient simulation (80%); task trainers (77%); standardized patients (actors) (62%); case reports/problem based learning (60%); virtual environments (57%); and flat screen computers (57%). Most participants indicated they were using or interested in multiple simulation modalities and purposes.

Next, areas of agreement and disagreement were explored through the responses of those attending the Summit to a series of provocative statements. Some statements were widely agreed upon, such as “All trainees and clinicians should have access to simulation-based teaching and practice.” As one participant noted, “If there is any benefit to one, all should have access.” For other statements, there was a wide difference of opinion expressed such as, “Current sim-
TABLE 1. Eight Major Themes Selected by Summit Participants

<table>
<thead>
<tr>
<th>First Tier</th>
<th>Second Tier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competency metrics, validation studies, and research</td>
<td>A common vision and business plan</td>
</tr>
<tr>
<td>Simulation standards and guidelines</td>
<td>Greater collaboration via forums, partnerships, and clearinghouses</td>
</tr>
<tr>
<td>Regulatory mandates</td>
<td>Greater public awareness and grassroots advocacy</td>
</tr>
<tr>
<td>Funding and investment in the field</td>
<td>Culture change through results-driven simulation successes</td>
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</table>

General consensus was reached for first-tier items. Second-tier items were enthusiastically supported by a subset of summit participants.

Simulation equipment is adequate for high-stakes testing,” and “Who should pay for simulation-based instruction?” The complete list of questions and participants’ response rates to these are captured in Appendix B. Representative comments are also listed as these often captured the participants’ answers better than the scores alone. A similar survey of the SSH membership is available on the Society’s web site for comparison.

Looking forward, participants mapped out what would be needed for the field to achieve its fullest potential. Eight major themes emerged in two tiers of priority (Table 1). The first tier represents strong areas of common ground among most Summit participants. The second tier represents important ideas that surfaced and were supported with enthusiasm among a subset of summit participants.

FIRST-TIER THEMES

Competency Metrics, Validation Studies, and Research

There was general agreement among the summit participants that validated metrics for competency across a wide range of experience levels, specialties, and disciplines are needed. The difficulty of this task was widely appreciated and with some notable exceptions, considerable research is required. A strong need was expressed for exemplar models where the content could be inserted into a framework that had been proven effective in another application. Consensus was not reached on how to best meet this need but the value of approaching the problem collaboratively was acknowledged. It was agreed that SSH might play a key supportive role in the development of models for validated competency assessment and would certainly be an information resource in distributing them.

Simulation Standards and Guidelines

The group concurred over the need for standards and guidelines for the application of simulation techniques to learning and assessment. There was unanimous agreement that guidelines and best-practice documents would be helpful to everyone in applying simulation to healthcare problems. Eventual development of a standard template with common objectives, terminology, curricular format, outcomes, and assessment tools was strongly desired. In one model, SSH would develop a framework and specialty societies and regulatory bodies would contribute specific curriculum content and objectives. SSH is not seen by summit participants as an accrediting body.

Regulatory Mandates

The summit participants believed that regulatory mandates for using simulation techniques to educate and evaluate healthcare practitioners would be required to maximize the potential of this modality. However, it was widely observed that the validation of simulation’s effectiveness as a learning and assessment tool was needed before this would occur. No consensus was reached on how long it might take for simulation to be a required element in education, training, competency assurance, licensing, or credentialing. A notable exception is the U.S. Food and Drug Administration’s requirement for simulation training prior to performing carotid stenting.

Funding and Investment in the Field

The issue of funding came up repeatedly throughout the day. Summit participants were in total agreement that substantial funding would be needed to accelerate development of simulator technology, learning and assessment tools, and the validation of simulation standards and guidelines. The advantage of collaboratively advocating for support from a diverse consortium of funding sources including federal programs, national institutes, military branches, foundations, industry, insurance companies, and medical societies, was recognized. An important focus would be to conduct the research necessary to validate simulation based competency assessment.

SECOND-TIER THEMES

A Common Vision and a Business Plan

SSH could help coordinate vision-driven business planning for the effective and efficient implementation of infrastructure and other strategies that will lead to the institutionalization and long-term sustainability of simulation.

