

Over 40 thought leaders from across academia, industry and communities of practice focus on how to increase adoption of simulation in healthcare

# Demonstrating The Value Of Simulation Based Practice

REPORT FROM 2015 GNSH  
SUMMIT MEETINGS

January 2016

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## Definitions and Abbreviations

<b>Simulation:</b>	Any technique that evokes or replicates substantial aspects of the real world in a fully interactive manner ( <i>Gaba 2007</i> )
<b>Simulation Based Education (SBE):</b>	The use of any simulation in the formative or summative education of healthcare professionals
<b>Technical Fidelity:</b>	The technological complexity of the simulation technique e.g. <ul style="list-style-type: none"> <li>Low Fidelity      Patient actors, Simulated Interviews, Written Problems</li> <li>Task Trainers      Intubation manikins, Venepuncture arms</li> <li>High Fidelity      Human patient simulators, virtual reality computer systems with haptic feedback</li> </ul>
<b>Advanced Simulation Centre:</b>	Centre offering simulation training on one or more high-fidelity systems
<b>Faculty</b>	Anyone designing or delivering educational content
<b>Value Domain</b>	What decision-makers value in reaching a purchasing decision
<b>Value Based Simulation</b>	The underpinning idea that simulation must address a problem and/or provide a solution to an identified customer need
<b>Stakeholder</b>	Positions in an organisation or purchasing decision matrix
<b>Metrics</b>	Specific data points or information on which decisions are based



## CONTEXT

The Global Network for Simulation in Healthcare was founded in 2010 and has now grown to 24 member organizations including commercial, academic national Associations. It is the only global network of its kind that connects these sectors in a collaborative and non-competitive environment. Once a year these thought leaders meet to identify key global issues and provide suggested solutions for applying healthcare simulation for the advancement of patient care, efficiency, and efficacy through healthcare simulation.

At its meeting in 2014, the group identified that the expansion of simulated healthcare practice depends upon demonstrating to key decision makers its value in terms of both outcomes and return on investment; what the group later called value-based simulation. GNSH 2015 in Stavanger, Norway, provided the platform for the sharing of perspectives and vision to help contribute to consensus building around value-based simulation. The Utstein Style process, a historic part of the formation of International Liaison Committee on Resuscitation (ILCOR), and a proven method for building common understanding and consensus was used. Key stakeholders, such as financial officers, educational directors, healthcare and college executives, and policy makers were identified.

## BACKGROUND

The need to engage with Governments, Administrators, Managers and other key stakeholders was a major theme for the 2014 GNSH conference. The people making decisions around the development of training supported by simulated practice are often not the same as those making strategic decisions about healthcare delivery.

There needs to be a wider connection between the delivery of quality care, patient safety and simulated practice and the group agreed we need a defined marketing strategy to increase awareness of the benefits of simulation to the whole healthcare community.

This document provides a summary and selected highlights from the 2015 GNSH meetings focusing on the Value of Simulation.

*REFERENCE GNSH PROCEEDINGS 2014, 2015*

## AIMS

- 1) Using the baseline premise that simulation must address a problem or provide a needed result (value-based simulation), understand what decision-makers value (value domains) in areas could be addressed by Simulation Based Education (SBE).
- 2) Once the value domains have been identified, identify relevant value-based solutions and practices to answer the question key question – how can SBE provide VALUE related to these domains?
- 3) To begin the development of a resources repository to support Value Base Education (VBE) approaches. These will include business case templates, case studies of successful SBE implementation and summaries from published literature demonstrating the value of SBE.
- 4) Provide a framework to allow easy implementation of the identified solutions and practices outlined in Aim 1-3 to enhance the adoption of SBE.

## METHODOLOGY

GNSH 2015 used a workshop format to discuss the key areas that we need to address to demonstrate the VALUE OF SIMULATION TO DECISION MAKERS that were identified by a survey of stakeholders. (See Figure 1)

All members of GNSH were asked to complete a survey prior to the 2015 meeting in order to identify the key stakeholders we need to influence for driving and developing simulated practice across their healthcare environment. The attendees at GNSH were split into 5 discussion groups focused on these stakeholders and then developing Consensus statements in the following areas:

- 1) Identification of value domains (characteristics) specific to stakeholders and their associated context
- 2) Discussion to agree specific, measurable data points to demonstrate value within a domain
- 3) Identification of tools required to collect data from the specific domain.
- 4) Identification of key messages about simulated practice that will answer identified stakeholder needs

In December 2015 a smaller group of members came together to distill some key outputs from the main event workshops.

