Manifesto for healthcare simulation practice

Christine S Park [1], Louise Clark,[2] Grace Gephardt,[3] Jamie M Robertson,[4] Jane Miller,[5] Dayna K Downing,[6] Bee Leng Sabrina Koh,[7] Kellie D Bryant,[8] David Grant,[9] Dinker R Pai,[10] Jesika S Gavilanes,[11] Edgar Israel Herrera Bastida,[12] Li Li [13], Keith Littlewood,[14] Eliana Escudero,[15] Michelle Ann Kelly [16], Debra Nestel [17], Jan-Joost Rethans[18]

For numbered affiliations see end of article.

Correspondence to
Christine S Park, Simulation and Integrative Learning Institute, University of Illinois College of Medicine, 1220 S Wood Street, 5th Floor, Chicago, IL 60608, USA; cpark1@uic.edu

Received 23 June 2020
Revised 3 August 2020
Accepted 21 August 2020

To cite: Park CS, Clark L, Gephardt G, *et al. BMJ Stel* Epub ahead of print: [*please include* Day Month Year]. doi:10.1136/bmjstel-2020-000712

ABSTRACT

A pandemic has sent the world into chaos. It has not only upended our lives; hundreds of thousands of lives have already been tragically lost. The global crisis has been disruptive, even a threat, to healthcare simulation, affecting all aspects of operations from education to employment. While simulationists around the world have responded to this crisis, it has also provided a stimulus for the continued evolution of simulation. We have crafted a manifesto for action, incorporating a more comprehensive understanding of healthcare simulation, beyond tool, technique or experience, to understanding it now as a professional practice. Healthcare simulation as a practice forms the foundation for the three tenets comprising the manifesto: *safety*, *advocacy* and *leadership*. Using these three tenets, we can powerfully shape the resilience of healthcare simulation practice for now and for the future. Our call to action for all simulationists is to adopt a commitment to comprehensive safety, to advocate collaboratively and to lead ethically.

INTRODUCTION

A pandemic has sent the world into chaos. It has not only upended our lives; hundreds of thousands of lives have already been tragically lost. Coronavirus Disease 2019 (COVID-19) has been called 'the greatest public health crisis of our generation' by the secretary-general of the United Nations.[1] This global crisis has been disruptive, even a threat, to healthcare simulation, affecting all aspects of operations from education to employment. Healthcare simulation operations and education must continue in order to ensure the uninterrupted training of the next generation of healthcare professionals, which is especially essential at this time. Informed by this critical need, we have collaborated to produce this manifesto for action that is rooted in simulation as an evolving practice. A manifesto has been defined as 'a published declaration of the intentions, motives or views of the issuer, be it an individual, group, political party or government'.[2] While COVID-19[3] is the catalyst, even cataclysm, that sparked this document, the principles outlined here are relevant for other pervasive and deadly challenges impacting and impacted by healthcare simulation, including those of healthcare disparities, human rights and social justice, and for the future of healthcare simulation.

HEALTHCARE SIMULATION AS A PRACTICE

Today, healthcare simulation is informed and enhanced by perspectives from a variety of sciences, technologies, engineering and the arts. However, simulation as a phenomenon began several millennia ago,[4] treated as an ancillary tool or imitation of bedside teaching.

Healthcare simulation has evolved and has become more than an ancillary tool or occupation. Therefore, the future of the profession must leverage a more comprehensive understanding of healthcare simulation—as a practice. The authors define healthcare simulation practice (HSP) as the expert use of established healthcare simulation methodology and techniques, using individual judgement and a holistic understanding of that method and its context. As with any professional practice, HSP entails specialised training, continuous vocational learning, contributions to the community of practice, credentialing and accreditation. The development and implementation of standards of best practice and codes of ethics are cornerstones of HSP.