Greater Collaboration via Forums, Partnerships, and Clearinghouses

SSH could bring together users, teachers, developers, and accrediting bodies to build consensus across specialties and disciplines, develop a common language, and set common priorities and guiding principles.
Greater Public Awareness and Grassroots Advocacy

The field must garner greater public understanding and appreciation of simulation linked to grassroots advocacy for its development and implementation.

Culture Change Through Results-Driven Simulation Successes

The field needs to blend and embed basic simulation curriculum into health care training programs. The demonstrated value of these programs should drive these changes.

SIGNIFICANCE OF THE SUMMIT

This forum was the first to bring together this diverse group of individuals representing the wide range of stakeholders in the healthcare community. The summit was planned to provide a starting point for increased collaboration and cooperation and this multiprofessional, multidisciplinary group focused on simulation as a concept rather than a tool within their individual domains. The use of simulation has exploded due to a combination of forces, and a variety of groups have been working independently and sometimes unknowingly towards a common goal. Many groups were not aware that they had much in common. This 1-day retreat fostered the notion that collaboration and healthy competition will provide a more efficient and effective means of achieving the success desired by all.

Future summits will be needed to address new and emerging issues and to more specifically define goals and objectives. Several ideas emerged from this summit including an industry-users summit to lay out a course for equipment improvements and user feedback. A standards paper on simulators for intra-arterial procedures is being developed in collaboration with interventional cardiology experts. Successful methods will be shared and adapted to new projects, efficiently moving the entire field forward.

SUMMARY

The 2006 Simulation Summit brought together representatives from a wide range of organizations that are committed to enhancing healthcare education and patient safety through the use of simulation. It was clear to the participants in the end that we have more in common than was initially appreciated. As core issues and common needs rose to the surface, Summit participants were energized to act as change agents with the shared goal of moving simulation into the mainstream of health care.

APPENDIX A: ORGANIZATIONS REPRESENTED AT THE 2006 SIMULATION SUMMIT

Advances in Medical Simulation
American Academy of Pediatrics
American Association for Respiratory Care
American Association of Colleges of Osteopathic Medicine
American Association of Nurse Anesthetists
American College of Chest Physicians
American College of Emergency Physicians
American College of Obstetrics and Gynecology
American College of Surgeons
American Heart Association Emergency Cardiovascular Care
American Medical Foundation for Peer Review and Education
American Society for Healthcare Risk Management
American Society of Anesthesiologists
Anesthesia Patient Safety Foundation
Association of Academic Psychiatry
Association of American Medical Colleges
Association of Operating Room Nurses
Association of Standardized Patient Educators
Canadian Patient Safety Institute
Citizen Advocacy Center
Federation of State Medical Boards
Internation Nursing Association for Clinical Simulation and Learning
Medical Device Industry
National Association of EMS Educators
National Board of Medical Examiners
National Board of Osteopathic Medical Examiners
National Council of State Boards of Nursing
National Patient Safety Foundation
Office of Device Evaluation FDA
Society for Academic Emergency Medicine
Society of American Gastrointestinal and Endoscopic Surgeons
Society of Critical Care Medicine
Telemedicine and Advanced Technology Research Center (TATRC)

APPENDIX B: PROVOCATIVE STATEMENTS AND RATE OF AGREEMENT AMONG PARTICIPANTS WITH REPRESENTATIVE COMMENTS

1. All Trainees and Clinicians Should Have Access to Simulation-based Teaching and Practice
Comments

If there is any benefit to one, all should have access
Access means a little bit (not every procedure on every patient)
Value of equity
Assumes general belief that simulation is worthwhile and useful
Represents the gospel of the church of simulation
Believe access will have a positive impact on culture
Speaks to capacity—should be opportunity, should be infrastructure

2. Our Goal Should Be That Competence for Every Procedure Must Be Demonstrated on a Simulator Before Performing That Procedure on Every Patient

Disagree
Impossible to achieve this goal
Can’t even do the basic stuff yet
In many instances the patient acts as simulator, and it works
Don’t know cost-benefit yet
Beware increasing costs of health care by applying simulation to inappropriate uses
Assumption that competence on a simulator translates to performance, which is not always the case