### What Does This Document Represent?

The opinions, experiences and knowledge of over 40 thought leaders (Appendix 1) across the field of simulated practice have been “extracted” in a series of working groups and plenary discussions across the two 2015 GNSH events. The discussions provided a RECOMMENDED PROCESS and EXAMPLES to support practitioners in promoting the funding and use of simulation in healthcare at all levels.

This “product” is a prototype. It needs to be used and developed during 2016 by GNSH members and their associates and the GNSH summit in August 2016 will review and refine the product further, adding additional resources to develop the product further.

### Why read this document?

If you are going to a decision maker to talk about Simulation-based solution (SBS), we aim to highlight the potential stance and the lens that the decision maker may look through when discussing SBS initiatives with you. The following results are a summation from the GNSH meetings and represent the collective experience, thoughts and suggestions from over 50 thought leaders from around the world, enhanced and distilled by a smaller sub-group of GNSH members. Some key outputs were:

- Descriptors of assumed viewpoints and value domains of key decision makers.
- An exploration of each value domain in detail via narrative based scenarios.
- Simulation scenarios based around the VBE approach that can be used to practice potential conversations or approaches.

## RESULTS

The intent to develop a consensus approach for identifying what decision-makers value (**value domains**) and how to provide relevant value-based solutions was achieved via the two workshop based meetings in 2015. It was agreed that each value domain (e.g. financial or quality) may have several related characteristics, and these may well overlap significantly. Many industries including healthcare, view value as outcome over resources (e.g. people, time and

funds). It was concluded that VBS should target a desired outcome with a reasonable investment of resources. The positioning of specific solutions and associated benefits of SBE related to identified problems of the key decision maker was felt to be a key strategy for success. These need to be shared across institutions, regions and countries and the role of organisations such as GNSH, SSH, SESAM and national Associations was identified as key to this process. Finally, to support any business cases or approaches, we need a range of resources to include background information required to make the value proposition credible such as published quantifiable measures (e.g. facts, figures) used to track, monitor, used to track the success or failure of a process. (Metrics).

The top 5 key decision makers identified from the online survey and meeting discussions were:

- Hospital Executive Leadership
- Professional Associations
- Payers
- Educators
- Policy Makers

Having identified the key decision makers, key value domains for each were then discussed and agreed.

### AIM 1 - VALE DOMAINS

An example of a Value Domain Map for an educator is shown in **Table 1**. The main aim for developing this table is to discuss with colleagues and agree the subjects that matter to the role in question. Healthcare Educators roles and titles vary widely from institution to institution and country to country. For instance, a University-based Educator may have a structure as follows:

- The Provost
- Dean of Medicine / Dean of Nursing / Dean of ...
- Associate Dean
- Senior Educator

Whereas, the roles for an Educator working within a Hospital environment may include:

- Human Resources
- PGME Department
- Residency Director
- Attending / Consultant Doctor
- Resident / Junior Doctor
- Resuscitation Officer
- Simulation Coordinator
- Ward Charge Nurse

The value domains for the majority of these roles will, however, be similar at some level and so the benefit of identifying these consistent, top level domains is that we can develop approaches and resources that appeal to these areas, making the benefit of SBE more aligned to their needs and therefore more likely to be received positively. These generic value domains are useful in developing a basic understanding of what would be of interest to individuals occupying these positions. The next step is to personalize the generic roles to individuals in local situations. the decision maker to be developed.

### AIM 2 - PERSONAS and KEY MESSAGES

Once value domains have been identified, it is useful to “flush out” a more detailed picture of the role with colleagues by building a personal profile for the decision makers. This should include key needs related to each domain. Finally, you can then develop some key messages related to the needs.

I think the title bar needs to be at the top - agree?

