

The Article : “Reporting Guidelines for Health Care Simulation Research: Extensions to the CONSORT and STROBE Statements”

[Cheng A, Kessler D, Mackinnon R, Chang TP, Nadkarni VM, Hunt EA, Duval-Arnould J, Lin Y, Cook DA, Pusic M, Hui J, Moher D, Egger M, Auerbach M; International Network for Simulation-based Pediatric Innovation, Research, and Education \(INSPIRE\) Reporting Guidelines Investigators.](#)

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- Dr Ben Symon

Expert Commenter :

- Prof Debra Nestel

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Simulcast Journal Club is a monthly/ series heavily inspired by the [ALIEM MEDIC Series](#).

It aims to encourage simulation educators to explore and learn from publications on Healthcare Simulation Education.

Each month we publish a case and link a paper with associated questions for discussion.

We moderate and summarise the discussion at the end of the month, including exploring the opinions of experts from the field.

The Case :

Brad was furious.

That meeting should have been a triumph. All year he had worked hard at establishing a simulation program for the Intensive Care Unit. He had trained simulation faculty, found sponsorship to fund the purchase of two mannequins, converted the spare bed space to a sim lab and developed a curriculum for the junior doctors rotating through ICU. And today’s presentation to the other consultants was supposed to be a celebration of how far the program had come.

But yet again, his snarky colleagues couldn’t resist the temptation to cut him down.

“What’s the evidence any of this works?” Dr Synthe had snidely asked. “As far as I can see, the educational research that’s out there is a bunch of opinion pieces and inconsistently reported RCTs. With the money you got for those damn mannequins, we could have hired 2 more nurses to provide actual patient care!”

“What’s the evidence you do anything besides drink coffee on your non clinical shifts?” Brad had wanted to retort, but fortunately his frontal lobe had engaged at that point.

Well he’d show them.

Brad had been collecting data for 12 months prior to rolling out the sim program. He was armed with a swathe of Likert scales and survey responses and results from the junior doctors Advanced Life Support assessments. With the help of a keen epidemiology student at the local university, Brad was going to reassess the junior doctors this year in the same format. While they continued to attend their regular education program, Brad was certain that his survey outcomes would be better this year, and he had the staff numbers to hit a pretty decent p value.

Given his experience in clinical RCTs, Brad was confident his reporting standards would be exemplary, and publication would be likely.

“Can’t wait to see Synthe’s face when I finally prove this.” thought Brad.

Sometimes, success was the best revenge.

Discussion :

As simulation educators who see the fruits of our educational labours on a frequent basis, it can seem a foregone conclusion that simulation is an incredibly valuable teaching tool. But creating a strong evidence base to prove that has been a bigger challenge. For clinicians used to evaluating pharmaceutical RCTs, contributing to and evaluating simulation research requires a surprisingly different skillset. In August this year, Cheng et al published a series of standards and guidelines for reporting on simulation in research. The publication has been hailed as “[A Joint Leap into a Future of High-Quality Simulation Research](#)”² and as such is an important read for simulation educators, both for those planning to contribute to simulation research and those wishing to be able to critique and assess the published literature.

Here are some questions to get you started :

- What advice would you have for Brad about engaging in his first foray into simulation research? What do you wish you knew before you started on a similar pathway?
- What issues have you had interpreting simulation literature?
- Do you have a structured approach to educational literature? How has this paper effected your approach to critical analysis of simulation literature?

Article Summary :

"*Reporting Guidelines for Health Care Simulation Research: Extensions to the CONSORT and STROBE Statements*" is essentially a two-in-one paper that incorporates a new set of standards for reporting of Simulation Based Research (SBR), and also the process through which those standards were devised.

After establishing that "the quality of reporting in health professions education research is inconsistent and sometimes poor", the authors note the progress other health care research domains have made through two previous guidelines : the 'CONSORT' and 'STROBE' statements. ([The 'CONSORT' statement](#) is a minimum set of recommendations for reporting randomised trials, with [The 'STROBE' statement](#) being a similar checklist of items that should be included in reports of observational studies.)

