



Global Network of
WHO Collaborating Centres for

BIOETHICS



PROGRESS REPORT
2019–2021

Global Network of WHO Collaborating Centres for Bioethics: progress report 2019-2021

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This report was compiled by Dr Paola Buedo with coordination by Dr Andreas Reis and input and contributions from all the collaborating centres under the guidance of Dr Florencia Luna, the current Chair of the Global Network of WHO collaborating centres for Bioethics.

WHO COLLABORATING CENTRES FOR BIOETHICS

COLLABORATING CENTRE	ACRONYM	REGION	CO-DIRECTOR(S)
Centre for Medical Ethics and Law, Department of Medicine Faculty of Medicine and Health Science Stellenbosch University Tygerberg, South Africa	SU	African Region	Keymanthri Moodley
Programme of Bioethics Facultad Latinoamericana de Ciencias Sociales Buenos Aires, Argentina	FLACSO	Region of the Americas	Florencia Luna
Joint Center for Bioethics University of Toronto Toronto, Canada	JCB	Region of the Americas	Jennifer Gibson
Centro de Bioética, Facultad de Medicina Clínica Alemana Universidad del Desarrollo Santiago de Chile, Chile	UDD	Region of the Americas	Juan Pablo Beca Bernardita Portales
Institute for Bioethics and Health Policy Miller School of Medicine University of Miami Miami (FL), United States of America	UM	Region of the Americas	Kenneth Goodman
Centre of Biomedical Ethics and Culture Sindh Institute of Urology and Transplantation Karachi, Pakistan	CBEC	Eastern Mediterranean Region	Farhat Moazam Aamir Jafarey
Salim El-Hoss Bioethics & Professionalism Program American University of Beirut and Medical Center Beirut, Lebanon	SHBPP	Eastern Mediterranean Region	Thalia Arawi
Medical Ethics and History of Medicine Research Center Tehran University of Medical Sciences Tehran, Islamic Republic of Iran	MEHMRC	Eastern Mediterranean Region	Bagher Larijani
Institute of Biomedical Ethics and History of Medicine University of Zurich Zurich, Switzerland	IBME	European Region	Nikola Biller-Andorno

COLLABORATING CENTRE	ACRONYM	REGION	CO-DIRECTOR(S)
ICMR Bioethics Unit, Indian Council of Medical Research National Centre for Disease Informatics and Research Bangalore, India	ICMR	South-East Asia Region	Roli Mathur
Asian Institute of Bioethics and Health Law Department of Medical Law and Ethic Yonsei University Seoul, Republic of Korea	AIBHL	Western Pacific Region	So Yoon Kim
Centre for Biomedical Ethics Yong Loo Lin School of Medicine National University of Singapore Singapore	NUS	Western Pacific Region	Voo Teck Chuan
Centre for Human Bioethics Monash University Melbourne, Australia	MU	Western Pacific Region	Zeb Jamrozik

BACKGROUND

The Global Network of WHO Collaborating Centres for Bioethics (hereafter referred to as “the Network”) was established in 2009 to “support the WHO-HQ Global Health Ethics Unit (Geneva) to implement its mandated work in the field of ethics and health, including:

- articulating ethical and evidence-based policy options (WHO core function);
- advancing ethics- and rights-based approaches to health promoted within WHO and at national and global levels; and
- increasing capacity to assess and act upon ethical issues in public health at country, regional and global levels and within the Organization”.

A revision of the terms of reference of the Network was adopted on 3 December 2021.¹

¹ Global Network of WHO Collaborating Centres for Bioethics. Terms of reference (December 2021). Geneva: World Health Organization; 2021 (<https://www.who.int/groups/global-network-of-who-collaborating-centres-for-bioethics/terms-of-reference>).

During the reporting period (January 2019–December 2021), the members of the Network collaborated multilaterally on a number of major projects initiated by the WHO Health Ethics and Governance unit and WHO regional offices. Recent collaborative projects have focused on public health surveillance, infectious disease outbreaks, vector-borne diseases and digital health. As the reporting period included 2 years of the COVID-19 pandemic, in which the members of the Network were involved in many activities, a section of this report is devoted to COVID-19.