<b>Value Domains</b>	<b>Sub Domains that apply to some or all value domains</b>
<p><b>Educational Effectiveness</b> – An output of a specific analysis that measures the quality of the achievement of a specific educational goal</p> <p><b>Educational Efficiency</b> – An ability to perform well or to achieve a result without wasting resources, effort, time, or money (using the smallest quantity of resources possible).</p> <p><b>Resource Management</b> – The efficient and effective deployment and allocation of an organization’s resources when and where they are needed.</p> <p><b>Patient Safety</b> – The goal of achieving a trustworthy system of health care delivery. Safety management should move from ensuring that as few things as possible go wrong (Safety 1) to ensuring that as many things as possible go right (Safety 2).</p> <p><b>Quality of Care</b> – The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.</p>	<p><b>Clinical Effectiveness</b> –</p> <ul style="list-style-type: none"> <li>• Clinical Relevance</li> <li>• Clinical Standards</li> <li>• Quality Improvement</li> <li>• Safety Culture</li> </ul> <p><b>Competence</b></p> <ul style="list-style-type: none"> <li>• Attitude</li> <li>• Expertise</li> <li>• Knowledge</li> <li>• Maintenance of competence</li> <li>• Preparedness to practice</li> <li>• Professional socialization</li> <li>• Skills – Technical &amp; Non-technical</li> </ul> <p><b>Educational Strategies</b></p> <ul style="list-style-type: none"> <li>• Accreditation &amp; Regulatory Requirements</li> <li>• Curriculum Design / Engineering</li> <li>• Delivery Modalities</li> <li>• Educational Standards</li> </ul> <p><b>Research, Development &amp; Scholarship</b></p> <ul style="list-style-type: none"> <li>• Advancing the science of education</li> <li>• <i>Product Development</i></li> <li>• Research output</li> <li>• Research utilisation</li> </ul>

TABLE 1 VALUE DOMAIN TABLE

### AIM 3 – RESOURCES TO SUPPORT APPROACHES TO KEY DECISION MAKERS

To change a decision maker's attitude to SBE and move them to the decision required, each need has to be matched with appropriate benefits supported by appropriate evidence. GNSH will be developing a bank of such resources in 2016. A key resource for demonstrating value is the collation of validated case studies.

#### **EXAMPLE CASE STUDY**

**Situation:** A Simulation Director at a small regional hospital in the USA was informed about an adverse event occurred when a technologically dependent child was visited by a home health care nurse. The nurse recognized that the patient was in shock and likely septic, but the Gastroenterology Physician did not hear that during the call.

**Background:** The simulation team was asked to provide a mannequin based simulation following this event.

**Assessment:** In speaking to the personnel involved, the simulation team identified that the gap was bidirectional communication in absence of non-verbal cues rather than recognition of sepsis. Notably the educator realized the patient care gap was around effective communication versus rescuing the patient with sepsis. The bi-direction communication gap was extracted by the educator and the simulation based education was designed in a more efficient way, i.e. instead of creating a full scale human patient simulator sepsis scenario, a communication scenario was created using two cell phones, a standardized provider and the learner.

**Recommendation:** As a result, the simulation team created a simulation using simple mobile phone cases, which required the home health nurse to escalate concerns and the

fellow to listen and respond appropriately to those concerns.

### AIM 4 - IMPLEMENTATION PROCESS

Based upon the premise that in order to change an attitude or decision we need to align the benefits of SBE to the perceived or identified needs of the individual we are addressing key questions are:

- 1) Who is the decision maker?
- 2) What are their needs and problems we are trying to solve?
- 3) What is the proposed solution we are putting forward?
- 4) What are the benefits to the individual and /or organisation of that solution we are going to focus on?
- 5) What evidence can we present to support the proposed solution?
- 6) What action do we want them to take?

Figure 1 summarises the process for linking the needs (value domains) and the associated SBE benefits. From the information contained in this paper, you can create a checklist of information in order to bring together a proposal plan that is more likely to achieve its aims. This can be developed into a simulated script/scenario that can be practiced prior to any key meeting or used to develop a written business case.

Contents would be:

1. Decision maker background and persona profile.
2. List of assumed needs we will solve.
3. Solutions and associated benefits related to the identified needs.
4. Metrics or other evidence to support the case and proposed solutions.
5. What is our closing question?

