





DEPARTMENT OF PEDIATRICS C A L G A R Y GLOBAL CHILD HEALTH UNIT

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# **Spotlight on KidSIM**



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### Dr. Lindsay Crowshoe, MD, appointed as the first assistant dean, Indigenous at the Cumming School of Medicine

# Appointment acknowledges the University of Calgary's commitment to advance Indigenous health and knowledge inclusion within medical education

Dr. Lindsay Crowshoe has been appointed assistant dean, Indigenous within the Cumming School of Medicine's (CSM) <u>Indigenous, Local and Global Health Office</u> for a five-year term effective January 1, 2021. The Assistant Dean will lead efforts to support the CSM's strategic priorities and goals to advance Indigenous health; foster critical inclusion of Indigenous Peoples and knowledge; enhance outreach and engagement with Indigenous communities; and promote excellence in Indigenous health research.

The creation of the role, assistant dean, Indigenous is one of CSM's responses to the <u>Report on Indigenous Health Dialogue</u> of Truth and Reconciliation's (IHD) <u>Recommendations for a</u> <u>Path Forward</u> – the inclusion of Indigenous people and knowledge, ensuring dismantling of barriers and bias within the institution. It also formally acknowledges Dr. Crowshoe's advocacy of Indigenous health research and the facilitation of health care approaches which preserve Indigenous culture.

"This is an important opportunity for the CSM to move the calls to action in the Truth and Reconciliation report forward, to reduce barriers for Indigenous learners and those seeking health care. I look forward to seeing meaningful progress on the recommendations throughout our programs in the years

![](_page_1_Picture_6.jpeg)

to come," says Dr. Jon Meddings, dean, Cumming School of Medicine.

#### A legacy of Indigenous health work

Crowshoe is a Piikani First Nation family physicianscholar with extensive experience leading large multidisciplinary provincial, national, and international research teams focusing on chronic disease and social equity within areas of primary health care, public health, and health education. His work is guided by equity, social justice, and Indigenous ethics and principles inherent within Truth and Reconciliation.

In 2020, Crowshoe was awarded the Royal College's Dr. Thomas Dignan Indigenous Health award which recognizes a person's dedication to advocating for Indigenous People's rights and justice while drawing attention to institutionalized racism and working to dismantle it.

#### Next steps for the assistant dean, Indigenous

"Now that we have an understanding of what the Calls to Action mean for the CSM, I would ask each department, institute and office within our institution to formally explore the report and begin to define how they may act on any or all of the five recommendations," says Crowshoe.

He will continue to guide the <u>Indigenous health</u> programming and initiatives offered through the Indigenous, Local and Global Health Office including, but not limited to, the <u>Traditional Knowledge Keepers in Residence program</u> and promoting the use of the Indigenous Hub when we can safely meet in person. The experience and leadership he brings to the role will be essential in advancing Indigenous health within the CSM.

If anyone is interested in understanding how you or your department can dismantle systemic racism in health care and create effective responses to the Truth and Reconciliation Commission's Calls to Actions, please reach out to the <u>Indigenous health program coordinator</u> at the Indigenous, Local and Global Health Office.

Lynden (Lindsay) Crowshoe, co-chair of the Indigenous Health Dialogue, and Indigenous Health program director, is a member of the Piikani Nation, Treaty 7 Region of Alberta. He is an associate professor in the Department of Family Medicine, and member of the O'Brien Institute for Public Health at the CSM. He is also the principal investigator of the Indigenous Primary Health Care and Policy Research Network in Alberta.

The Cumming School of Medicine's Indigenous, Local & Global Health Office works to create the future of health and social equity at home and abroad. The office is committed to collaborating with communities to promote engagement, advance equity, inform curriculum and research, and co-design initiatives for impact.

Lindsay Marcaccio, Communications Coordinator, Indigenous, Local & Global Health Office, CSM

# The Indigenous, Local and Global Health Office launches strategic plan amidst a global pandemic

# Health and social equity champions are invited to mobilize against growing inequities at home and abroad

COVID-19 served as a global wake up call that our health is not independent from one another's and we cannot continue to ignore the health and social disparities around us.

"During the process of creating our strategic plan, major world events – the global movement Black Lives Matter, the call to end anti-Indigenous racism in Canadian health care, and the witnessing of marginalized communities being disproportionately affected by COVID-19 pointed to the critical need to advance equity, anti-racism, inclusivity, decolonization and reconciliation in health care," says Dr. Dianne Mosher, MD, associate dean, <u>Indigenous, Local and Global Health Office</u> (ILGH) at the Cumming School of Medicine (CSM). These events shaped the development of ILGH's <u>Strategic Plan 2021-2024</u>.

#### Working towards the goals

The vision of ILGH is creating the future of health and social equity. Their mission is to champion a health- and social-equity oriented medical school by nurturing respectful relationships with diverse communities, promoting collaborative and innovative models of engagement, informing curriculum and research, and co-designing initiatives for impact.

#### Three key goals were identified:

- Grow a culture that dignifies and values human difference
- Institutionalize community and partner-driven equity priorities through meaningful and reciprocal engagement

### Expand our institutional capacity to innovate and learn together with partners and community

ILGH will continue working with Indigenous, local and global communities, particularly those in marginalized settings, with a strong emphasis on advancing social accountability within the CSM. "Students at all levels need to appreciate and understand the effect of lived experiences on health. Faculty need the knowledge and skills to address the needs of students in this quickly changing world. And there is a need to advocate for the recognition of the multigenerational effects of colonization worldwide," says Mosher.

#### Stronger together

Creating the future of social and health equity is no easy feat and will require a network of dedicated health and social equity champions. ILGH will continue to build on their existing partnerships with institutes and organizations in Uganda, Tanzania and Ethiopia, Laos, Nepal, Philippines, Guyana and

![](_page_2_Picture_14.jpeg)

Nicaragua; look to further develop Community Engaged Learning experiences for CSM students with local community partners; and actively mobilize efforts to dismantle systemic anti-Indigenous and Black racism within health care and medical education with BIPOC student groups and members of community.

ILGH is delighted to continue to work together with the Global Child Health Unit. Strategies of both units are well aligned, not only in the global arena but also in recent global child health conferences on refugee and migrant child health (2019) and Indigenous child health (2020). These linkages between the units strengthen the connection between Alberta Health Services and the Cumming School of Medicine. ILGH looks forward to building on these commonalities and continuing their work together.

You are invited to review the Indigenous, Local and Global <u>Strategic Plan 2021-2024</u> to understand how you can work together to inspire and bring about change. Questions or comments can be directed to <u>csmengage@ucalgary.ca</u>.

The Cumming School of Medicine's Indigenous, Local & Global Health Office works to create the future of health and social equity at home and abroad. The office is committed to collaborating with communities to promote social accountability, engagement, advance equity, inform curriculum and research, and co-design initiatives for impact.

Dianne Mosher, MD, FRCP(C) is a professor, Division of Rheumatology, Department of Medicine at the Cumming School of Medicine, and Associate Dean, Indigenous, Local and Global Health Office. Her areas of research include models of care for arthritis and outcome measures for patients with arthritis. She has done extensive work in patient access to care and on the development and implementation of an online platform to collect system level and clinical care.

### Spotlight on KidSIM - Interview with Dr. Adam Cheng

Dr. Adam Cheng, MD, FRCPC, FAAP, is the Director of Research and Development for KidSIM at Alberta Children's Hospital. Dr. Cheng is past chair and co-founder of the INSPIRE network, an international research simulation collaborative comprised of over 250 pediatric hospitals and simulation programs. He is an established researcher and is known for his work in simulation-based education, cardiac arrest, and cardiopulmonary resuscitation.

#### How did you attain your current role at KidSIM?

I joined just over 10 years ago, although I was in Vancouver at the time. There was an opportunity for me to join KidSIM as a researcher to try to build the research side of things. There was already a very successful educational program, so I was able to comment on and help build the research side using simulation as a tool to answer clinically important questions.

#### What inspired you to do simulation research?

I always felt that simulation as a technology was under-utilized as a tool to address clinical questions. A lot of people over the years have been using simulation as an educational tool, but the work related to patient safety and research has been slow to pick up. In recent years people are using simulation as a technique or a tool to address patient safety issues and address research questions. I saw quite a bit of potential for the simulation to be used in that fashion, which is why I was interested in building a program around it.

The other thing is that simulation also provides us with a means to create in an environment where we can assess and evaluate how individuals and teams function within that environment, without any risk to the patient. We can introduce new processes of care and new technology, then evaluate whether or not that improves how we look after our patients. And of course since our patients are mannequins in the simulation center, if there are any errors or faults or gaps we can address those and there will be no adverse consequences to the patient.

#### Of the pediatric facilities in Canada, is KidSIM the largest?

Every single pediatric hospital across Canada has a pediatric simulation program and lots of those programs are doing some really great research. It is hard to compare one program

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to another. I certainly know that KidSIM has been around the longest, but across Canada our field has grown substantially over the past decade - to the point where all programs are doing really excellent work, and making an impact within all areas of the hospital. Simulation has become standard practice across pediatric hospitals in Canada.