Since the previous report, three new members have been welcomed to the Network, which now comprises 13 WHO collaborating centres in all six WHO regions (Fig. 1).

NETWORK DEVELOPMENTS

NEW CHAIR

Dr Luna (FLACSO) was elected Chair of the Network on 17 May 2020 for a 2-year term, following Dr Vikki Entwistle (NUS).



Fig. 1: Global Network of WHO Collaborating Centres for Bioethics

NEW MEMBERS

During the reporting period, the Network welcomed three new collaborating centres for bioethics as members:

- Medical Ethics and History of Medicine Research Center, Tehran University of Medical Sciences, Tehran, Islamic Republic of Iran
- Bioethics Unit, Indian Council of Medical Research, National Centre for Disease Informatics and Research, Bangalore, India (the first centre in the WHO South-East Asia Region)
- Salim El-Hoss Bioethics and Professionalism Program, American University of Beirut and Medical Center, Beirut, Lebanon.

There were therefore 13 members of the Network at the end of 2021.

ANNUAL MEETINGS

The 10th Annual Network meeting was organized in Bangalore, India, on 8 December 2018. It coincided with the 14th World Congress of Bioethics of the International Association of Bioethics.

The 11th annual Network meeting took place on 17 May 2020 virtually because of the COVID-19 pandemic.

The 12th Annual Network meeting was hosted by Keymanthri Moodley and her team at Stellenbosch University, South Africa, on 3 December 2021 in a hybrid mode. It coincided with the 16th Annual International Conference on Clinical Ethics and Consultation.

OTHER NETWORK MEETINGS

The Network met virtually periodically in 2020 and 2021, focusing on the global COVID-19 pandemic and its ethical ramifications.

ACTIVITIES

COVID-19

Several members of the Network made key contributions to various WHO expert groups on ethics during COVID-19. Dr Upshur (JCB) has been co-chairing the WHO Expert Group on Ethics and COVID-19 since February 2020. Dr Mathur (ICMR), Dr Arawi (SHBPP), Dr Voo (NUS) and Dr Mastroleo (FLACSO) were invited to join the Expert Group.

Vaccination and immunity certificates

As a member of the WHO Smart Vaccination Certificate Consortium and a consultant for the WHO Digital Health and Innovation Department, Dr Voo (NUS) led drafting of a chapter on ethical considerations and data protection principles in the WHO guidance document on Digital documentation of COVID-19 certificates: Test results, and the chapter on Ethical considerations in the WHO document Digital documentation of COVID-19 certificates: Vaccination status: Technical specifications and implementation guidance. Dr Voo (NUS) was also the lead writer of the Working Group's papers on COVID-19 vaccination certificates and lifting public health and social measures: ethical considerations and Immunity certification with COVID-19: ethical considerations. He contributed to the first draft of the ethics section of the WHO Interim position paper: considerations regarding proof of COVID-19 vaccination for international travellers and served in the working group on mandatory vaccination and vaccine passports. Dr Arawi (SHBPP) and Dr Upshur (JCB) contributed to drafting these documents.

Dr Moazam (CBEC) and Dr Beca (UDD) were members of the working group on developing WHO best practices on integrating vaccine introduction and research.

Human challenge studies

Dr Jamrozik (MU) was involved in many activities related to the ethics of human challenge studies for COVID-19, including (i) development of the WHO Key criteria for the ethical acceptability of COVID-19 human challenge studies, (ii) publication of the document in Vaccine, (iii) attending a joint WHO–Australian Health Research Authority meeting on

COVID-19 challenge studies and co-authoring the meeting report, (iv) writing a paper on systematic risk–benefit assessment of vaccine trial designs in the context of epidemics and (v) preparing Feasibility, potential value and limitations of establishing a closely monitored challenge model of experimental COVID-19 infection and illness in healthy young adult volunteers. Dr Upshur (JCB) was also involved in the activities of this working group. Dr Voo (NUS) was an invited reviewer of the WHO draft documents Human challenge studies ethics guidance, Inclusion of migrant populations in national vaccination deployment plans and COVID-19 vaccine allocation to persons of concern and vulnerable international migrants: ethics considerations.