The article then describes the process by which the extensions for SBR were created, which can be summarised as :

- Developing a steering committee of 12 experts
- Defining the scope of the reporting guidelines
- Identifying a consensus panel of 60 pre-eminent experts in SBR including the editors of multiple simulation journals
- Generating a list of items for discussion and pre-surveying the experts
- Conducting a 5 hour consensus meeting at the annual INSPIRE meeting in January 2015 involving 35 of those experts and 30 INSPIRE network members
- Drafting reporting guidelines, an explanation and elaboration document, then pilot testing the document and further revising it

In describing in great detail the process through which the extensions were created, the authors establish the authority from which they can argue these guidelines should be the new industry expectation.

They then present the guidelines themselves, in the form of 3 tables (which for the physician with a shorter attention span could be considered 'the meat' of the article and are important reading) :

- (1) Simulation Based Research Extensions for the CONSORT statement
 - For use in reporting of simulation based randomised trials
- (2) Simulation Based Research Extensions for the STROBE statement
 - For use in reporting of simulation based observational studies
- (3) Key Elements for Simulation Based Research
 - A particularly useful table for new simulation researchers, which gives more broad guidelines on targeted goals for SBR.

The article then closes after a critique of the methods used, an acknowledgement that the guidelines will not be pre-destined to fit every type of research that comes out, that future revisions will be required and that feedback is welcomed.

Expert Opinion: Professor Debra Nestel



Debra Nestel is Professor of Surgical Education, Department of Surgery, University of Melbourne and Professor of Simulation Education in Healthcare, Monash University, Australia. Debra is Editor-in-Chief, *Advances in Simulation* (www.advancesinsimulation.com), the journal of the Society in Europe for Simulation Applied to Medicine (SESAM). She is Programme Director for the Master of Surgical Education (Department of Surgery, University of Melbourne and Royal Australasian College of Surgeons), a programme designed for surgeons interested in advancing their educational practice. Debra co-leads the Master of Surgical Science, University of Melbourne – a programme designed for junior doctors interested in pursuing a career in surgery. She is an honorary professorial fellow at Imperial College, London and Graduate Faculty Scholar in the College of Graduate Studies at the University of Central Florida. Debra leads a national programme for simulation educators – NHET-Sim (www.nhet-sim.edu.au) and a state-based network in simulated patient methodology (www.vspn.edu.au). Debra has published over 140 peer-reviewed papers in health professions education, published a book on simulated patient methodology (2015), has edited a book on healthcare simulation to be published in 2016 and is now editing a book on surgical education for release in 2017. https://www.researchgate.net/profile/Debra_Nestel

What advice would you have for clinicians about to start simulation research for the first time? What do you wish you knew before you started on a similar pathway?

For the first question, summary advice to clinicians about to start simulation research... learn about your worldview and theories, read a lot and around, build your research network and participate in discussions like this. Drawing on my work on the Graduate Programmes in Surgical Education, I usually direct students to the fabulous article by Roger Kneebone (2002) – *Total Internal Reflection: An essay on paradigms*. <http://www.ncbi.nlm.nih.gov/pubmed/12047663>. Roger describes the dominant positivist paradigm in which medical education is located and uses his own experience of becoming a surgeon and then an educator to argue for balance between paradigms. Although the article is about medical education rather than simulation, the messages are highly relevant. The notion that RCTs are the gold standard reflects a particular view of the world (a positivist/post-positivist one). Although RCTs answer important questions (i.e. *what* questions), personally, I find interpretivism and critical theory paradigms more appropriate to the questions that I like to ask in my own research (i.e. *why* and *how* questions). Exploring these paradigms and thinking really hard about where you sit relative to the questions you want to ask, is super important before getting started in research.

I edited a series of articles in *Clinical Simulation in Nursing* on theories that inform simulation practice and in introducing the series, wrote an overview of theories and worldviews to orientate readers (with Margaret Bearman who has contributed to this journal club). [http://www.nursingsimulation.org/article/S1876-1399\(15\)00053-5/abstract](http://www.nursingsimulation.org/article/S1876-1399(15)00053-5/abstract). I can send the article on ResearchGate on personal request through [this link](#).

Theories and worldviews also inform research practice. A forthcoming book chapter by Rola Ajjawi and Craig McIlhenny, *Researching in surgical education: An orientation*, in Nestel et al (Eds.) *Advancing Surgical Education: Theory, Evidence and Practice*, is fantastic. Another chapter by Rhea Liang offers her experiences as a surgeon undertaking educational research. So again, not necessarily simulation but the journey is similar. I wish I had read these materials years ago. Sorry the last two will not be available until 2017!