#### Is there anything that makes KidSim unique?

I think there is a lot that makes our program unique. One of the key things about our program is that we reach all areas, all groups, and all types of patients in the hospital. We're not just limited to say, the emergency room, or the intensive care unit. The reach of KidSIM is everywhere throughout the hospital. Whether it's the operating room, dentistry clinic, physiotherapy, training families, or respite care, our reach is quite broad. It extends beyond the walls of the hospital to rural hospitals throughout Southern Alberta, and even in some parts of Northern Alberta and Interior BC. I think that makes us really unique.

Also, I think our faculty development program is quite robust. We prioritize delivering high quality education, and part of that is being able to train up our simulation educators to be able to facilitate sessions effectively. We have a very robust suite of faculty development courses called asset courses. The Insider

![](_page_4_Picture_1.jpeg)

Anyone teaching our program can take a number of those courses to enhance their educational skills. Lastly, on the research side, our program has been quite built up over the past decade. We've been very fortunate to receive funding from various sources and be regarded as a leader both nationally and internationally. KidSIM has been able to drive and serve as a lead site in many multi-center studies, developing guidelines and protocols that have informed International guidelines.

# Speaking of international, I know the SIM for Life program is supported by KidSIM, is there any other simulation programs globally that are supported by KidSIM?

I wouldn't say so in the manner that we supported the SIM for Life program because that was quite unique in terms of how tightly aligned we were with their general pediatrics education and faculty development. In terms of our reach, we collaborated with programs and various projects all around the world. We continue to seek out collaborations, trying to stay on the cutting edge to innovate.

#### Can you talk a bit more on the Sim for Life program at Mbarara University of Science and Technology (MUST)?

The Sim for Life program is led by Dr. Data Santorino from Uganda. He's the recognized leader in global health and simulation and approached us for collaboration through the Global Health Unit 5 or 6 years ago. We were fortunate to get the project funded by 3 different funding sources. We were able to build a simulation program at MUST from the ground up selecting the simulators, training their faculty, and developing a curriculum. We had experts from here fly over there to help them get up and running with 4 or 5 different research projects, assessing various different types of curriculum that we had developed. When that project phase was over, we were really fortunate to not only train up a core group of really excellent local faculty to help simulation educators, but also have them

build a physical simulation center. They developed an undergraduate curriculum to train their medical students and nursing students. They developed and implemented a curriculum to train healthcare providers from the region using a peer coaching/peer learning paradigm to improve the care of newborn babies in the community. It's been a really interesting project with that group, and there's certainly potential for huge impact moving into the future.

# You've done some research for the Sim 4 Life program as well, is that right?

Yes, we have a couple papers out and a couple more in the mix. The first one was on our simulation faculty development program and how we trained our educators. Basically describing our curriculum, how it was implemented and how it was effective in supporting the acquisition of debriefing skills for our educators. The second one was on the implementation of undergraduate curriculum in medical students and nursing students that was distributed over a year. In that paper we described how medical and nursing students acquired both teamwork skills and knowledge related to the curriculum topics that were offered for them. The simulation-based curriculum covered a variety of different topics across specialties. The other papers are in the works right now, but we will have those published within the next year or so.

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#### Do you have any feel-good stories related to the program?

Just the way that the local faculty there embraced simulation, they're really resilient folks, very passionate, and extremely hard working. Even in a setting when there's often gaps in electricity they're able to get things running. Obviously our simulators, all the technology is highly reliant on electricity, but they're always identifying a way to make things work and I'm just so impressed by how passionate and dedicated they are to building a successful program there.

## How long has modern simulation technology been used in medical education?

It originated maybe 40 years ago but didn't really take off until around 15-20 years ago. It started to become more mainstream and now in the past decade there's been exponential growth.

### How does simulation improve the skills of physicians, nurses, and other healthcare providers?

It provides an opportunity for them to come and practice, receive feedback, and for educators to structure the educational session to adjust the learning needs, regardless of what group they are. Whether it's nursing students or medical students, residents, or if it's nurses and doctors who have had 20-30 years of clinical experience. You can create sessions and experience if that helps directly address what the most pressing needs are on that specific day for that specific group. Coupled with that is the opportunity to debrief or receive feedback. That is a key part of the learning experience which is often missing in the clinical environment.

#### Is it better for residents and physicians to practice in a safe environment with feedback in order to gain skills and be better mentally prepared for adverse situations?

One of the biggest benefits of the program is that it provides a space for folks to come and learn how to function as teams. In the clinical environment, and on the units, it's just really busy and everyone is overly focusing on the patient, trying to deliver the best patient care, and getting everything done that needs to be done. As a consequence, there is just not much time for the teams to sit down and reflect on how they did, how they can improve, and what they did well. When we have a simulation program, that time is set aside for us to collectively reflect on how we were able to deliver care as a team. Much of our research is centered on team processes and how we can enhance those.

![](_page_5_Picture_7.jpeg)

![](_page_5_Picture_8.jpeg)

# Is there a significant difference in the retention of skills that's learned during simulation vs traditional medical education?

If you compare simulation to lecture, some of the benefits of simulation are the hands-on component, the opportunity for repetitive practice, and the opportunity to receive feedback. Lecture is a fairly static learning modality and information comes in, then oftentimes it goes right out.

Even in small group sessions or problem-based learning, there is very little feedback coupled to that. Simulation is unique in that it provides opportunity for hands-on practice, oftentimes in a repetitive nature, coupled with feedback and debriefing. In terms of retention, I think it really depends, if you just brought a group through a one-off simulation and then you never come back again, certainly the retention is unlikely to be great. If the curriculum is structured in such a way where the learner or learners have opportunity for repetitive practice that is spaced out over time, I think the likelihood that they'll retain skills is much, much higher than with traditional modalities of learning.

#### How much time do residents usually get doing simulation now?

It has grown over the years. Now simulation is integrated into the medical school curriculum and dependent on what resident program they're in. Pediatric residents have opportunity to participate in simulation across various different rotations, not just in emergency medicine or ICU, but across rotations throughout their training. It's built into their core training as well. They're seeing it a lot more than they used to see, say 5 or 6 years ago. They are very comfortable with simulation, understand what it's about, and why it's important. We're seeing it replace traditional lecture in many different settings, just because people are starting to realize that the information is stickier once folks have an opportunity to learn from simulation.

Dr. Amonpreet Sandhu facilitates the SimPerls course and recently began an Indigenous child simulation course as well.

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# Are there any other type of simulation courses that help residents learn skills in a global or low-resource setting?

I'm not aware of any other programs within the university. Certainly the programs that Dr. Sandhu has developed lays an effective foundation for those skills. It also helps set people up for success when they're looking to build programs for low-resource settings, or go a pre-existing program to help them educate. I recommend that people look at those programs if they're keen to take on that sort of role in their career.

# Do you have any advice for aspiring researchers who are interested in simulation?

My main advice would be to figure out what your passion is and pick a project that you really care about, that's the number one thing. The second is to build a team and surround yourself with people with complementary skillsets and ensure you have people to support you and help you along. Research isn't done as an individual, it's typically most successful when done as teams. Having great teammates goes a long way towards having a successful research career. Lastly, beyond conducting a budget, I'd encourage people to think about how they're going to share the results of their hard work. Too often people stop once the paper is published and that's it – okay it's published so now let's move on, but what more can be done these days to share and disseminate the work that we've done? I think directing some attention and energy towards that will really help.

## Can you tell me about what you enjoy doing, what your professional passion is?

Professionally, the main thing is I want to try to do things that will make a difference for clinical care both locally and globally. A lot of our work has been centered around cardiac arrest research, how to improve process of care, and how to improve outcomes from cardiac arrest in pediatrics (and to a certain extent in adults). I've been really fortunate to work with some amazing researchers locally and all around the world to collaborate on projects, and that's really a major motivating factor for me. Once the career is over what was achieved, and was there any difference made in the work that I did. I'm always trying to identify opportunities that will leave some sort of lasting impact, whether it's with process of care, technology, educational curriculum, or teaching people the most effective ways to collaborate. One of the things I'm most proud of is having served as co-founder and past chair of the Inspire network, which is the world's biggest pediatric simulation research and education network. It's in the 10<sup>th</sup> year, and right now we have several hundred sites involved in doing a variety of different research and scholarly projects. The impact of the work coming out of that

![](_page_6_Picture_7.jpeg)

network has been tremendous, both to the projects but also the next generation of researchers. It's been incredibly fulfilling to be part of that. You can take a look at the website,

<u>www.inspiresim.org</u>. They have an annual report that's published every year that can be found on the website.