Ethics of emergency use of unproven clinical interventions

ICMR, FLACSO, CBEC, JCB, UDD, NUS and SU were part of the WHO subcommittee on Monitored Emergency Use of Unregistered and Investigational Interventions' (MEURI). They organized online consultations to update the WHO MEURI guidelines and ethical framework, which are being finalized for publication at WHO headquarters. In August 2020, the WHO MEURI Working Group published an open peer commentary in *The American Journal of Bioethics*.² Dr Mastroleo (FLACSO) was the lead writer of the resulting guidance, *Emergency use of unproven clinical interventions outside clinical trials: ethical considerations* (ISBN 978-92-4-004174-5 electronic version) which was published in April 2022, which includes both “off-label” uses of proven interventions and completely unproven interventions. Dr Moazam (CBEC) and Dr Biller-Andorno (IBME) served as external reviewers of the draft WHO guidance document. CBEC hosted a related webinar “Balancing research with therapy during COVID-19: MEURI and beyond – 2020”, with the participation of Dr Reis, WHO, Geneva. MEHMRC developed a guideline for use of off-label medication, for ethical decision-making in COVID-19. Dr Voo (NUS) and Dr Mastroleo (FLACSO) participated in preliminary discussion of the Pan-

² Mastroleo I, Smith MJ, The World Health Organization Monitored Emergency Use of Unregistered and Investigational Interventions (WHO MEURI) Working Group. Allocating scarce unproven interventions during public health emergencies: Insights from the WHO MEURI Framework. *Am J Bioethics*. 2020;9:41–4 (<https://doi.org/10.1080/15265161.2020.1795539>).

American Health Organization (PAHO) meeting on the document *Emergency use of unproven interventions outside of research: Ethics guidance for the Covid-19 pandemic*, written by Carla Saenz (Regional Program on Bioethics, HSS/PAHO), Sarah Carracedo (National Institute of Health, Peru) and Ana Palmero (Ministry of Health, Argentina).³

Access to COVID-19 Tools Accelerator Ethics and Governance Working Group

Dr Upshur (JCB) and Dr Ehsan Shamsi-Gooshki (MEHMRC) were members of the WHO Access to COVID-19 Tools Accelerator Ethics and Governance Working Group. Dr Schaefer (NUS) was Rapporteur for the Group, the work of which is to construct an overarching ethics framework. He led drafting of the Ethical Framework for WHO's work in the ACT Accelerator (published in June 2021) and of a subsequent application of that framework to particular cases (under review). He also contributed to other outputs of the Working Group, including a critical assessment of the ACT-A governance structure, a publication on different vaccine modalities and updated guidance on placebo-controlled trials for COVID-19 vaccines.

Vaccine equity

Dr Luna and Dr Holzer (FLACSO) worked with Dr Biller-Andorno and Professor Manriquez (IBME) on a research project on the COVAX mechanism funded by the WHO Public Health Emergency Preparedness and Response Ethics Network. Dr Luna and Dr Biller-Andorno were the co-principal investigators. The final report, *The ethics of public health emergency preparedness and response: WHO call challenges to global equitable COVID-19 vaccine access through the COVAX facility*, was presented as an internal document to WHO.

³ The following Pan-American Health Organization (PAHO) staff strengthened the document with contributions to discussions and reviews of previous versions: Mauricio Beltrán, José Luis Castro, Fernanda Lessa, María Luz Pombo, Charles Preston (Consultation process on the draft Regional Strategy for Generic Medicines - HSS/MT) and Ludovic Reveiz (Evidence and Intelligence for Action in Health - EIH). The document benefitted from preliminary discussions with Voo Teck Chuan Voo (NUS) and Ignacio Mastroleo (FLACSO) and from a review by Hans Vásquez (Peru) and Juan Pablo Beca (UDD). The work was funded by the Wellcome Trust.