In response to the second question, I wish I had gained a deeper understanding of these paradigms before embarking on research. My doctorate crossed post-positivism/interpretivism and I used mixed methods to explore the impact and experiences of a simulation-based training programme on participants' knowledge, attitudes and skills – that was in the olden days!!!!

I suspect I might have asked different questions if I'd known more about my own worldviews.

As the Editor in Chief of *Advances in Simulation*, can you share an outline of your approach to assessing submitted simulation literature?

[Advances in Simulation](#) is a new and open access journal with a really large scope, which we may refine after our second year. We're just letting it find its own identity for now. As Editor in Chief, I am seeking to publish high quality articles on healthcare simulation. The question really taps into, what comprises *quality*? A big question and one that is, of course contested. The *Cheng et al* guidelines go some way to helping to improve quality for randomised trials and observational studies but as we have seen in the blog, it's still no guarantee. Besides, these are only two approaches to undertaking healthcare simulation research.

Probably the biggest consideration for quality is seeking "true" peer review. This itself is tricky since "true" peers can be hard to find given that manuscripts may have several different areas of expertise bundled into one – clinical discipline, simulation modality, technical content, methodological framework, methods, contextual relevance etc. Finding a perfect match in one person is tricky. So, Associate Editors usually seek at least 2 reviewers (in addition to their own expertise) with the breadth of expertise to make judgments about articles. It is not uncommon to have oppositional reviewers' comments. This is when an adjudicator may get involved, could be me, could be a member of the International Advisory Group or an expert in the "contentious" area.

There are many standards for reporting research! The Equator Network has useful guidelines <http://www.equator-network.org/reporting-guidelines/>. As reviewers we make selections obviously based on the manuscript and our own preferences. Like others, I'll also put in a plug for Table 3 from *Cheng et al* on what to report about the simulation activity that is the focus of study.

In my launch editorial, I share some thoughts about the journal and *quality*.
<http://advancesinsimulation.biomedcentral.com/articles/10.1186/s41077-015-0002-x>

What impact do you see this article having on the future of simulation research?

In addition to the ideas shared in the editorial by the Editors in Chief of the four healthcare simulation journals (<http://advancesinsimulation.biomedcentral.com/articles/10.1186/s41077-016-0026-x>), my biggest hope is that the guidelines will prompt researchers to think really carefully about the design of their research before getting started. Having Tables 1, 2 & 3 as reference points as you conceive of your research might lead to improved documentation of research processes. If your research does not reflect a randomised trial or observational studies, then review the reporting guidelines for the methodology and methods relevant to your approach.

Finally, the *reporting guidelines* are simply that – guidelines! So although they are important, and will likely have impact before, during and after the research has been done [and reported], I'd encourage researchers to be creative too. Research methods are not static. They have evolved and continue to evolve. New types of data are likely to emerge, new ways to capture/collect data, store and retrieve it, and of course analyse it, will likely to lead to new approaches to reporting research too.

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Journal Club Summary September 2016 : “The Theory of Evolution”

Blog Contributors :

- Nick Argall, Jessica Stokes-Parish, Margaret Bearman, Adam Cheng, Chris Cropsey, Ben Symon, Vic Brazil, Gabriel Reedy

Summary of this Month’s Journal Club Discussion :

Take home messages for this month’s journal club could be :

- Adherence to guidelines will not guarantee quality research.
- Entering the world of Simulation Based Research can be bewildering and new researchers would benefit from :
 - o Reading widely (including Table 3 of the article)
 - o Participating in ‘the learning conversations’ that exist in Simulation Academia
 - o Setting realistic expectations of one’s own early research contributions.
- The dominant paradigm that ‘Quantitative Research is superior to Qualitative Research’ is not necessarily the case in education based research, and shifting paradigms can be challenging for medical clinicians coached to ‘produce numbers’.

Discussion of the Paper :

There was widespread agreement on the importance of the paper and an appreciation of its presentation for discussion. For educators newer to SBR such as Ben Symon and Chris Cropsey there was enthusiasm on the extensions’ use as a checklist or framework to improve the quality of their own quantitative research, with Table 3 in particular being acknowledged as a very important, practical resource that could be used “as a blueprint of sorts”.