### Do you have any advice, anything that stands out that has helped you along your way?

Being part of a community really helps, so anyone interested in simulation should look at our Canadian community which can be accessed through the Royal College Simulation Summit (<u>https://simsummit.royalcollege.ca</u>), and also Simulation Canada (<u>www.sim-one.ca</u>). As well as the international community, simulation in general, that would be the Society for Simulation in Healthcare (<u>https://www.ssih.org</u>). For pediatrics it would be the International Pediatrics Simulation Society (https://www.ssih.org/).

Being a member of those communities has been really beneficial for me in terms of meeting collaborators and like-minded people, thinking of new projects, and just getting stuff done that involves folks from outside the realm of our own hospital. That's probably the most important thing, becoming part of a community, that matters a lot.

Dr. Adam Cheng was interviewed by Connie
 Campbell, University of Calgary Department of Pediatrics
 Global Child Health Unit.

# The Reading Corner of The Insider

Linneman and Satin International Journal for Equity in Health (2021) 20:59 https://doi.org/10.1186/s12939-021-01380-y

International Journal for Equity in Health

#### COMMENTARY

**Open Access** 

"An epoch-making and blessed moment in the history of medicine" –thoughts on international health equity and the Nobel prize in medicine

Zachary M. Linneman 10 and David J. Satin<sup>2</sup>

#### Abstract

The Nobel Prize in Physiology or Medicine is a prestigious award given every year for ostensibly the most important discovery in the field. Prizes in Medicine have typically gone to honor foundational knowledge rather than measurable impact. Two recent examples from global health (a rotavirus vaccine, child growth standards) offer alternatives for what might be lauded in medicine. These two examples and historical achievements regarding cholera and smallpox are worthy but do not fall within the scope of Nobel awards for Peace or Economics. The COVID-19 pandemic gives a new context for the idea that discovery and implementation are both keys to medicine. New patterns that redefine achievement in medicine could emerge by Nobel Prize precedent to promote greater health equity and international collaboration.

Keywords: Nobel prizes, Vaccine, COVID-19, Impact, Malaria, Public health, Global medicine, Research priorities, Health equity, Implementation science

#### History of the Nobel prize in medicine and other advances

In October, beginning with the category of Physiology or Medicine, the 2020 Nobel Prizes were announced. Rules for the Prize in Medicine permit it to be given to no more than three individuals (not an organization), all of whom must be living. This year awarded Alter, Houghton, and Rice for the discovery of the Hepatitis C virus [1], Alfred Nobel's last will and testament directs the Prize in Medicine to esteem "the most important discovery within the domain of physiology or medicine," [2].

The late benefactor's description presents as objective, but the Prizes in Medicine are miscible with history and politics. The second-ever Prize was awarded to Ross in

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![](_page_7_Picture_15.jpeg)

1902 for illuminating the malaria life cycle during a decade when malaria was commonly fatal on five continents, including to the British Army occupying India. In the lecture before the award to Erlich and Mechnikov in 1908 "for their work on immunity," [3] Count K.A.H. Mörner invoked an earlier achievement in immunology 100 years before the Prize began, when Edward Jenner introduced cowpox vaccination for smallpox immunity. Mörner described that achievement as "an epochmaking and blessed moment in the history of medicine." However, he followed his accolade by claiming that Jenner "did not advance the development of the study of immunity.., the first and most important condition for making the problem of immunity the subject of real scientific research was namely to establish the cause of disease." [4] In doing so, as Rector of the Royal Karolinska Institute (the awarding committee), he created an archetype for the Prize in Medicine that promotes the

Si The Author(s) 2021 Open Access This attide is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate ifmanges were made. The images or other third party material in this article are included in the article! Creative Commons licence, unless indicated otherwise in a credit line to the material. If materia is not included in the article! Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, with http://creativecommons.org/publicdomain/zero/1.0/) applies to the data made available in this article. Unless otherwise stated in a credit line to the data. discovery of abstract knowledge - to the point of ideologically disqualifying the first-ever vaccine.

Following this pattern, Prizes in Medicine have typically gone to honor foundational knowledge (e.g. structure of the DNA molecule in 1962), innate bodily substance (insulin in 1923), or illumination of a diseasecausing agent (HIV in 2008) [1]. Only one vaccine has ever been awarded [5]. The Prize consistently distinguishes moments in the history of medicine when knowledge first suggests the possibility of a cure or prevention of a disease, not the final realization of protection or cure in human bodies.

Alfred Nobel also offered general advice that all five original Prizes should be given "to those who, during the preceding year, have conferred the greatest benefit to humankind." He would have stood in awe of crowning achievements of medicine and humanity after his lifetime: the discovery of sodium-glucose co-transport around 1960 leading to oral rehydration solution for cholera [6], the total eradication of smallpox in 1977 [7], and the 2006 development of a universal set of growth charts to assess malnutrition in children [8]. But the Nobel Prize in Physiology or Medicine did not award these undertakings.

These three accomplishments do not fit nicely in the established precedent or scope of the other Nobel Prizes. They are not directly related to war relief like the 1999 Nobel Peace Prize to Medicins San Frontieres (MSF), an organization which was founded in the aftermath of the Nigerian-Biafran War [9]. The three accomplishments are not innovations that directly impact the income potential of the poor, like Amartya Sen's Economics award in 1998 "for his contributions to welfare economics"1 [11]. The closest precedent is this year's Nobel Peace Prize to The World Food Programme (WFP) "for its efforts to combat hunger, for its contribution to bettering conditions for peace in conflict-affected areas ... " All of the non-medicine Nobel Prizes to health-related organizations are to non-governmental organizations (MSF and the Red Cross) or multilaterals (United Nations Children's Fund, UNICEF, and WFP) and specifically laud accomplishments that are politically stabilizing in a period of war or potential conflict [1]. But where the three crowning achievements that we invoke diverge categorically (from non-Medicine Nobel Prizes) is that they are based on life-threatening diseases - cholera, smallpox, and severe acute malnutrition in children under five - all of which required medical intervention based on a new scientific discovery.

<sup>1</sup>The Economics prize, officially designated as the "Prize in Economic Sciences in Memory of Alfred Nobel," was not delineated by Alfred Nobel's will. It was added in 1968 with an endowment from the Swedish national bank [10]. There is a crossing between discovery and impact forded by a tremendous amount of work. Ross described malaria in 1902 but treatment still failed to reach about 384,000 lives in 2019, two-thirds of whom are children [12]. Our historical high points begin in the mind, but do not self-assemble in the world. This is the work we will always have with us. One hundred and twenty years after a Nobel Prize for illuminating malaria's life cycle, the perficious agent of perennial health risk is confined to a subset of the world's people. Many children in just a few parts of the world will typically suffer the course of this disease two or three times before developing natural immunity - if they survive.

#### Recent Examples from Global Health of broad impact through medicine

Could we consider successful implementation of medical knowledge as its own discovery? Mörner's discrimination towards *Eureka!* moments of abstract discovery in physiology is appealing precisely because it is akin to our conception of new love: immediately recognizable and often sentimentalized. But broad impact in medicine is more like the hard-earned intimacy of lifelong friendship, with origins often lost in private stories but fundamentally transformative over time, as described in the following two examples.

#### An Indian-designed vaccine for a global virus

A vaccine for rotavirus (i.e. anti-diarrheal) was developed in India for infants [13]. Rotavac<sup>®</sup> began around 1988, when the late Dr. MK Bhan isolated strains of attenuated rotavirus from children at the All India Institute of Medical Sciences in New Delhi. The energetic Dr. Bhan, later as India's Secretary of Biotechnology, built upon this discovery-turned-vaccine by facilitating a collaboration called the Biotechnology Industry Research Assistance Council (BIRAC), which brought the private research sector to Indian vaccine production.

Dr. Bhan's primary research achievement is discrete, easy to explain, and traceable to a lightbulb moment, sitting in a hospital reviewing analysis of viral strains in diarrhea from infants. But the 30+ year *development* of the vaccine was a labor of love for many brilliant doctors, scientists, government officials, nurses, and field workers. Even more impactful is this vaccine's *implementation*, whose rollout continues today with delivery and monitoring of Rotavac<sup>\*</sup> in the Indian Public Health system [14]. Through medicine, children are spared a dangerous illness in large numbers.

#### 'WHO says our kids are just as good'

In 2004, Kofi Annan as Secretary-General of the United Nations wrote a preface to the World Health Organization (WHO) Multicentre Growth Reference

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Study (MGRS), noting "the United Nations undertook in 1993 a comprehensive review of anthropometric references" to "strengthen the hand of those working to extend the right to health to all children." At least seven major research entities on five continents came together for a broad survey of those children having completely unrestricted physical growth (i.e. full food security, no major illness, optimal breastfeeding, non-smoking parents, etc) [8].

At the Asia site for this collaborative research project, Dr. Nita Bhandari led a team at what would become her remarkable female-led research organization called the Centre for Health Research and Development, Society for Applied Studies. They screened 117,000 pregnant women and followed up 425 of them at 73 different hospitals within 24 h of their child's birth, diligently taking height and weight measurements of the children for years [15].