Dr Arawi (SHBPP) delivered a presentation entitled “Ethical principles and realities of vaccine roll-out in the Arab States/EM Region in a webinar, Fair, equitable and timely allocation of COVID-19 vaccines in the Arab States/Eastern Mediterranean Regions organized by the Eastern Mediterranean Regional Office and UNESCO for the Arab States. Dr Arawi also participated in the WHO Pandemic Ethics and Policy Summit, where she presented The bridge between ethics and policy-making: From the trenches.

Research ethics

Dr Mathur (ICMR) conducted a WHO-funded international survey of ethics committees: challenges and practices arising during public health emergencies. The aim was to identify the ethical values, issues, procedures and practices that arise during ethics review of COVID-19 research and previous and future public health emergency research. She also contributed to the WHO publication on ethical standards for research during public health emergencies: Distilling existing guidance to support COVID-19 R&D.

SU received WHO support for and completed a project on How South African research ethics committees have coped with reviewing research during the COVID-19 pandemic, in which 20 in-depth interviews were conducted. Publication is in progress. A webinar is planned to report on this empirical research.

At the request of Dr Saenz (PAHO), Dr Mastroleo (FLACSO) revised the Spanish translation of a paper on research ethics exceptionalism,⁴ coordinated by the Mexican National Bioethics Commission. Dr Luna and Dr Mastroleo (FLACSO) also conducted several revisions of the video script of “COVID-19, five ethical lessons for the world” by the Mexican National Bioethics Commission (inspired by a paper by Smith et al.⁵).

⁴ London AJ, Kimmelman J. Against pandemic research exceptionalism. *Science*. 2020;368(6490):476–7 (doi: 10.1126/science.abc1731).

⁵ Smith MJ, Ahmad A, Arawi T, Dawson A, Emanuel EJ, Garani-Papadatos T et al. Top five ethical lessons of COVID-19 that the world must learn. *Wellcome Open Res*. 2021;5:17 (doi: 10.12688/welcomeopenres).

Dr Voo (NUS) and Dr Mastroleo (FLACSO) are writing the introduction to a chapter in the Casebook on ethical issues in epidemic research, edited by Dr Susan Bull, Oxford University, and funded by WHO.

In October 2020, at PAHO’s request, Dr Luna (FLACSO), Dr Beca and Dr Salas (UDD) collaborated in writing the document, “Orientación para la supervisión ética de investigaciones en COVID-19 ante la generación de nueva evidencia [Guidance for ethical supervision of investigations in COVID-19 before the generation of new evidence]. Dr Luna (FLACSO) revised the PAHO document How can research transparency be promoted? Actions for national health authorities during the COVID-19 pandemic.

MEHMRC contributed to an Eastern Mediterranean regional webinar on Ethics of COVID-19 research in EMR: Governance, regulations, monitoring mechanisms, held on 7 July 2020 in a presentation by Professor Larijani.

UDD and FLACSO were requested by PAHO to review a document from a Member State: La pandemia de COVID-19. Consideraciones éticas y médico-legales [The COVID-19 pandemic. Ethical and medico-legal considerations] on setting priorities for use of scarce resources in the context of COVID-19. They discussed and reviewed initiatives on the topic led by Member States (such as Costa Rica, Mexico and Uruguay). UDD and FLACSO also reviewed a PAHO document Ethics guidance for the use of scarce resources in the delivery of critical health care during the COVID-19 pandemic.

Dr Luna (FLACSO) gave a lecture during the panel discussion of Ethicists advising public health authorities: opportunities and challenges, organized by WHO in July 2020 at the request of Katherine Littler (WHO headquarters).