We define simulationist as a person who advances HSP through the use of tools, techniques, events, experiences and methodologies. A simulationist contributes expertise in a variety of roles. Simulationists (who may interchangeably be called simulation professionals) include but are not limited to administrators, artists, clinicians, designers, educators, engineers, faculty, health and social scientists, innovators, modellers, operations specialists, researchers, simulated participants and standardised patients (SPs), teachers and technicians. All of these expert contributions are necessary to the function and advancement of HSP. This definition of simulationist and understanding of healthcare simulation as a practice inform the foundation for the tenets of this manifesto. These tenets are *safety*, *advocacy* and *leadership*.

SAFETY: SAFE VERSUS LESS HAZARDOUS

The safety of patients and learners is a core value for HSP. However, the safety of the simulationists themselves is often overlooked in the understanding of this core value. The safety of simulationists must be embedded in this core value in order to achieve comprehensive safety for HSP.

During the pandemic, rapid adaptation of HSP to online and remote platforms has allowed many simulationists to work remotely. However, some simulationists, such as operation specialists and SPs, have been categorised as 'essential', and have been working in simulation centres, and even in clinical environments. A crucial distinction exists between 'essential' as a value proposition and that of a labour perspective. As a value proposition, all simulationists are integral to educational and training processes. By contrast, 'essential' from a labour perspective is a category of employee whose physical presence is required to maintain critical infrastructure.[5 6] 'Non-essential employees' are valuable and vital; the term refers to a status that on-site presence is not required to maintain infrastructure. Using the labour perspective, most simulationists would qualify as non-essential employees. Therefore, we believe that there is no justification in subjecting simulationists to additional risk of exposure during simulation activities in any environment that is not under the direct control of the simulationists to the same degree as the simulation centre. It should be noted, however, that even in-centre work is still at elevated risk compared to working remotely.

The disaster management cycle illustrates what HSP is experiencing through the COVID-19 crisis and reconstruction, ultimately moving to a transformed state rather than a resumption of operations as before.[7] An iterative reconstruction model creates system resilience to withstand and respond to periods of advance and retreat.[8 9] This will be the case until a substantial proportion of the population has immunity through disease or vaccination,[10] from 55% to 82% by some estimates.[11] Until such time, simulation operations will not be truly safe, but with appropriate considerations, can be made less hazardous.

As the pandemic evolves, we must make critical decisions balancing safety, maintaining employment and responding to inequities. We must be stewards of limited resources in reconstructing simulation activities. In the USA, the National Institute for Occupational Safety and Health describes a hierarchy of controls for occupational hazards.[12] The safest plan is one without risk of occupational exposure. Personal protective equipment (PPE),[I] often promoted as an assurance of safety, is in fact the last and least effective measure of protection (eg, in firefighting, PPE does not make going into a burning building safe). It is therefore imperative that we do not provide false reassurance by calling working conditions safe when they are not.

Labelling a simulationist as 'essential' leads to a paradox: requiring simulationists to work on-site supports a culture of safety for learners while placing simulationists at risk. Examples of these kinds of situations could include sending operation specialists to an intensive care unit for code training or bringing SPs on-site for teaching ophthalmic examinations. Further, many simulationists are contract or part-time workers, lacking the agency, protections and benefits available to full-time employees.[II]

Given the proximity to learners in simulation centres as well as to patients, families and other caregivers, simulationists will be at risk for some time to come. This risk will be accentuated for those with underlying health conditions and advanced age.[13–15] While a 100% fail-safe plan is not likely to be attained, a less hazardous plan includes redesigning processes to allow both technology-based and human-based simulationists to participate remotely as much as possible. Any in-person work must follow health protection organisation guidelines. Critically, with respect to decisions about in-person work, seeking out simulationists' feelings of comfort or safety may seem reassuring. However, these feelings are not evidence of adherence to physical safety standards and must not be used to influence return-to-work decisions.