When results were combined from a representation of all geographic areas, a discovery of physiology was clear. Children have the same growth potential regardless of geography or the non-medical category of race. A newspaper headline in India summed up what applied to all areas where previous growth standards set the bar too low: "WHO says our kids are just as good." [16] This discovery was implemented as the 2006 WHO Child Growth Standards, constituting an historic moment in medicine impossible to ascribe to three or fewer living people. The impact of the 2006 WHO Child Growth Standards was to substantially increase in the number of children accurately diagnosed with severe acute malnutrition (SAM). This in turn fostered a renewal in efforts to treat child malnutrition, including innovations in formulations for treatment and a new program funded by UNICEF called community-based therapeutic feeding for SAM [17, 18]. Through medicine, children are treated for a life-threatening illness in large numbers.

#### A vision of the Nobel prize in medicine aligning with health equity

Since the Nobel Prizes began, medicine has evolved with a concept of health defined by the WHO 's founding documents in 1946 as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." [19] Like a new growth standard that captures more cases of malnutrition, this definition of health comes with more work. But, global health inequities are more visible and collaborations to address them are more developed than when the Nobel Prizes began.

Can the Prize expand? The Nobel Prize in Medicine is without clear equal in the health sciences – it is a worthy aspiration for physicians and physiologists alike. And, like the highest award in any field, it helps define the culture and scope of the discipline. The Prize in Medicine also constitutes a record of historical achievements, and discoveries are usually awarded more than two decades after they are made (with a notable exception of insulin). [20] This is the long view of the Prize in Physiology or Medicine as an exercise in writing the history of medicine.

Successful physician-scientists plan their life work first by understanding history and hearing stories of achievements that came before them. Let them hear the long version - the version where impact is defined in counting the number of lives touched by a discovery implemented through collaboration and by prioritizing the disproportionately affected. It is the version in which doctors are driven to discover after being exposed to great need. Let them aspire to be humanitarians as well as discoverers. Through medicine, children in need can be spared or treated for serious illness on their way to a state of complete well-being - a broader definition of medicine that could be used by the Nobel Committee to expand the Prize's territory, along with our maturing concepts of health and equity.

The reality of an uncontrolled pandemic due to a novel but well-characterized virus invites us to consider that discovering the cause of a disease may no longer be the most important concern for medical research. New patterns that redefine achievement in Physiology or Medicine could emerge. We write during a phase of the pandemic in which COVID-19 vaccines were rapidly developed and administered to a set of prioritized front-line healthcare workers in a limited number of wealthy nations. Yet the pandemic carries a lesson in health equity. "In an interconnected world, none of us is safe until all of us are safe," UN Secretary-General António Guterres proclaimed in a speech early in the pandemic era [21]. The collaborations that produce and broadly administer an effective vaccine for COVID-19 would arguably meet both the original Nobel Prize criteria of "the most important discovery in the field" and having "conferred the greatest benefit to humankind. "And when the most severe restrictions of COVID-19 are lifted, our universal experience of uncertainty can unite us across physical distance and bring global health equity into public focus. Similarly, a Nobel Prize in Physiology or Medicine that honors a global health achievement from an area of greatest need could shift our values away from the ivory towers of research science towards impact.

Either that, or we can wait (like a quarter-million children), for a "blessed moment" when the eradication of malaria is achieved by combined efforts of novel vaccine

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development and a long vaccination campaign for an undeniably worthy *new* Nobel Prize Category. This prize could be endowed, perhaps, by a large and well-funded American pioneering organization in health science research with a fortune derived of a computer company - to honor "Global Medical Collaboration, Implementation, and Impact," or simply, medical humanity.

#### Abbreviations

BIRAC: Biotechnology Research Assistance Council; COVID-19: Coronavirus Disease 2019; MGRS: Multicentre Growth Reference Study; MSF: Medicins sans Frontieres (also as Doctors Without Borders); SAM, Severe Acute Malnutrition; UNICEF: United Nations Children's Fund, WFP: World Food Programme; WHO: World Health Drganization

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#### Authors' contributions

ZL drafted the manuscript. DS revised the manuscript. The authors read and approved the final manuscript.

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### Women's and Children's Health in Conflict Settings 3

![](_page_11_Picture_3.jpeg)

### Delivering health interventions to women, children, and adolescents in conflict settings: what have we learned from ten country case studies?

Neba 5 Singh, Anushka Ataullahjan, Khadidiatau Ndiaye, Jai K Das, Paul H Wise, Chiara Altare, Zahra Ahmed, Samira Sami, Chaza Akik, Hannah Tappis, Shafiq Mirzazada, Isabel C Garces-Palacio, Hala Ghattas, Amil, anger, Ronald J Waldman, Paul Spiegel, Zulfiqar A Bhrutta. Karl Blanchet, and the BRANCH Consortium Steering Committee\*

Armed conflict disproportionately affects the morbidity, mortality, and wellbeing of women, newborns, children, and adolescents. Our study presents insights from a collection of ten country case studies aiming to assess the provision of sexual, reproductive, maternal, newborn, child, and adolescent health and nutrition interventions in ten conflictaffected settings in Afghanistan, Colombia, Democratic Republic of the Congo, Mali, Nigeria, Pakistan, Somalia, South Sudan, Syria, and Yemen. We found that despite large variations in contexts and decision making processes, antenatal care, basic emergency obstetric and newborn care, comprehensive emergency obstetric and newborn care, immunisation, treatment of common childhood illnesses, infant and young child feeding, and malnutrition treatment and screening were prioritised in these ten conflict settings. Many lifesaving women's and children's health (WCH) services, including the majority of reproductive, newborn, and adolescent health services, are not reported as being delivered in the ten conflict settings, and interventions to address stillbirths are absent. International donors remain the primary drivers of influencing the what, where, and how of implementing WCH interventions. Interpretation of WCH outcomes in conflict settings are particularly context-dependent given the myriad of complex factors that constitute conflict and their interactions. Moreover, the comprehensiveness and quality of data remain limited in conflict settings. The dynamic nature of modern conflict and the expanding role of non-state armed groups in large geographic areas pose new challenges to delivering WCH services. However, the humanitarian system is creative and pluralistic and has developed some novel solutions to bring lifesaving WCH services closer to populations using new modes of delivery. These solutions, when rigorously evaluated, can represent concrete response to current implementation challenges to modern armed conflicts.

#### Introduction

Armed conflicts have disastrous effects on civilian populations. More than half a million civilians have been estimated to be killed by combat operations in Syria alone between 2011 and 2019,1 a substantial number of whom were civilians (112 623 casualties), amongst them are women (13173 casualties) and children and adolescents (21065 casualties aged under 18 years). The toll from the extended, indirect effects of conflict due to the destruction of food supplies, roads, electricity and water infrastructure, and health facilities has also been catastrophic,13 In 2017, 701 attacks were reported on health facilities, health-care staff, patients, and ambulances in 23 conflict-affected countries." Armed conflicts have also negatively affected the number of forcibly displaced people in the world, increasing each year in the last decade, with 79.5 million people displaced by December, 2019.1 New estimates from Eran Bendavid and colleagues (paper 2 of this Series)\* of the number of women and children affected by conflict-at least 630 million in 2017, including over 50 million women and children displaced by conflict-is, at over 8% of the world's population, strikingly large." This Series paper complements the other Series papers by presenting empirical insights from a collection of ten country case studies aiming to assess the provision of women's and children's health (WCH) services in contemporary conflicts in Afghanistan, Colombia, Democratic Republic

#### Key messages

- Many lifesaving women's and children's health (WCH) services for key populations in conflict settings are not delivered everywhere
- Priorities of donors are the primary drivers of influencing the what, where, and how of implementing WCH interventions
- Priority predefined packages of WCH services are not commonly agreed on and implemented in conflict settings
- Working within the political and governance systems in conflict settings is increasingly challenging compared to previous decades, given the dynamic nature of modern conflict and the expanding role of non-state armed groups
- The humanitarian system is creative and has developed new solutions to bring lifesaving WCH services closer to populations in very challenging environments
- Recognising and valuing the primary role of local actors (ie, local authorities, local service providers, and local non-governmental organisations) would improve timely and appropriate WCH care delivery

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This is the third in a Series of four papers about women's and children shealth in conflict settings

"Members are listed at the end of this paper

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#### Panel: Case study selection criteria and methodology

This Series paper presents insights from a collection of ten country case studies aiming to assess the provision of women's and children's health (WCH) services in contemporary conflicts in Afghanistan, Colombia, Democratic Republic of the Congo, Mali, Nigeria, Pakistan, Somalia, South Sudan, Syria, and Yemen. Countries were selected to ensure representation across geographies and conflict stages (eg. acute, protracted, or post-conflict).

Country case study teams comprised of local and international research partners often supported by humanitarian agencies. The teams' work was guided by a common research protocol,<sup>1</sup> with desk review parameters, quantitative analysis of national datasets (where available), primary qualitative data collection tools, and fieldwork strategies adapted to examine factors influencing planning and implementation of WCH services in each setting.