Other COVID-related activities

IBME developed PubliCo, a novel infodemic management tool, with the support of the Swiss National Science Foundation, WHO and the Swiss State Secretariat for Education, Research and Innovation. The tool functions as an information hub for both policy-makers and citizens.

MEHMRC contributed to a webinar organized by the WHO Regional Office for the Eastern Mediterranean on Ethics in COVID-19 context: EMR perspectives on 27 April 2020, in which Professor Larijani presented the experience of the Islamic Republic of Iran in COVID-19 research ethics.

Dr Voo (NUS) and Dr Luna (FLACSO) participated in the WHO Global technical consultation on public health and social measures during health emergencies. Dr Voo (NUS) was also the lead investigator of an international study, Understanding public perception of digital contact tracing, monitoring devices and vaccination measures for international travel: An online survey, funded by WHO Rapid Funding for the work of the WHO Health Ethics and Governance Unit on Ethics and COVID-19.

Dr Beca (UDD) spoke in a course on bioethics in pandemics entitled “La vigencia de los principios éticos en pandemia como guía de las decisiones clínicas” [The validity of ethical principles in pandemic as a guide for clinical decisions] organized by the Federación de Médicos del Interior in Uruguay, in coordination with PAHO.

At PAHO’s request, Dr Beca (UDD) spoke in a webinar organized by the Organismo Andino de Salud [Andean Health Organization] in Peru entitled Importancia de la Bioética en la Pandemia. Las prioridades en la atención cuando los recursos son escasos [Importance of bioethics in the pandemic. Priorities in care when resources are scarce].

UM received WHO support for and completed a project on COVID-19: Ethics, computing, and resource allocation – A global capacity-building project, which addressed ethical issues that arise when computer programs, specifically decision-support and prognostic scoring systems, are used for triage, allocation and rationing of limited resources during public health emergencies. The project included creation of a reference, “AI and Big Data resources,” which continues to be maintained.

At PAHO’s request, Dr Beca (UDD) presented an activity organized by PAHO and the Asociación Iberoamericana de Donación y Trasplante [Ibero-American Donation and Transplantation Association], on organ transplantation in the context of COVID-19.

Dr Mathur (ICMR) spoke about national ethics committees during the 13th WHO Global summit. At a meeting of the WHO Asia–Pacific Network of National Ethics Committees, she presented the Indian report on activities pursued as Member Secretary of the Central Ethics Committee on Human Research. She joined the WHO Epidemic Ethics webinar on Adapting ethics review during the COVID-19 pandemic, sharing experiences and initiatives taken for ethics review during the pandemic.

Dr Voo (NUS) participated in the WHO Regional Office for the Western Pacific Futures Foresight Think Tank on Ethics and Human Rights for COVID-19 Non-pharmaceutical Interventions.

SU hosted the 9th seminar on Advancing Research Ethics training in Southern Africa in 2021, at which they presented projects funded by the WHO Emergency Fund.

PUBLIC HEALTH ETHICS

Universal health coverage

NUS worked with the WHO Health Ethics and Governance Unit and the WHO Integrated Health Services team to host an international expert consultation on development of a WHO ethical framework or briefing on the pursuit of people-centred approaches to health care in the context of universal health coverage. They have also been analysing and providing guidance on ethical, legal and social issues related to equity and quality improvement in health systems.

Health law and bioethics

AIBHL meets regularly with the Health Law and Ethics team at the WHO Regional Office for the Western Pacific. AIBHL hosted a 1-day pre-conference workshop to share innovative approaches to urban health and health law and recommendations for strengthening collaboration between WHO and the Asia Pacific Academic Consortium for Global Public Health and capacity in health law and bioethics. In that context, Dr Voo (NUS) was an invited reviewer of the WHO draft document Legal review for infectious disease outbreaks: An operational guide

for undertaking national review of legal and policy responses.