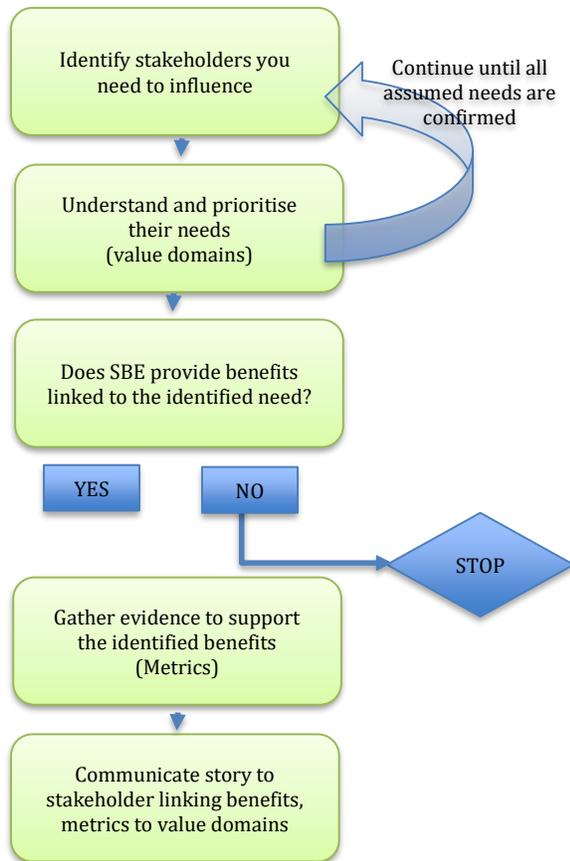


Figure 1 Value domain benefits process

SBE systems are struggling to break out of the simulation community and make all sectors of the healthcare community aware of the wider benefits of the science of healthcare simulation.

The development of personas and a process of using these in practice to develop local versions, is the first step in engaging with those stakeholders who could drive the use of SBE in hitherto unseen domains. SBE has the potential, given the rapid development of digital and computing technologies, to become a fundamental platform for all healthcare training and performance improvement and to reduce overall healthcare costs by driving better patient care.

The GNSH Summit in 2016 will explore the development of value domains and evidence based simulation based education further and will focus on forging collaborative understanding of aims for all the SBE community.

## CONCLUSIONS and SUMMARY

The benefit of bringing together of senior and experienced thought leaders from industry, academia, country associations and healthcare institutions was again demonstrated across the 2015 GNSH activities. The opportunity to discuss common barriers to SBE adoption and develop prospective solutions based upon collective expertise has produced a focus on developing value based simulation as a key driver for wider use of SBE.

It was clear from the 2015 process that the SBE community needs to work better together to develop metrics and evidence that SBE can deliver benefits to a range of stakeholders. The early adopters and pioneer developers of the

## APPENDICES

### APPENDIX 1 – SAMPLE PERSONA DESCRIPTION

#### **My Background & Role**

I am 45 years of age, a former Anesthetist with a Master's in Education from the University of Utrecht. I have been a Medical Educator for 15 years and the Dean of Medicine at the University of the Netherlands for 3 years. The Medical School would like to integrate the use of all simulation modalities across the entire curriculum starting with the next academic year, with a strong emphasis on Interprofessional Education.

The University of the Netherlands has a medium-sized Medical School with 75 Medical Learners per academic year and has close links to the School of Nursing that has 140 Learners per academic year. I report to the Provost / President of the University and have a Team of 3 Associate Deans.

#### **What Is My Focus – What Do I Value?**

**Educational Effectiveness** – I need to ensure that my teachers are teaching what we say they are teaching and that our learners are learning what we say they are learning. (John Schaeffer III, \*\*\*\*). Effectiveness is only achieved when a combination of characteristics is met at the same time. In other words, if one characteristic is absent effectiveness is threatened e.g. If a hierarchy does not promote open and honest feedback this is a fatal flaw.

#### **KEY NEED: WHERE IS THE CONCRETE EVIDENCE THAT DEMONSTRATES EDUCATIONAL EFFECTIVENESS OF SBE**

**Clinical Effectiveness** – Clinical effectiveness requires that our educational offerings are grounded in clinical relevance, use clinical standards and contribute to quality improvement within a culture of safety. It is important that my learners are mindful of their personal level of competency and capable of thinking ahead to anticipate potential safety issues.

#### **KEY NEED: SHOW ME THAT SBE CAN BE USED TO MEASURE CLINICAL COMPETENCY**

**Competence** – My primary goal is to ensure that my learners transfer the knowledge, skills and attitudes gained through simulation-based education into their clinical practice My secondary aim is to promote maintenance of competence through lifelong learning for both the Learner and the Educator. It is important that my Educators and Learners understand Safety Science, can recognize and function within their level of competence and that the simulation modalities that I use reflect a relevant environment.

#### **KEY NEED: SHOW ME EXAMPLES OF PRACTICE TRANSFER FROM SIMULATED TO CLINICAL ENVIRONMENTS**

**Educational Strategies** – While accreditation and regulatory requirements must be met, the specific educational goal will determine the mode and techniques that will be used and I must bear in mind that simulation may not be the best methodology. Whatever modality is chosen it should align with adult learning principles.

**KEY NEED: PROVIDE EVIDENCE THAT SBE ALIGNS TO OTHER LEARNING MODALITIES AND COMPLIES WITH ADULT LEARNING PRINCIPLE**

**Research, Development & Scholarship** – I recognize that simulation can be used as one tool to both advance the science of education and provide a source of research output for my academic development. The number of examples of good research in this area is however limited.