We used a framework analysis approach to describe the coverage and spectrum of WCH interventions delivered, and to assess explanatory variables affecting variation in health service delivery. Our analysis focused on decision making processes, obstacles to implementation of proven WCH interventions, and adaptation of service delivery strategies to address health needs of women, newborns, children, and adolescents in varied geographical, political, economic, and environmental conditions.

of Congo, Mali, Nigeria, Pakistan, Somalia, South Sudan, Syria, and Yemen.

The key question we asked is whether traditional humanitarian assistance has had a positive effect on saving lives and mitigating morbidity and mortality in modern armed conflicts. The implicit question is whether the humanitarian community has been able to adapt to the changing nature of armed conflicts and respond to women's, children's, and adolescents' health needs.

Country case study teams comprised of local and international research partners are often supported by relief agencies. Their work was guided by a common research protocol (panel),<sup>7</sup> with desk review parameters, quantitative analysis of national datasets (when available), primary qualitative data collection tools, and fieldwork strategies adapted to examine factors influencing planning and implementation of WCH services in each setting. Detailed results from each country are published elsewhere.<sup>7</sup> This paper presents the synthesised results and implications from the analysis of the ten country case studies.

#### Social determinants affecting the health of women, newborns, children, and adolescents

The effects of armed conflicts are the combination of several risks factors, including the nature and exposure to conflicts, the social determinants of health, and the level of risks and vulnerabilities experienced by women, newborns, children, and adolescents. The social determinants affecting their health in conflict settings include: reduced access to safe water and sanitation: poor quality housing; poor nutrition; and limited access to quality health services. These determinants influence the health, opportunities for social and intellectual development, and quality of life of children and newborns even more, as they grow up in an environment in which their ability to exercise their basic rights have deteriorated due to immediate threats to security (eg. during occupation, fighting, etc), experience of traumatic events, and lack of opportunity to play as a way of developing social and motor skills. Additionally, conflict and its attendant trauma often require that women undertake new social and economic roles. Alternatively, women are likely to become more vulnerable if they are isolated and exposed to violence and lack of resources. Women and adolescent girls are more commonly exposed to sexual and gender-based violence, including rape, which is often used as a weapon of war.

#### The nature of contemporary armed conflicts: analysing security attributes of the ten case study countries

Humanitarian actors (ie, international and national humanitarian organisations) are confronted by increasingly complex armed conflicts. As analysed by Paul Wise and colleagues (paper I of this Series)," each conflict possesses its own unique character and history, and the impact of each conflict on civilian populations is rooted in complex political, strategic, and military determinants. Derived and expanded from the conceptual framework presented by Wise and colleagues," table 1 presents selected attributes of the case study conflicts related to the nature of warfare and the strategies and tactics of the engaged state and non-state combatant groups.

All the country case study conflicts are both intra-state, often labelled as civil wars, and also internationalised, inter-state wars or conflict initiated by non-state armed groups operating internationally. Although most of the studied conflict settings are primarily rural in nature, Syria and Yemen have experienced destructive urban sieges. with the large scale use of high explosives, including from airstrikes and artillery, in densely populated areas, DB Summarising the organisational structure, strategies, and tactics used by the various combatant groups is challenging as the number of these groups are large and vary over time. However, it is useful to distinguish generally between the strategic attempts of belligerents to gain political legitimacy among civilian populations or to coerce civilian compliance through direct attacks or the deprivation of essentials of life or access to humanitarian assistance, and more specifically to essential WCH services.

In all ten countries where the conflict is characterised by a multitude of non-state armed groups, the access to The Insider

	Conflict setting	Total population (World Bank, 2018) <sup>o</sup>	Population in need of humanitarian assistance (OCHA, 2020)'''	Battle-related deaths (Uppsala Conflict Data Program, 1989-2018)''	Combatants (number of non-state armed groups)"
Afghanistan	Rural and urban	37-2 million	94 million	227 510	38: main parties include the Afghan Armed Forces, North Atlantic Treaty Organization Resolute Support Mission, US Forces Afghanistan, Taliban, Al Qaeda, ISIS, Haqqarii network, and other militia groups
Colombia	Rural	49-6 million	51million	27617	8: main parties include the Colombian military, Fuerzas Armadas Revolucionarias de Colombia, Ejército de Liberación Nacional, Autodefensas Gaitanistas de Colombia, Rastrojos, Aguilas Negras, Puntilleros, and Ejército Popular de Liberación
Democratic Republic of the Gongo	Rusal	84-1 million	159 million	112327	•100; main parties include the Forces Armées de la République Démocratique du Congo, Mouvement du 23 mars, Forces démocratiques de libération du Rivanda, Union pour la Réhabilitation de la Démocratie du Congo, Nission de l'Organisation de Nations Unies pour la stabilisation en République démocratique du Congo, Niduma délense du Congo, Rénové, Union Paysanne pour le Développement Intégral. Forces démocratiques alliées or National Army for the Liberation of Uganda, Lord's Resistance Army, Forces nationales de libération, Alliance des patriotes pour un Congo libre et souverain, Kamuina Nsapu, Bana Muna, Mai Mai Mazembe, Lorce de résistance patriotique d'Itori, otter Mai Mai militias and ethnic factions, and Burundian anti-governument militias
Mali	Roral	191 million	3.6million	5886	±10; main parties include the Malian Armed Forces, African-led International Support Mission to Mali, Mouvement National pour la Libération de l'Azawad, Ganda Iso, Froni de libération nationale de l'Azawad, Mouvement pour le salut de l'Azawad, Groupe d'Autodéfense Tuareg Imghad et Alliés, ISIS, and Boko Haram
Nigeria	Itoral	195.9 million	7-7 million = 284 843 refugees in the region	54538	+12; main parties include the Nigerian military, Multinational Joint Task Force, Civilian Joint Task Force, Boko Haram, ISIS West Africa, Hunters, Dan Banga, other militias, and AQIM (in the northeast); and Fulani and Hausa herders, and Tiv and Tarok farmers (in the Middle Belt).
Pakistan	Rural and urban	212-2 million	2-9 million	41562	>14; main parties include the Pakistani military or Inter-Services Intelligence, Haqqani network, Al-Qaeda, Lashkar-e-Taiba, Balochistan Liberation Anny, Harkat-U-Jihad al-Islami, Jaish-e-Mohammed, Hizbol Mojahideen, Harkat-U-Mojahideen, Al-Badr, Islami: State of Iraq and the Levant-Khorasan Province, Islamic Movement of Uzbekistan, and other Sonni militant factions
Somalia	Rural	15 million	5-2 million	48009	>7) main parties include the Somali Armed Forces, Al-Shabaab, African Union Mission B Somalia, Kenyan Defence Forces, US countertenror operations, ISIS, and Al-Qaeda
South Sudan	Rural	10-9 million	7.5 million = 2.3 million refugees in the region	11104	>40; main include the are Sudan People's Liberation Army, United Nations Mission in South Sudan, Mathiang Anyoor, Maban Defence Force, Sudan Liberation Movement, Justice and Equality Movement, Sudan People's Liberation Movement-North, Ethiopian Unity Patriots Front, Sudan People's Liberation Movement-in-Opposition, Nuer White Army, and many others <sup>10</sup>
Synia	Urban	159 million	11 million + 5-6 million refugees in the region	345079	-15: main parties include the Syrkan Arab Army, Russian Armed Forces, National Detens Force, Shabiha, Foreign Shia militias inlucting Hezbollah, Free Syrian Army, Jabhat Tahrir Souniya, ISIS, Hayat Tahrir al-Sham (formerly Nusra), US-led coalition, Syrian Democratic Forces, People's Protection Units, Turkish Armed Forces, and Israeli Armed Forces
Viamero	Urban	28-5 million	24 million	26230	-11; main parties are Saudi-led Goalition, Houthi Jorces, pro-Hadi security forces, Saleh loyalists, ISIS, Al-Qaeda in the Arabian Peninsula, and Southern Movement: supporting groups include Alliance of Yemeni Tribes, Pro-Houthi Popular Committees, Special Security Forces, Tihamah resistance, and other alleged groups
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populations that humanitarian actors have achieved has mostly been a result of humanitarian negotiations with parties to the conflict. Faced with increasingly complex dynamics in armed conflict (table 1), humanitarian actors have increased investments in guidance, skills, and capacities to operate in high-risk and access-constrained environments.<sup>15</sup>

### When conflicts undermine primary health-care delivery

Our analyses found no clear patterns on WCH intervention delivery in conflict settings. In Afghanistan

and Pakistan, our analysis suggested a statistically significant difference in coverage of various WCH interventions between severely or moderately and minimally conflict-affected provinces or districts based on the battle-related deaths.<sup>10,10</sup> In Colombia, maternal mortality, antenatal care coverage, caesarean section rate, and fertility in adolescents aged between 15 and 19 years were significantly different in municipalities with high versus low levels of violence intensity (measured as victimisation rates), and no statistically significant difference was found in vaccination coverage, neonatal, early neonatal, and infant mortality rates between high and low conflict quintiles.<sup>26</sup> In Nigeria, although there were differences in various indicators including vaccination coverage and neonatal and child mortality among the conflict-affected, marginal, and stable (non-conflict) areas, these differences were not statistically significant.<sup>36</sup> In Democratic Republic of the Congo, insecurity (measured as conflict-related fatality rate) had a significant effect on maternal death and stillbirth rates, whereas the effect on coverage of selected WCH interventions was not significant.<sup>36</sup>

In many cases, health services might exist on paper but have ceased to be delivered to people in the specified catchment area. For example, in Afghanistan, comprehensive emergency obstetric and newborn care (CEmONC) is largely not delivered in most provinces. Similarly, the introduction of user fees at public and private health facilities has become standard practice, as has been seen in Afghanistan (at tertiary level) and southern Sudan. An overriding concern in Yemen and Syria has been how to evacuate victims of violence from the site of an incident to the nearest emergency medical centre, an issue that was regularly raised in the media because of its huge humanitarian, social, and political dimension (personal communication). Health systems in conflict settings can. as in non-conflict zones, support a healthy life, or, by their absence or ineffectiveness, undermine it and perpetuate health inequity.