Vector-borne diseases

At the launch of the Ethics and vector-borne disease guidance document,⁶ a presentation was made by Dr Jamrozik (MU) in collaboration with Dr Carla Saenz (PAHO) and Dr Andreas Reis (WHO headquarters). Dr Jafarey (CBEC) attended the WHO launch of guidance on ethics and vector-borne diseases and presented a position statement on genetically modified mosquitoes at a virtual meeting. Dr Luna (FLACSO) reviewed the ethics part of the guidance framework for testing genetically modified mosquitoes for WHO and the WHO Special Programme for Research and Training in Tropical Diseases.

CBEC was invited to assist in dissemination of WHO's Ethics and vector-borne diseases guidance document, including conducting three webinars for the WHO regional offices for Africa, the Eastern Mediterranean and South-East Asia and translating the summary of the guideline from English into Urdu. Dr Jafarey (CBEC) was invited to participate in and chair a session during a WHO consultation on Ethics and vector-borne diseases at WHO headquarters. Professor Bianchini and Dr Luna (FLACSO) revised the Spanish translation of WHO guidance on ethics and vector-borne diseases. Dr Luna (FLACSO) revised WHO guidance on ethics and vector-borne diseases. PAHO presented the guideline in a webinar; Dr Jamrozik (MU) introduced it, and PAHO technical staff commented.

CBEC produced a teaching video "A tale of two worlds" (available at https://youtu.be/6S_jtSO9ZUc) as part of dissemination of the WHO guidance on ethics and vector-borne diseases.

Related activities

At the request of Dr Nelson Olim of the WHO Academy, Dr Jafarey and Dr Shirazi (CBEC) joined the Ethics and mass casualties: WHO training module team, with Dr Shamsi-Gooshki (MEHMRC). In this collaboration, Dr Shamsi provided a brief

literature review and a list of related subjects and issues that could be addressed in the ethics module of the course.

Professor Gibson (JCB) was keynote speaker and co-facilitator with Carla Saenz of a 2-day workshop on Governance and ethical decision-making to achieve health and socioeconomic development outcomes: A national public health ethics workshop for health system leaders, organized by PAHO and the Government of Trinidad and Tobago in April 2019.

Dr Arawi (SHBPP) is a member of the WHO Ad-hoc Committee on Ethics, Public Health and Migration.

RESEARCH ETHICS

Dr Shamsi-Gooshki (MEHMRC) and Dr Mathur (ICMR) are contributing to the WHO benchmarking tool for research ethics for use in low- and middle-income countries in evaluating their capacity to provide appropriate ethical oversight of research.

Professor Salas (UDD) worked on Diálogos PAHO [Dialogues PAHO], a series of regional activities. She was in charge of the activity Desafíos éticos de las investigaciones evaluadas: Valor social y científico, y consentimiento informado [Ethical challenges of evaluated research: Social and scientific value and informed consent].

UM contributed to a PAHO-sponsored event, Transparency and collaborative research. *Ética e Investigación: Un relato indisoluble* [Ethics and research: An indivisible story], at the National Bioethics Commission, Mexico City.

At the request of the WHO Regional Office for the Eastern Mediterranean, MEHMRC prepared a comprehensive report on research ethics governance in the Islamic Republic of Iran. The project was supported by the Division of Science, Information and Dissemination at the WHO Regional Office for the Eastern Mediterranean.

At the request of PAHO, Dr Luna has been collaborating with the working group on writing cases of dual use of research led by WHO.

In consultation with WHO, CBEC developed a teaching video "Between hope and despair" (available at <https://youtu.be/j2S-rcgvEX8>) about

⁶ Ethics and vector-borne diseases. WHO guidance. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/rest/bitstreams/1312203/retrieve>).

ethical issues that may arise during public health research in disaster-struck areas.

Professor Biller-Andorno (IBME) served as an expert to the WHO Department of Sexual and Reproductive Health and Research in an advisory group for the development of ethical guidance on research related to female genital mutilation. The document was finalized in February 2020.