ADVOCACY: COLLABORATION VERSUS ACCOMMODATION

Perhaps in part due to our disparate backgrounds, historical beliefs or indeed our enthusiasm to champion simulation, HSP has unfortunately often functioned through accommodation more than collaboration. What does this mean, and why is it important? In this context, accommodation reflects how healthcare simulationists work diligently to have others appreciate the already-proven value of simulation to provide needed experiences not otherwise readily available or ill suited to explore in ad hoc environments. We often accommodate requests by reacting with 'yes' first, with the intent to determine implementation later, educate potential stakeholders and transform them into champions. Instead, we believe strength-based collaboration should be the standard everywhere in which the needs of all parties are met rather than the needs of one superseding the needs of another.

The traditional hierarchical cultures of healthcare and education are problematic. Healthcare simulationists may work in settings where they feel they must accommodate the decisions of others rather than honouring their own expertise. Too often, simulationists are disempowered and under-resourced, and expected to accommodate to make clinical education work—causing overwork, straining operations and compromising the well-being of simulationists. In addition to expertise and service, we must also develop improved autonomy, as autonomy is needed for continual improvement of quality in a profession.[16] Therefore, we must shift our practice from one that tolerates inequitable distribution of power and resources to one that thrives on collaborative mutual respect. The HSP must work together in collective advocacy. In this pandemic, it is imperative that this issue is brought to light because it could—inadvertently—result in physical harm and even death.

By the very nature of our work across professions, specialities and clinical contexts, healthcare simulationists often see what others do not—opportunities for simulation strategies that improve individual and population health. In order to maintain innovation and adaptability of HSP, we must advance connections with other areas affecting health beyond the clinical domain, such as quality and safety, public health, law, engineering, civil and government services, and even logistics and supply chain management. Bringing our expertise to collaborate in these areas can improve the ability of healthcare systems to prepare and respond flexibly during crises. The outcome of this advocacy for healthcare simulation will improve patient, learner and professional safety.

LEADERSHIP: ETHICAL DECISION-MAKING VERSUS CONVENTION

Ethics must underlie responsible leadership. Creating safety plans through iterative reconstruction, as we emerge from this pandemic, is a key moral and ethical activity.

There is no one-size-fits-all set of instructions for moving forward during this period in time, but we do have a guiding professional code of ethics and standards of best

[I] In healthcare, examples of PPE include: masks, gowns, gloves, eye protection, face shield, head and shoe coverings and respirators of various types.

[II] In the United States, some simulationists are temporary workers or independent contractors hired on a per-assignment basis. This nearly always means these simulationists do not have employer-based health insurance. Without a federally sponsored health insurance plan, a significant proportion of the US population is un-insured or under-insured. Under these circumstances, illness resulting from occupational exposure could result in not only devastating illness or death, but also lack of access to healthcare and financial ruin.

practices that prioritise respect and safety. We must uphold and mobilise the best practices developed by organisations that already integrate professional safety into their standards for HSP. We call on all organisations that develop best practice standards for HSP to address simulationist safety with the same priority as traditionally afforded to learners and patients.

The Healthcare Simulationist Code of Ethics[17] calls for working to 'eliminate unnecessary harm to humans, animals and the environment', 'maximise safety and minimising physical and psychological risk' and 'maintain vigilance regarding not only desired outcomes but also potential unintended consequences of the simulation activity'. The Association of Standardized Patient Educators Standards of Best Practices stipulates safety as a key guiding principle for human simulation work.[18] Domain 1 calls for a safe work environment for SPs and simulationists, including the importance of anticipating and recognising occupational hazards and insuring both psychological and physical safety.[18] The International Nursing Association for Clinical Simulation's Standards of Best Practice calls for 'the ethical behaviour and conduct that is expected of all involved in simulation-based experiences', and 'doing what is right in the face of strong countervailing temptation or pressure' is one of the lynchpins of a safe work environment.[19] Safety for professionals is emphasised, advocating for systematic personnel resource management.[20] Simulation leaders must involve and train simulationists in adapting workplaces and protecting workers.[13–15]