Agree
Worthy and noble goal
Gospel of the church of simulation
How do we define the risk to the patient?
Involves an implicit assumption that we choose the procedures that give us the biggest bang for the buck

3. Simulation Should Be Used for Screening to:
Get into medical/nursing school
Get into postgraduate training
Interview for jobs

Disagree
Finding the tools to evaluate all that want from doctors is difficult and nebulous
We don’t know what makes for a good nurse, resident, or clinician, therefore we don’t know what to simulate
Beware a lawsuit if you deny someone a job based on a simulation

Agree
Beware a lawsuit if you give someone a job based on a simulation and they don’t perform
Assume you will be sued either way
Must be better than what we do now, without simulation
Interviews are the best area of the three above in which to apply
We don’t use simulations for interviews as the whole activity, but a useful component
We use it for interviews and get very revealing information from it
It is being used now for interviews because it adds value
Works best for procedure-based health care

4. Our Goal Should Be to Shorten Student Training Time by 50% by Using Simulation and Other Immersive Technologies and Techniques

Disagree
There is too much didactic information to communicate for this to happen
Simulation could increase time require
Simulation deepens value, but may not save time
Our focus is always “make it quicker”—at some point is counterproductive
Simulation enhances the experience and offers more exposure yet may lengthen the training time
Agree

We can acquire more skills more quickly through simulation because we gain exposure to more situations more quickly.

Simulation may make use of time more efficient to achieve the same objectives.

Metrics and needed and objective data

Increased calls to shorten residency are a trend.

It’s a good goal.

We can use simulation to shorten the learning curve.

We are undergoing a natural experiment in nursing now.

There is a shortage of nurses.

We are experimenting with faster training methodologies to produce more nurses more quickly.

Nursing is leading the way in embracing simulation.

Professional training time has lengthened progressively in the last century.

Has to end some time.

Need to accelerate the travel along the learning curve (especially as it impacts patients).

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Disagree

Depends how you define competence.

There is more to competence than just technical skills.

Competence is not just technical skill.

Also cognitive.

Also emotional/affective.

This shows we don’t believe that simulating performance equals actual performance.

What if a 15-year-old kid demonstrates competence on a simulator?

You face huge liability issue if you do this.

---

Agree

If it demonstrates competency, why not?

We can do it now for some procedures.

Shows us the underbelly of medicine, which is turf.

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5. Once Someone Demonstrates Competence for a Procedure on a Simulator, They Should be Allowed to Perform and Bill for the Procedure Regardless of Their Particular Degree or Training?

Disagree

Some are good, some are not good.

A validation process is needed.

Expense of simulator is not key.

Sometimes just practice is enough.

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Agree

Some are good enough now.

The existing system is poor, if not hopeless.

So even poor simulators are better than the current system.

We get objective, consistent information from them.

---

6. Current Simulators (Equipment) Are Good Enough for High Stakes Testing?

Disagree

Some are good, some are not good.

A validation process is needed.

Expense of simulator is not key.

Sometimes just practice is enough.

---

Agree

Some are good enough now.

The existing system is poor, if not hopeless.

So even poor simulators are better than the current system.

We get objective, consistent information from them.

---

7. Most Simulation-based Instruction Should be Paid for by (Choose One)

Comments

Aviation model is paid for by customers.

Analogy would be patients.

Ultimately most medical costs go back to Government.

Work force money is available.

Hospitals have incentive to save money, improve outcomes, reduce losses, reduce errors.

They have a lot to gain and lose.
Majority of support for procedure based medicine comes from device and drug companies. They have lots to gain and lose. Yet this raises concerns about conflicts of interest. There is an assumption that simulation reduces costs, whereas it may not. It improves quality, and may increase cost.

8. Best Timing For Starting Simulation-based Education

Favoring Early Training
Early training makes you open to it later in your career. Should aim for “low hanging fruit:” the earlier you start the more acclimated you become. Airline industry folks start early; it’s all they know. Best would be both.

Favoring CE/CME
There is typically no money to support early training. Should aim for “low hanging fruit:” funding for new devices in high-risk procedures. Constant change in the field requires CME education focus. Best would be both.

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