At the request of the WHO Regional Office for the Eastern Mediterranean, SHBPP prepared a comprehensive report on research ethics governance in Lebanon, which was presented during the meeting of the Eastern Mediterranean Research Ethics Review Committee in December 2021. MEHMRC contributed to the annual meeting of the Committee on 17 November 2020 through the presentation by Dr Shamsi-Gooshki on Ethics and COVID-19 randomized clinical trials: concepts and challenges. MEHMRC contributes to activities of the WHO Regional Office for the Eastern Mediterranean through membership of academic staff and the international secretary, Dr Shamsi-Gooshki, on the Committee. His contribution includes participation in meetings and reviewing assigned research protocols.

EMERGING TECHNOLOGIES IN HEALTH CARE

Digital health and artificial intelligence

Several collaborating centres have contributed extensively to the WHO project on guidance on ethics and governance of artificial intelligence for health. Professor Gibson (JCB), Professor Goodman (UM) and Dr Mathur (ICMR) were members of the WHO Expert Group, which released its final guidance on 28 June 2021.⁷ This entailed numerous meetings, consultations and communications. UM also contributed to completion of the report Big data and artificial intelligence for achieving universal health coverage: an international consultation on ethics and participated in its dissemination. Dr Mathur (ICMR) participated in monthly meetings and made a presentation on Ethical dimensions of regulatory oversight of artificial intelligence for health in India. Professor Gibson (JCB) made a presentation on the

⁷ Ethics and governance of artificial intelligence for health. WHO guidance. Geneva: World Health Organization; 2021 (<https://apps.who.int/iris/rest/bitstreams/1352854/retrieve>).

WHO guidance at a “values in design” workshop organized by WHO and Delft University, Netherlands, in November 2021.

Dr Andreas Reis co-chaired the plenary meeting on emerging technologies and clinical ethics at the International Conference on Clinical Ethics and Consultation in 2021. Professor Ali (SU), Professor Goodman (UM) and Professor Moazam (CBEC) participated in the session.

Use of drones in humanitarian settings

IBME researchers and the Global Health Emergencies unit at WHO concluded a research project on Value-sensitive innovation: Integrating ethical values in the humanitarian use of drones. The project was conducted during 2018–2021 to address the ethics of using emerging robotic technology in health emergencies and humanitarian action. In June 2021, Dr Reis (WHO) participated in dissemination of the document at the Brocher Foundation in Geneva and delivered a keynote address, which was included in a video on the Framework for the Ethics Assessment of Humanitarian Drones. The follow-up project, Ethics assessment tool for humanitarian use of drones, led by Dr Wang (IBME) in collaboration with the Global Health Emergencies unit will begin in 2022.

Human genome editing

The WHO Expert Advisory Committee on Developing Global Standards for Governance and Oversight of Human Genome Editing included an NUS academic publication on an international reporting mechanism for unethical germline gene editing experiments⁸ in their discussions. Subsequently, NUS was invited to comment on the draft report written for the Committee as a basis for its discussions before finalization and submission to this Committee.

Dr Salas (UDD) participated in a webinar on the recommendations of the WHO Human Genome Editing Committee with the PAHO region. She also delivered an on-line lecture entitled Aspectos éticos de la edición génica [Ethical aspects of gene editing] in a virtual seminar on human genome editing

⁸ Schaefer GO, Labude MK, Zhu Y, Foo RSY, Xafis V. International reporting mechanism for unethical germline gene editing experiments is needed. *Trends Biotechnol.* 2021;39(5):427–30 (doi: 10.1016/j.tibtech.2020.10.001).

organized by PAHO as part of a series of virtual seminars on ethics and gene editing.

Responsible life sciences

Dr Luna (FLACSO) participated in the WHO Global guidance framework on responsible use of the life sciences.

CLINICAL ETHICS

Milk banking and organ transplantation

IBME prepared a WHO co-sponsored international expert meeting on human milk banking in Zurich, Switzerland, in July 2019.