Simulation can also potentially provide crucial clinical replacement hours required for learners across disciplines and countries.[21] This is even more important during COVID-19, as learners may be restricted from entering the clinical environment for some time, and the healthcare workforce is likely to experience acute and long-term shortages. As an HSP, we must be leaders in building new resilience in our practice. We must respect and protect our simulationists and accept responsibility for their illness as an unwanted harm. Simulation leaders must ensure that simulation experiences are delivered as safely as possible, providing transparency and choice regarding hazards that cannot be eliminated. We must expand capacity for endurance, including building and sustaining remote learning formats. We urge the utmost caution with forward planning, because without the entirety of the simulation team, HSP may fall apart. The operations stop. The education stops. The innovations stop.

Simulationists have pursued increased understanding of the developmental needs of individuals, teams and healthcare systems.[22] In this spirit, while COVID-19 has provoked a need for broad and rapid change, care should be taken not to merely transpose conventional simulation actions but to redesign actions with a clear understanding of the overarching objective of the simulation. These redesigned actions should aim to be complementary to existing non-simulation educational resources in order to guide the learner on their journey.

As a practice, we have an obligation to fairly represent our needs and the benefits we offer to all our stakeholders. This is especially important in a time of constrained resources when sustainability is called into question in all endeavours. As systems progress through crisis response toward recovery, even essential functions are vulnerable. We must all engage in understanding the costs and benefits of our choices. Safety, advocacy and leadership policies, and practices that cannot be sustained are unethical. Leadership decisions for simulation operations that do not advocate for equity and safety on behalf of the simulation workforce are unethical. Developing more creative, more inclusive and more transparent models for educational and financial sustainability will make our simulation programmes more resilient in the face of ongoing transformation in every sector.

SUMMARY

During the COVID-19 pandemic and indeed throughout our history, simulationists have delivered innovation and maintained personal resilience. In sharing our creativity and knowledge to advance innovations for patient safety, this pandemic has heightened the necessity of cultivating equity throughout HSP. Most importantly, we must champion those simulationists whose calls for safety are overlooked or even disregarded by their own institutions. By leveraging the disruptions to the status quo catalysed by this pandemic, HSP will be poised to successfully rise in response to future crises.

We recognise that this manifesto is incomplete. It does not address other pandemic problems, including those of healthcare disparities, human rights and social justice. We recognise the urgent need to include and listen to the voices of our colleagues who have expertise and lived experience in these areas. We need greater involvement of all healthcare system users, especially patients around whom much of our work is centred. We must stand in solidarity with, partner with, and seek the leadership of those who are marginalised and oppressed. Echoing the director-general of the WHO, we are not prisoners of the pandemic, and every one of us can make a difference.[23] Together we can leverage the potential of simulation to improve the health of all people everywhere.

Our call to action is for all simulationists to adopt a commitment to comprehensive safety, to advocate collaboratively and to lead ethically. Using the three tenets described, we can powerfully shape the resilience of HSP for now and for the future.

Author affiliations
[1]Simulation and Integrative Learning Institute, Department of Medical Education, University of Illinois College of Medicine, Chicago, Illinois, USA
[2]M Simulation, University of Minnesota Medical School Twin Cities, Minneapolis, Minnesota, USA
[3]Arkansas Children's Hospital, Little Rock, Arkansas, USA
[4]Department of Surgery, Brigham and Women's Hospital, Boston, Massachusetts, USA
[5]Office of Consultation and Research in Medical Education, The University of Iowa Roy J and Lucille A Carver College of Medicine, Iowa City, Iowa, USA
[6]Simulation and Technology Education Learning Institute, Children's Health Children's Medical Center Dallas, Dallas, Texas, USA
[7]Sengkang General Hospital, Singapore, Singapore
[8]Columbia University School of Nursing, New York, New York, USA
[9]Bristol Medical Simulation Centre, Bristol, Bristol, UK
[10]Simulation, Sri Balaji Vidyapeeth University, Pondicherry, India
[11]Oregon Health and Science University, Portland, Oregon, USA
[12]Anahuac University Faculty of Health Sciences, Huixquilucan, Mexico
[13]General Practice, Guangzhou First People's Hospital, Guangzhou, Guangdong, China
[14]University of Virginia School of Medicine, Charlottesville, Virginia, USA
[15]Universidad Finis Terrae, Santiago, Chile
[16]School of Nursing, Midwifery and Paramedicine, Curtin University, Perth, Australia
[17]Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia
[18]Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht, Netherlands