Data from the case study countries show that the presence of armed conflict has attracted the attention, and even the intervention, of the international community, with evidence of mitigation of the adverse health impact of conflicts and sometimes even greater health and health-care improvements that lead to important improvements in population health beyond the pre-crisis levels (eg, Democratic Republic of the Congo, Nigeria, Somalia, and South Sudan).<sup>1942</sup> Thanks to the humanitarian system, many maternal and child health and nutrition services are now offered to a majority of those who can be reached in conflict settings.

#### Pre-conflict capacity of health systems as a determinant of WCH priorities

There were differences among countries in terms of what services were delivered and how. These differences can be attributed both to the intensity and nature of the conflict (eg, whether active, protracted, or cyclical) and the capacity of the health system before the conflict. For example, Syria was a middle-income country before the conflict and had a functioning health system providing free-at-the-point-ofdelivery primary health-care services. Participants in our study reported that during the war, there were certain gaps in WCH service availability over time and by geographical locations. In areas where the health system was affected the most by the conflict, there was a delay in re-establishing WCH service delivery. Before the conflict, Colombia also had all the infrastructures in place to deliver WCH services, which were all delivered even during the conflict. Since the conflict in Colombia spanned about 50 years, the capacity of its health system (eg, infrastructure and personnel) was in part developed in the midst of the conflict. All the other case study countries reported long standing limitations in their health system capacity, at minimum in the area where the conflict was occurring and experienced a state of protracted conflict, which limited the reconstruction of capacities of these countries to deliver the wide spectrum of WCH interventions.

The period of armed conflict that we studied cannot be disconnected from either the status antebellum or from what comes (or is to come) after. In situations like Syria, the destruction caused by armed conflict devastated the ability of whichever authorities are in charge to maintain the health status of the population at a high standard. However, in some case study countries (eg, Nigeria and Somalia), the situation was very different before the eruption of conflict. In Nigeria, for example, it would be difficult to claim that the exacerbation of conflict in the northeast in 2009 had a major impact on routine health service delivery when the 2008 Demographic Health Survey recorded a vaccination coverage in Borno State of 8%, which is far below the national average.<sup>30</sup> Morever, there are countries where central governments have been purposely neglecting the conflict-affected parts of the country (eg, the weaknesses in Nigeria might, in fact, contribute to some causes for the origin of the conflict. Weak health systems in conflict-affected parts of the country are not just innocent bystanders, but rather a symptom of longstanding prejudicial policies. This situation of weak health systems might not be the case in Syria, where the national health system was generally strong, but in countries like Mali, Nigeria, and Afghanistan there has been longstanding neglect, which leads to a situation where, with intervention from the humanitarian community, it is possible that the health status of the population will counter-intuitively improve during the conflict, only to deteriorate once again when there is either peace or when the humanitarian community is no longer providing assistance at the same level.

### Prioritising among WCH interventions: who decides?

As it stands, the prioritisation of WCH interventions is not very dear. Priority in all the case study settings is given to a set of specific interventions: antenatal care, basic emergency obstetric and newborn care (BEmONC), CEMONC for pregnant women, immediate care for newborns, childhood immunisation, treatment of common childhood illnesses, infant and young child feeding (IYCF), and malnutrition screening and treatment through inpatient, outpatient, and stabilisation centres, as these were considered life-saving interventions. Immunisation is a dear priority in humanitarian response albeit the variation of implementation barriers across case study settings including limited humanitarian access

![](_page_15_Picture_1.jpeg)

to populations, lack of infrastructure for cold chain maintenance, and community reluctance. In Afghanistan and Pakistan, we also found a specific focus on polio campaigns, which has been prioritised due to funding opportunities rather than based on life saving grounds.

In contrast, there is a set of interventions that is neglected in most countries; abortion and post-abortion care, as well as the provision of contraception were not prioritised by the implementing stakeholders, particularly in countries where religious and cultural practises affected the acceptability of such services, such as in Afghanistan, Mali, Nigeria, Pakistan, Somalia, and Yemen. Policy and political environments also influenced the provision of these services (eg, in Colombia, family planning interventions were mainly restricted to urban areas. whereas Democratic Republic of the Congo continues to enforce a law that prohibits the sale and use of contraceptive methods for young people and adolescents). Adolescent health was also another area that was alarmingly largely ignored, with the majority of the case studies reporting no evidence of such implementation, with the exception of international humanitarian organisations-led reproductive health programmesalthough with a very limited scope-for adolescents in Democratic Republic of the Congo and Somalia.

Over a decade ago, the call from Hurst and colleagues<sup>10</sup> for "accountability for reasonableness" in the humanitarian sector has not been fully heard. What we have observed in the 10 countries are that decisions are rather the fruit of a negotiation process between the international organisations and the national authorities but also between the humanitarian organisations themselves. Beyond the politics of humanitarian aid, the driver for interventional implementation remains the access to the right resources: financial resources from international donors and expertise from national and international organisations. Respondents in most country case study settings described that the priorities of donors are the primary drivers of influencing the what, where, and how of implementing interventions. Although the central government in some countries (eg, Colornbia, Nigeria, and Afghanistan) is more actively involved in managing and overseeing services, often the involvement in health-care delivery of government officials shrinks as conflict escalates in terms of scale and intensity. We found that decisions and the ability to implement humanitarian WCH interventions are not uniquely based on needs assessments and security situation, but also on the availability of local and international actors on the ground who can rapidly deploy, access population groups, and monitor the quality and coverage of WCH interventions. Going forward, a rational prioritisation process in conflict settings could follow the logic of determining the epidemiological burden of the problem that the intervention seeks to allay; a consideration of the available cost-effective interventions and actors to address those problems with a high epidemiological burden; and a consideration of the context, including security risks encountered by communities to get access to health services and health-care workers to deliver health care, cultural factors, the capacities of the health system, and issues outside of the health sector that might be of higher priority than health sector issues. For example, this process was followed in 2019 in Afghanistan to develop its Integrated Package of Essential Health Services.<sup>5, 5</sup>

To bring clarity to the situation, we have identified the existence of four different, but not mutually exclusive, models of decision making amongst governmental and humanitarian actors, which all dictate the mode of relationship and operation (table 2).

The four models are not mutually exclusive and vary over time and space. For example, in the case of Syria, the decision making model depends on which entity (ie, government vs non-governmental authorities) has the authority to deliver health services in a specific geographic area, which is why two different models coexist: the humanitarian actors-led model in non-government-controlled areas and the collaborative model in governmentcontrolled areas. Our findings suggest that there are ongoing tensions between humanitarian modes of delivery and national health systems.

### Tensions between the humanitarian system and the national health system

The differences in terms of approach between different humanitarian actors or between national authorities and

	Description	Examples from case study countries
Centralised	The decision making system on which interventions are prioritised is centralised at the government level and often influenced by UN agencies and funders; as an illustration, participants in Pakistan report stringent government regulations to work in conflict areas and approvals for non-governmental organisations are particularly combersome in particular to work in federally administered tribal areas	Atghanistan, Lolombia, Pakistan, and Syria
Humanitarian actors-led*	In some settings, UN agencies and other humanitarian actors lead the choice of interventions to be implemented and delivery of health services; however, we found in our case studies that the decision making process within and across these UN and humanitarian agencies on which interventions to prioritise was variable and not following uniform guidelines:	Somalia, South Sudan, Yemen, and Syria
Collaborative	Settings where decision making is a collaborative endeavour shared between government and humanitarian actors for defining both, which women and childrens' health interventions are delivered, and how; these collaborative relationships are not always fully balanced between actors in terms of power and technical capacity	Afghanistan, Democratic Republic of the Congo, Nigeria Mall, and Syria
Gatekeeping	This model is characterised by other conflict settings where the ministry of health and non-state armed groups have little or no control or power over the technical content of interventions, but become gatekeepers to regulate who works in government and rebel-controlled areas and delivers which interventions	Vernon:
Actors include inter	mitional and instronal humanitana no manisations.	