Dr Voo (NUS) was a member of the WHO Guideline Development Group to update the guidelines on Acceptable medical reasons for use of breast-milk substitutes and infant feeding in areas of Zika virus transmission, in February–October 2019.

At PAHO's request Dr Beca and Dr Astete (UDD) reviewed three proposals for legislation of organ transplantation in El Salvador. They also met in PAHO with Dr Jonás Gonseth-García, Director of Quality, to analyse the work of bioethics units and ethics committees in health institutions.

In consultation with WHO, CBEC produced a teaching video, "Between a rock and a hard place" (available at <https://youtu.be/leSAVZktqil>) on ethical issues that arise in donation of organs from deceased people.

Off-label use

Dr Beca and Dr Astete (UDD) participated in a consultation on the ethical background of off-label use of NYDA® in the treatment of tungiasis in populations in extreme poverty. The consultation was requested by the departments of Communicable Diseases and Environmental Determinants and Health Systems and Services of PAHO and was held at PAHO in Washington DC, United States of America. The document that resulted from the consultation has been translated into the official languages of PAHO and is being used by ministries of health in the region and as part of PAHO's technical cooperation on neglected diseases.

Chronic pain in children

Dr Voo (NUS) was a member of the WHO Guideline Development Group for the management of chronic pain in children and helped to draft the ethical aspects and considerations.

OTHER ACTIVITIES AMONG COLLABORATING CENTRES

Dr Luna (FLACSO) and Dr Litewka (UM) collaborated on a project on research integrity, which involved several meetings and web conferences.

Dr Moodley (SU) was invited to chair an online session on Critical care constraints: Difficult decisions in LMICs, for CBEC's post-graduate diploma and master's degree in bioethics in 2020. She also participated in a webinar "Taming of a pandemic: Evidence, context and realities of LMICs – 2020". Dr Luna (FLACSO) gave two classes in UDD seminars in 2020 and in 2021.

In March 2021, the Forum for Global Health Ethics (IBME), the Swiss Medical Weekly and FLACSO jointly organized a webinar on equitable access to COVID-19 vaccines. At this event, Arthur Caplan, Heidi Larson, Florencia Luna (FLACSO), Keymanthri Moodley (SU), Rino Rappuoli and Jan Helge Solbakk presented their positions on equitable access, engaged in discussions and answered questions from the audience.

NUS and JCB are working on a project on Ethical pathways for therapeutics and vaccine R&D in the context of public health emergencies of international concern: An analysis of the 2013–16 Ebola outbreak to rapidly inform COVID-19 R&D, which is funded by the Canadian Institutes of Health Research (Canadian 2019 Novel Coronavirus (COVID-19) Rapid Research Funding Opportunity) for 2020–2022.

SU and UM submitted a project to the US National Institutes of Health on ethical, legal and social issues in artificial intelligence in research in Africa.

SU hosted the International Conference on Clinical Ethics and Consultation 2021 in December, in which many members of WHO collaborating centres participated.

An SU application for a Harnessing Data Science for Health Discovery and Innovation in Africa grant from the US National Institutes of Health was successful. The collaborators are the University of North Carolina and the University of Miami. They will conduct research on artificial intelligence, digital technologies, data science and health in southern Africa. Collaboration with WHO in this area is planned.

CONCLUSION AND OUTLOOK

The Network has made many contributions that have helped Member States, researchers and other stakeholders to address the pandemic situation and

to continue to work in other critical areas to provide guidance and support on ethical issues in health.

At the end of 2020, the WHO Director-General, Dr Tedros, hosted a seminar for the heads of all the WHO collaborating centres. During the meeting, WHO's Chief Scientist, Dr Soumya Swaminathan, recognized the contributions of the Network and said that it was a model used by WHO during the difficult time of the pandemic. At the end of her remarks, she said, "...your contributions amount to 1000s of hours of support... I would like to thank you from the bottom of my heart".

It is hoped that the Network will continue on this path. It is well positioned as a key tool for WHO in formulating global guidance and supporting its Member States in the future.

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