Twitter Christine Park @cpark_stories and Debra Nestel@DebraNestel

Acknowledgements The authors gratefully acknowledge the following members of the Healthcare Simulationist Code of Ethics working group. All acknowledged individuals gave their permission and provided input on the document. Elaine C. Meyer: Boston Children's Hospital and Center for Bioethics, Harvard Medical School, USA. William E Lewandowski: IVIR, Inc., USA. Parvati Dev: Simtabs.com, USA. Mary E Mancini: University of Texas at Arlington, USA. Kristina Thomas Dreifuerst: Marquette University College of Nursing, USA. Cathy Smith: Baycrest Centre for Education and Knowledge Exchange, Canada. Leslie Hurst: Oxford Medical Simulation, UK. Leslie LM Graham: Durham College, Ontario Tech University, USA. John CC Dean: University of Otago, Christchurch Simulation Centre, New Zealand. Jennifer McCarthy: Seton Hall University, USA. Valerie L Fulmer: University of Pittsburgh School of Medicine, USA. Gina Pena Pavez: Universidad Finis Terae, Chile. Leona K Robertson: Canterbury District Health Board, New Zealand. Thomaz Bittencourt: Centro de Simulação Realística, Hospital Israelita Albert Einstein, Brazil. Hani Lababidi: King Fahud Medical City, Saudi Arabia. Ismail Mohd Saiboon: Universiti Kebangsaan, Malaysia. Stefan Monk: CAE Healthcare, Germany. Esther Leon-Castelao: University of Barcelona, Spain. Edwin Ozawa: Lahey Hospital and Medical Center, USA. Paola Santalucia: SIMMED, Italy. Isabelle Van Herzeele: Ghent University Hospital, Belgium. Fadekemi Oginni: Obafemi Awolowo University, Nigeria. Gen Ouchi: University of the Ryukyus Hospital and Medical School, Japan. G Ulufer Sivrakaya: Academy of Interventional Medicine, Education and Simulation, Turkey. Dawn Schocken: USF Health, Morsani School of Medicine, USA. Lulu Sherif: Father Muller Medical College Simulation Center, India. Rakshay Shetty: Rainbow Children's Hospital, Bangalore, India. Lisa Sinz: Penn State University College of Medicine, USA. Mary Kay Smith: Michigan State University, USA. Zalim Balkizov: Pirogov Russian National Research Medical University, Russia.

Contributors CSP, LC and GG contributed to the conception, design, writing and editing of the work, and provided final approval as guarantor. JMR, JM and DKD contributed to the conception, design, writing and editing of the work. BLSK, KDB, DG, DRP, EIHB, JSG, LL, KL, EE, MAK and DN contributed to the writing and editing of the work. J-JR contributed to the design, writing and editing of the work, and provided final approval.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data sharing not applicable as no data sets generated and/or analysed for this study.

ORCID iDs
Christine S Park http://orcid.org/0000-0002-5261-9820
Li Li http://orcid.org/0000-0003-4151-967X
Michelle Ann Kelly http://orcid.org/0000-0002-6380-1150
Debra Nestel http://orcid.org/0000-0003-2941-2298