Mapiritianier Secondarivbanier Not considered a barrier No data	Aghanistan	Colombia	DR Congo	Main	Neeta	Pakistam	Somalla	south sudar.	Syna	Yemen
Health workforce								-		
Health service delivery										
Security										
Health financing										
Leadership, governance, and coordination									1	
CommonPydynamics and socioculforal factors										
Essential medicines and supplies										
Health Information systems and communication										

Figure: Areas of bottleneck to implementing sexual, reproductive, maternal, newborn, child and adolescent health, and nutrition interventions in ten country case study settings

	Solutions identified
Governance, leadership, and coordination	Political analysis on power balance between the various warring parties and the various humanitarian actors various roles taken by the health duster based on the level of engagement and capacity of national authorities in the humanitarian response; decentralisation of operations by contracting local organisations
Health financing	Creation of multi-year funding mechanisms to respond to protracted crises; creation of emergency pooled funds to respond to emergencies, such as outbreaks or sudden displacement of populations
Healih workforce	Task shifting and task sharing: rotation of senior stall to remote areas hiring local staff to nurture trast with local communities and value the sense of duty of local staff vis-à-vis their country.
Essential medicine and supplies	Creation of electronic stock management and supply information system to automate the identification of shortage and need for resupply
Health service delivery	Use of mobile, links to deliver services to remote areas recruitment of lay workers who have good knowledge of their community; promotion of community-based services to bring services doser to populations; delivery of integrated packages of services at the point of care to avoid populations to move several times.
Community dynamics and sociocultural factors	Social research used as way a of informing how to deliver humanitarian programmes
liesecueity	Training of health staff on security measures; remote management; use of security intelligence to assess the situation and authorise staff movement; contextually driven negotiations with non-state armed groups to have access to populations and protect populations and health staff

Table 3: Solutions to deliver sexual, reproductive, maternal, newborn, child and adolescent health, and nutrition interventions in ten country case studies

> humanitarian actors illustrate the unpredictability and uncertainty of situations that require constant adaptability. Many case study countries reported needing to frequently adapt their WCH interventions to the escalation of insecurity in some parts of the country, the constant changes of the conflict (eg. nature, scale, movement of troops, nature, and intention of belligerents), and the cost of delivering WCH services in hard-to-reach locations. For example, air delivery is the only means to resupply health facilities in some parts of South Sudan and Somalia. Humanitarian actors reported making adaptations to rapidly respond to and anticipate situations that are often unpredictable. These adaptations included preestablishing partnerships between UN agencies and nongovernmental organisations (NGOs) with predefined

roles and responsibilities to respond to population movements in Democratic Republic of the Congo; using mobile clinics in Afghanistan to access hard-to-reach populations either due to conflict, bad terrain, or both; and donors making emergency funds available in South Sudan to pre-stock medical supplies to be able to rapidly respond to outbreaks (eg, cholera) or sudden escalation in violence. These modes of operations are based on agile management mechanisms, which are most offen not present in public service and create differences in the mode of operation between mainstream health services and humanitarian services, that sometimes create tensions.

The tensions between the mainstream health system and the humanitarian system are caused not only by power imbalances and unequal access to resources between international and national actors, but also by differences in intervention principles. For example, in Democratic Republic of the Congo, there are tensions between free health care promoted by humanitarian actors clashing with the user fee policy of the ministry of health or in Yemen where health authorities expressed frustration at times by impactful decisions unilaterally made by UN agencies in terms of implementation of key interventions. There is no doubt that most national authorities and humanitarian agencies have a common vision of providing care to the most vulnerable. However, their time horizon, budget, and scale vary between humanitarian agencies targeting special geographical areas and national authorities managing the national space. They also vary by country, which the four models of decision making processes have identified.

#### Strategies to deliver WCH services

Humanitarian actors (local and international) and national authorities are confronted by various obstacles to deliver WCH interventions, as previously explained. For the purpose of this study, we developed health<sup>77</sup> and humanitarian system building blocks (an adaptation of the WHO health systems building blocks),<sup>77</sup> and classified our findings according to the following domains: leadership, governance, and coordination; health financing and health workforce; essential medicine and supplies; health service delivery; health information systems and communication; community dynamics and sociocultural factors; and security. The figure visualises the areas of bottleneck to delivering WCH interventions in the case study countries and table 3 provides solutions documented in our case studies.

#### Remote management

Cooperation between different humanitarian actors and local authorities (including government) took on a variety of forms, including subcontracting to local organisations (eg. Afghanistan, Somalia, Yemen, Mali, and Syria). For example, in Syria, multiple cooperation strategies were used. International humanitarian actors

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worked with local NGOs while monitoring their own activities through telephone calls and cross-border visits from Syrian health-care providers to Gaziantep or Amman, Coordination between a variety of actors also led to improved data collection in some cases as well as unconventional data collection (eg, eHealth, telephones, and informants).

#### The emergence of pooled funds

Funding amounts and conditions varied greatly between contexts. Unresponsive funding mechanisms, political interference in services (eg, the Mexico City Policy or global gag rule, which block US federal funding for NGOs that provide abortion counselling or referrals, advocate to decriminalise abortion or expand abortion services), competition to get access to finding, and delays in the release of funds contributed to gaps in finding. Moreover, donors were reluctant to invest in infrastructure or operational costs (eg, South Sudan), and multi-year programmes to address the root causes of insecurity (eg. South Sudan and Democratic Republic of the Congo) and better respond to population needs during protracted crises. Corruption among governments in some countries also affected how donors distributed funds and to whom, which in many cases remains mainly concentrated in international organisations. Respondents described several mechanisms to address funding shortages and being more responsive toemergencies that included relying upon emergency pooled funds (eg, Somalia) and other UN organisations (eg; Yemen).

#### Local health workforce at the forefront

As previously highlighted, armed conflicts are usually an exacerbating factor of existing weaknesses of national health systems but also an accelerating factor for health staff displacement. Shortages of health-care workers, particularly limited availability of health workers with certain qualifications and specific profiles (eg. medical specialisation such as obstetricians and female health workers) was a key problem in all contexts. Specialists such as gynaecologists, obstetricians, surgeons, paediatricians, and physiotherapists were often unavailable in most countries. The availability of female midwives and nurses were scarce in conflict-affected areas of countries such as Afghanistan, Pakistan, and Syria to enable women's access to health services. Several strategies were used to address the limited number of health workers. These included increasing training programmes for health staff (eg, Somalia, Yemen, and South Sudan), task shifting or task sharing (eg, Democratic Republic of the Congo, Mali, Somalia, Syria, Pakistan, Afghanistan, and Yemen), and expanding the catchment area and populations for which health workers were responsible (eg, Pakistan). In the Keich district of Pakistan, for example, senior staff living centrally within the district would rotate trips to remote areas every month for a week.

Local hiring and partnership with local organisations were a strategy that was employed by humanitarian agencies to address concerns surrounding health workforce, financing, and security. Local health workers, given their connection to the communities, were more likely to continue to work even when there were funding gaps and salary delays (eg. Somalia and Colombia). Local workforce also contributed to mitigate security threats (eg. Democratic Republic of the Congo and Colombia), and their importance in communicating and establishing trust with the community (eg. Somalia and Colombia). Findings from Colombia, Democratic Republic of the Congo, and Somalia show the importance of intrinsic motivation and a sense of duty for health worker retention: national health workers, particularly those who worked with children, felt a need to protect the future of the country. Similarly, in South Sudan, health workers who stayed in insecure communities did so out of a sense of duty to these communities.

Numerous forms of health delivery to address barriers included task shifting and task sharing; hiring other types of health workers (eg, community midwives and community health workers such as traditional healers and traditional birth attendants); using new modes of delivery (eg, remote management, technology such as Whats App or electronic clinical protocols, mobile clinics, treatment posts, or home visits); implementing packages of services (eg, sexual and reproductive health and family planning and gender-based violence centres providing delivery care); and addressing demand for services. For example, in Syria, capacity building programmes for inidwives were implemented to address the population's preference for home births, in part due to reported feelings of insecurity inside hospitals which are often targeted in attacks.

#### Rebuilding trust in the community

Culturally-situated beliefs and behaviours influenced acceptance of and access to health services. The use of humanitarian assistance as a political tool can have resounding damaging effects on the community's perception of and trust in lifesaving WCH services. Specific services such as immunisation and family planning encountered religious and cultural oppositions in some countries (eg, Pakistan, Democratic Republic of the Congo, South Sudan, Nigeria, and Yemen), whereas gender rules about female mobility limited access to care in other countries (eg. Pakistan and Afghanistan), Moreover, the protracted nature of war and the politicisation of aid have fractured the community's trust in health service providers (eg, in Afghanistan, Democratic Republic of the Congo, and Pakistan). For example, the use of polio vaccinators to identify and target Osama Bin Laden in Pakistan has created longlasting resistance and reluctance from communities in regard to public health campaigns in both Pakistan and Afghanistan." The recruitment of local staff and use of social science methods in programmes to better understand community perceptions and expectations (eg, the role of women in the household, the decision bearer in a family regarding child health or number of children a woman has, or the image of humanitarian organisations) and shape humanitarian interventions has been valued in countries such as Afghanistan or Pakistan.