**KEY NEED: PROVIDE A LIST OF PEER REVIEW and OTHER PUBLICATION ROUTES FOR SBE RESEARCH OUTPUT and EXAMPLES OF SBE RESEARCH AREAS/STRATEGIES**

**Resource Management** – I must choose the appropriate simulation modality, human resources, infrastructure (Sim Center v. In Situ Simulation) and time commitment that will be most efficient in tackling the patient care gap (Return on Expectations). The financial impact (Return on Investment / Value on Investment) must be evaluated by both the expenditures and the costs avoided, including human resources, equipment, infrastructure and time.

**KEY NEED: COST EFFECTIVENESS OF SBE EXAMLES BASED UPON DEMONSTRATABLE ROI**

**Patient Safety** – I must educate learners who understand that Patient Safety is the foundation of sound clinical practice. They need to ensure that as much as possible things go right “... instead of only looking at the few case where things go wrong.

**KEY NEED: DEMONSTRATE THE ABILITY OF SBE TO SHARE BEST PRACTICE AND CHANGE THE CULTURE OF BLAME IN MY ORGANISATION**

## APPENDIX 2 – 2015 SUMMIT ATTENDEES

Robert Aymot	President CAE Healthcare
Andy Anderson	CEO Association for Simulated Practice in Healthcare (ASPiH)
Pamela Andreatta	President Society for Simulation in Healthcare (SSH)
Doug Beighle	President Simulab Inc.
Hyun Soo Chung	Co-founder of the Korean Society for Simulation in Healthcare
Linda Crelinsten	President Canadian Network for Simulation in Healthcare
Parvati Dev	President and CEO Innovation in Learning Inc.
Carol Durham	Past President of the International Nursing Association for Clinical Simulation & Learning (INACSL).
Alf-Christian Dybdahl	Laerdal Medical, Head of Emergency Care business
Chad Epps	President Elect SSH
Kirsty Freeman	Chair and Executive Committee Member of the Australian Society for Simulation in Healthcare (ASSH)
Stefan Gisin	Head Swiss Center for Medical Simulation, Vice President SESAM
David Grant	Executive International Paediatric Simulation Society and Director Bristol Paediatric Simulation Programme (BPSP)
Marco Grit	Vice President, CAE Healthcare
Lennox Huang	Chief Medical Officer and Vice President for Medical and Academic Affairs at the Hospital for Sick Children in Toronto, Canada.
Lucas Huang	Co-Founder of B-Line Medical
Pamela R. Jeffries	SSH Past President
Michelle Kelly	ASSH Chair for the Australian Society for Simulation in Healthcare
Euichung Kim	Treasurer and finance director for the Korean Society for Simulation in Healthcare.
Seunghwan Kim	Chief of Technology Committee, Korean Society of Simulation in Healthcare
Ralf Krage	Past President SESAM Vice President Dutch Society of Simulation in Healthcare
Jon Lærdal	Director of the new “Program Implementation” Business Unit at Laerdal Medical
Karen Lewis	President Association of the Standardized Patient Educators ASPE)
Helge Lorentzen	Past President SESAM
Ralph MacKinnon	Directors for the International Pediatric Simulation Society and the INSPIRE simulation research network.
Stefan Monk	Past President SESAM and Manager CAE Healthcare Academy
Clive Patrickson	Chief Executive Officer of Laerdal Medical A/S.
Tomas Ragnarsson	Managing Director Surgical Science
Karen Reynolds	Vice-President of Operations for ASPE and past Chair of ASPE’s International Committee.
Nic Riley	Managing Director Limbs & Things
Augusto Scalabrini	Founder and Past President of ABRASSIM (Brazilian Association for Simulation in Healthcare), and Past Vice President of ALASIC (Association Latino Americana de Simulación Clínica).
Michael Seropian	Director of Simulation for the Department of Anesthesiology at OHSU and past Chair of the Oregon Simulation Alliance. Past President of the Society for Simulation in Health (2011)
Anurag Singh	Founder, President and CEO of Education Management Solutions (EMS)
Kevin Stirling	Program Manager for Laerdal Medical and past Vice President ASPiH
Stephanie Sudikoff	President of the International Pediatric Simulation Society
Patrick Van Gele	President Swiss Association of Simulation in Healthcare and founding member of INACSL Chapter Europe.
Isabelle Van Herzeele	President of the Dutch Society of Simulation in Healthcare and member of the Accreditation Review Board of NASCE (Network of Accredited of Skills Centres in Europe)
Graham Whiteside	Vice President of Business Development for B-Line Medical, Inc.