REFERENCES

1 Guterres A. *Secretary-general's video message to global vaccine summit [Internet]*. New York City: United Nations, 2020.
2 Wikipedia. *Manifesto [Internet]*. San Francisco: Wikipedia, 2020.
3 World Health Organization. *Coronavirus disease (COVID-19) pandemic [Internet]*. Geneva: World Health Organization, 2020.
4 Owen H, *et al. Healthcare Simul Education: Evidence, Theory and Practice* 2018; Nestel, Debra Kelly, Michelle Jolly, Brian Watson, Marcus Wiley & Sons Ltd English 1st 16-22 Online ISBN: 9781119061656 Historical practices in healthcare simulation: What we still have to learn Hoboken, NJ
5 Mosendz P, Melin A. *Bosses stretch the definition of who is 'essential': and workers take the risk [Internet]*. New York City: Bloomsberg, 2020
6 Department of Homeland Security. *List of essential industries. [Internet]*. Washington: Department of Homeland Security, 2020.
7 De Smet H, Schreurs B, Leysen J. The response phase of the disaster management life cycle revisited within the context of "disasters out of the box". *J Homeland Secur Emergency Manage* 2015;12:319–50.
8 Moore KA, Lipsitch M, Barry JM, *et al. COVID-19: the CIDRAP viewpoint: part 1: the future of the COVID-19 pandemic: lessons learned from pandemic influenza*. CIDRAP, University of Minnesota, April 30th 2020.
9 Kuroiwa Julio. In: *Reducción de desastres : viviendo en armonía con la naturaleza*. Lima, Peru: QUEBECOR WORLD PERÚ S.A., October 2002: 408–20. Kuroiwa, Julio 1st ISBN-13:978-9972947704 Hacia una cultura de prevención en el siglo XXI Spanish
10 D'Souza G, Dowdy D. *What's herd immunity and how can we achieve it with COVID-19*. Johns Hopkins School Public Health Expert Insights, 2020.
11 Sanche Steven, Lin Yen Ting, Xu Chonggang, Romero-Severson Ethan, Hengartner Nick, Ke Ruian. High contagiousness and rapid spread of severe acute respiratory syndrome coronavirus 2. 2020 Emerging Infections Diseases 26 7 Main Article.
12 The National Institute for Institutional Safety and Health. *Workplace safety & health topics: hierarchy of controls [Internet]*. Atlanta: Centers for Disease Control and Prevention, 2020.
13 Cockburn W. *COVID-19: back to the workplace-adapting workplaces and protecting workers [Internet]*. Bilbao: European Agency for Safety and Health at Work, 2020.
14 Montero-Odasso M, Goens S, Kamkar N, *et al.* Canadian Geriatrics Society COVID-19 Recommendations for older adults: what do older adults need to know? *Can Geriatrics J* 2020;23:149–51.
15 Smith JA, Judd J. COVID-19: vulnerability and the power of privilege in a pandemic. *Health Promotion J Aust* 2020;31:158.
16 Nolin J. *In search of a new theory of professions*. Högskolan i Borås, 2008.
17 Park CS, Murphy TF. The Code of Ethics Working Group. Healthcare simulation code of ethics [Internet]. Available https://www.ssih.org/SSH-Resources/Code-of-Ethics (accessed 4 Jun 2020)
18 Lewis KL, Bohnert CA, Gammon WL, *et al.* The Association of Standardized Patient Educators (ASPE) Standards of Best Practice (SOBP). *Adv Simul* 2017;2:1–8.
19 INACSL standards of best practice: simulationsm professional integrity. *Clin Simul Nurs* 2016;12:S30–3. INACSL Standards Committee
20 INACSL standards of best practice: simulationsm: operations. *Clin Simul Nurs* 2017;13:681–7. INACSL Standards Committee.
21 Roberts E, Kaak V, Rolley J. Simulation to replace clinical hours in nursing: a meta-narrative review. *Clin Simul Nurs* 2019;37:5–13.
22 Brazil V. Translational simulation: not 'where?' but 'why?' A functional view of in situ simulation. *Adv Simul* 2017;2:20.
23 World Health Organization. *WHO director-general's remarks at the media briefing on 2019-nCoV on 27 July 2020 [Internet]*. Geneva: World Health Organization, 2020.