#### Insecurity: a key driver of WCH service delivery

Facilities' resource shortages already existing before the crisis were further exacerbated by attacks, looting, and lack of investments during the crisis (eg. Mali, South Sudan, and Yemen). Vulnerable populations' access to health care are further exacerbated by breaches of medical neutrality (ie, violations of the Fourth Geneva Convention, Article 18).29 Direct insecurity was a huge disincentive for working in conflict-affected areas due to the elevated risk of targeted threats, attacks on or kidnapping of health workers (eg, Yemen, Afghanistan, Somalia, Syria, and Colombia). The insecure situation forced health-care workers to put in place contingency plans (eg, reduced movement and presence of health staff, generating patient evacuation plans, or remote management). In Colombia, health personnel in some zones were trained about duties and rights of their medical mission and security plans to reduce their personal security risk. In Syria, remote management from certain hubs (eg, a cross-border intervention from Gaziantep), was used to improve accessibility to certain geographic areas when no physical access was possible." Respondents cited the importance of local partners to provide intelligence about security threats (eg. Mali and Colombia). Many international respondents highlighted that they relied more heavily on local and national staff and partners to deliver services (eg, Democratic Republic of the Congo, Somalia, Syria, and Yemen). 34213031 In some cases, insecurity necessitated the negotiation with non-state armed groups to protect their personnel (eg, Mali, Somalia, South Sudan, and Colombia).182121.12 Forrespondents in Syria and Afghanistan, such negotiations with opposition parties allowed access to restricted geographies during a polio campaign.<sup>6,30</sup>

#### Conclusion

Working within the political and governance systems in modern conflict settings is increasingly challenging given the dynamic nature of modern conflicts and the expanding role of non-state armed groups who are often in control of large geographic areas, which pose new challenges to delivering services to women, children, and adolescents.

Decision making processes vary by government, organisation, and context. We categorised them into four different models (centralised, humanitarian actors-led, collaborative, and gatekeeping) that are not mutually exclusive. We also found that pre-conflict health system

capacity, and thus readiness to respond in unpredictable events, varied greatly by case study setting. Important enabling factors included the income status of countries (eg. middle-income vs low-income countries), existing infrastructure, and resilience of the health system.

Despite large variations in sociocultural and geographical contexts and decision making processes, there was consistency among prioritisation of key WCH interventions (ie, antenatal care, BEmONC, CEmONC, immunisation, treatment of common childhood illnesses, IYCF, and malnutrition treatment and screening) as well as the neglect of other such interventions (sexual, reproductive, newborn and adolescent health, and those for stillbirths). Given the dynamic nature of modern conflicts, proactively defining and agreeing upon an evidence-based comprehensive WCH package of interventions, taking into account existing evidence and guidelines (eg, Inter-Agency Field Manual on Reproductive Health in Crises" and Newborn Health in Humanitarian Settings Field Guide") -- an approach also suggested by Michelle Gaffey and colleagues in Paper 4 of this Series"-could be an effective strategy to respond to sudden situations. The prioritisation process, in a context of scarce resources, could be an effective approach to identify the key interventions to implement and decide on the allocation of resources.

The humanitarian system is creative and has developed new solutions to bring lifesaving WCH services closer to populations by hiring and training other types of health workers, often from the affected community and using new modes of delivery. These solutions, when rigorously evaluated, can represent a concrete, timely response to current implementation challenges and remind health authorities of their responsibility to deliver basic health services to the whole population.

#### Contributors

NSS and KB concerved the analysis and all authors contributed to the final structure and content of the paper. NSS and KB led the overall data analysis, and AA, ZA, CAA, CAJ, IKD, SM, KN, SS, SS, HT, and PHW made contributions to specific sections. NSS wrote the first draft of the paper and all authors contributed to critical interpretation of the results and development of the pages: ICG-P, HG, AL, RJW, and ZAB counts used to the design of the study and the protocol, and reviewed the first dual and final version of the paper. All authors faw and apprevent the first dual to and

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#### **Dedaration of interests**

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### Preventive Care in Children and Adolescents

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Shruti Simha, MD, MPH<sup>a,b,\*</sup>, Amy C. Brown, MD, MHS

#### **KEYWORDS**

Immigrant children • Refugee children • Preventive care • Cultural sensitivity

#### **KEY POINTS**

- Immigrant children, including refugees, adoptees, undocumented children, unaccompanied minors, and children immigrating with other types of visas, have unique health care needs.
- Immigrant children need timely screening and medical care by providers who are experienced in immigrant health and can provide care with cultural humility.
- Preventive care for immigrant children entails establishing a medical home and providing
  ongoing care and anticipatory guidance tailored to immigrant families.

#### BACKGROUND Overall Scope

The current geopolitical climate has led to record levels of forced migration and displacement of people. According to the United Nations High Commissioner for Refugees (UNHCR), 70.8 million people worldwide have been forced from their homes. Among them are nearly 25.9 million refugees, more than half of whom are less than 18 years old.<sup>1</sup> In the United States, 1 in 4 children (approximately 18.4 million children) lives in an immigrant family. Eighty-nine percent of these children are born in the United States and are US citizens.<sup>2</sup>

Children immigrate to the United States with or without parents for many reasons, including economic or educational pursuits, international adoption, seeking refuge from threatening conditions in their home countries, or even human trafficking.<sup>2</sup> Children may arrive on a temporary visa, have permanent permission to remain in the United States (green card holders or lawful permanent residents), come with refugee status, seek asylum on arrival, or remain without legal status.<sup>2</sup>

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#### Access to Health Care for Immigrant Children

Immigration status is a social determinant of health and can greatly affect access to health care and other resources. Refugees and asylees qualify for Medicaid or Children's Health Insurance Program (CHIP) on arrival to the United States without a wait period. Other lawfully present immigrants may have a 5-year wait period depending on the state.<sup>3</sup> However, undocumented children are not eligible for Medicaid/CHIP or Marketplace health coverage in the United States, with some exceptions for statefunded programs.

#### Recommendations for Initial Screening of Immigrant Children

The Centers for Disease Control and Prevention (CDC) and American Academy of Pediatrics (AAP) have put forth excellent guidelines for initial screening of immigrant children.<sup>3,4</sup> The AAP also recommends connecting children to a medical home in a timely manner.<sup>5</sup> Although the AAP toolkit is designed for newly arrived refugees and international adoptees, it can be a helpful guide for clinicians caring for other newly arrived immigrant children, including children without legal status in the United States. It is important to remember that children without a legal status often have little to no health surveillance before entering the United States.

#### Initial Visit Interview and Examination

Providers should request all previous medical records for review and ensure adequate time for the initial visit. The interview involves details of migration, trauma, and possibly family separation, so must be conducted in a sensitive manner, in the presence of trained interpreters. The interview and examination should incorporate traumainformed approaches and, if necessary, the sensitive parts can be deferred to another visit. It is critical to establish a trusting relationship before exploring trauma. During the physical examination, consider cultural differences and preferences among individual patients and families.

#### This is a partial excerpt. To read the full article online, visit

https://www.sciencedirect.com/science/article/abs/pii/ S0095454320300713?via%3Dihub

# SAVE THE DATE! 6th Annual Global Child Health Conference

Please join us for the 6th Annual Global Child Health Conference!

Grand rounds: 0830-0930 (Presenter to be announced)

Presentations: 9:45-12:30 Please join us for several very interesting talks, presenters to be announced.

November 24, 2021 Alberta Children's Hospital | Virtual Conference

![](_page_23_Picture_6.jpeg)

![](_page_23_Picture_7.jpeg)

![](_page_23_Picture_8.jpeg)

### Follow us on Twitter @GlobalChildHU

![](_page_24_Picture_1.jpeg)

### GlobalChildHealth

@GlobalChildHU

Founded in 2014, the Global Child Health Unit is based at Alberta Children's Hospital and supported by the Department of Pediatrics, University of Calgary.

Calgary, Alberta, Canada & ucalgary.ca/paed/node/14074
 Joined June 2014

### Contact us

Please visit our website: https://cumming.ucalgary.ca/departments/ pediatrics/sections/global-child-health-unit	<ul> <li>If you would like to share your international</li> <li>experience or inform us of an event, news or</li> </ul>
Come see our bulletin board in the Department of Pediatrics hallway on the 4th floor at the Alberta Children's Hospital!	<ul> <li>research article, please email</li> <li><u>globalchildhealthunit@gmail.com</u></li> <li>Your feedback on <i>The Insider</i> is always</li> </ul>
	appreciated and can be emailed.
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