Commenters who came from an academic SBR background also acknowledged the importance of the guidelines but used their experience to highlight the important truth that adherence to guidelines does not guarantee brilliant research. As Margaret Bearman put it, “just because something is reported, does not mean it is of quality – it simply allows us to make judgements about quality through transparency of reportage.”.

Adam Cheng finally commented himself on his reflections on the paper and invited ongoing feedback on the extensions at <http://inspiresim.com/reportingnowavail/>, advising a revision is likely in 5 – 7 years.

Discussion of the Case :

Interestingly the case of ‘Brad the resentful simulation educator’ resonated strongly with many commenters, who agreed that while the negative emotions expressed in Brad’s case were potentially destructive, Brad’s passion and zeal for the benefits of simulation education was perhaps too identifiable for comfort. Despite their compassion, commenters reinforced that Simulation Education is an expensive, resource intensive exercise and that Brad and Simulation Culture in general have a responsibility to provide evidence of their validity. Brad was encouraged to make a more constructive approach to achieving acceptance of his program, including finding champions and allies within the hospital, and providing positive simulation experiences that will create good word of mouth.

Advice for newcomers to Simulation Based Research :

For clinicians embarking on first time simulation based research, the comments provided a rich series of resources to investigate and learn from. Multiple experienced researchers commented on ‘what they wish they knew’, with significant clinical pearls suggested.

Nick Argall advised “If you’re trying something that really is new, have an open mind about what outcomes it will produce. It may completely fail to deliver the expected benefit. It may be spectacularly successful at doing something unintended but desirable. It may also have undesirable side-effects.”.

Jessica Stokes-Parish suggested four key points : “Ask yourself some questions, Check what’s already out there, Get a mentor, No Data is No Data”. Her theme of knowing your own worldview and what you want to explore was echoed by Margaret Bearman and Debra Nestel in her expert commentary.

Multiple commenters such as Gabriel Reedy reported cultural struggles with moving medical professionals beyond “Qualitative Research is King”, with Gabriel highlighting that “it’s dangerous for the field as a whole to slide into a very narrow view of what counts as research.” He highlighted that this can even up limiting “the kinds of questions we can even ask.”

Multiple resources were suggested for extended reading, which have been included in our references section.



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Thankyou to Professor Debra Nestel, Editor in Chief, Advances in Simulation, for her expert commentary this month.

Thankyou to all commenters this month for sharing your thoughts and allowing us to learn from you.

References and Commenter Suggested Reading :

1. **"Reporting Guidelines for Health Care Simulation Research: Extensions to the CONSORT and STROBE Statements"**
[Cheng A, Kessler D, Mackinnon R, Chang TP, Nadkarni VM, Hunt EA, Duval-Arnould J, Lin Y, Cook DA, Pusic M, Hui J, Moher D, Egger M, Auerbach M; International Network for Simulation-based Pediatric Innovation, Research, and Education \(INSPIRE\) Reporting Guidelines Investigators.](#)
2. **"Total internal reflection: an essay on paradigms"**
[Kneebone R. Med Educ. 2002 Jun;36\(6\):514-8](#)
3. **Theory and Simulation-Based Education: Definitions, Worldviews and Applications**
[Nestel, Debra et al. Clinical Simulation In Nursing , Volume 11 , Issue 8 , 349 - 354](#)
4. **Equator Network Research Reporting Guidelines**
<http://www.equator-network.org/reporting-guidelines/>
5. **"Open access publishing in health and social care simulation research"**
[Nestel, D. Advances in Simulation 2016 1:2 DOI: 10.1186/s41077-015-0002-x](#)
6. **"A joint leap into a future of high-quality simulation research—standardizing the reporting of simulation science"**
[Sevdalis N, Debra N, Kardong-Edgren S, Gaba D. Advances in Simulation 2016 1:24 DOI: 10.1186/s41077-016-0026-x](#)
7. **"Quality and literature reviews: beyond reporting standards."**
[Bearman, M. \(2016\). Medical education, 50\(4\), 382-384.](#)
8. <http://tedkaptchuk.com/> "For even more challenging 'outside perspective' I'd invite you to consider Ted Kaptchuk's work examining the processes of clinical research. Professor Kaptchuk wrote the first English-language textbook on Chinese medical theory, and is now leads the "Harvard-wide Program in placebo studies" – Nick Argall
9. <http://inspiresim.com/reportingnowavail/> "Hopefully we'll see more people sending us feedback and ideas" – Adam Cheng