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- 2 Lancet Migration. Leaving no one behind in the COVID-19 pandemic: a call for urgent global action to include migrants and refugees in the COVID-19 response. April 10, 2020. <https://www.migrationandhealth.org/statements> (accessed April 22, 2020).
- 3 Orcutt M, Mussa R, Hiam L, et al. EU migration policies drive health crisis on Greek islands. *Lancet* 2020; **395**: 668–70.
- 4 Abubakar I, Aldridge RW, Devakumar D, et al. The UCL-Lancet Commission on Migration and Health: the health of a world on the move. *Lancet* 2018; **392**: 2606–54.
- 5 Lau LS, Samari G, Moresky RT, et al. COVID-19 in humanitarian settings and lessons learned from past epidemics. *Nat Med* 2020; published online April 8. DOI:10.1038/s41591-020-0851-2.

An international registry for emergent pathogens and pregnancy

Emerging infectious diseases require a global approach and adaptive tools to allow for rapid and comprehensive characterisation of the risks associated with the disease, particularly in pregnancy. Pregnant women are particularly vulnerable to infections because of their relative immunosuppressed state, restricted cardiorespiratory capacity, and the potential for adverse pregnancy or perinatal outcomes (eg, preterm birth, vertical transmission, fetal growth restriction, fetal anomalies, and death), as observed with severe acute respiratory syndrome-related coronavirus, Middle East respiratory syndrome-related coronavirus, malaria parasites, dengue virus, Zika virus, and chikungunya virus.^{1,2}

Robust data acquisition on the effect of emergent pathogens on pregnancy is often absent, and often data are available after considerable delay,³ leaving scientists and clinicians seeking knowledge to depend solely on intuition, extrapolation, and case series as they emerge. The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic is no exception.^{1,4–8} Large cohorts are required to allow for accurate risk estimates, and therefore a global perspective is needed. To scientists

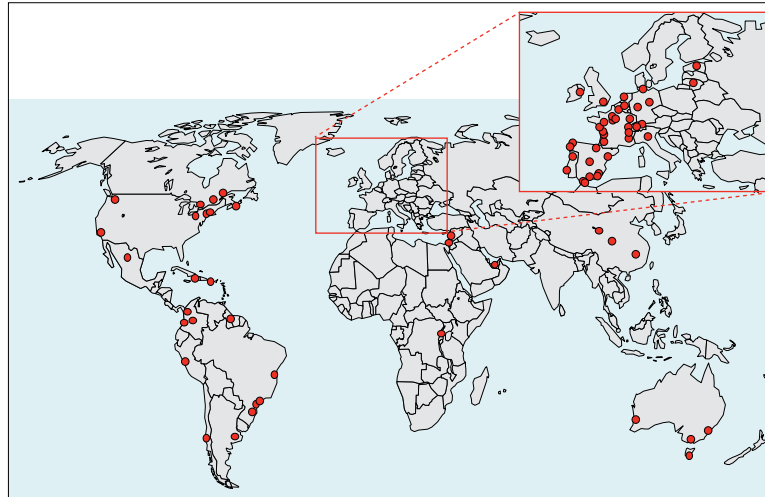


Figure: Network of antenatal clinics collaborating in the COVI-Preg registry, as of April 23, 2020. Each clinic location is represented by a red dot.

and clinicians involved in the care of pregnant patients during a pandemic, this situation feels like *déjà vu*, given the many similarities to the Zika virus epidemic only 5 years ago.³

To tweak resources, we have adjusted the Zika virus international web registry⁹ to create COVI-Preg, a structured data collection tool available to any facility assessing pregnant patients for SARS-CoV-2 infection. Today, with increased mobility and considerable migration, we have to use the modern tool of worldwide and immediate communication to trigger knowledge sharing and prepare for rapid assessment of existing and future emergent pathogens. This registry and its associated international network will be organised to be rapidly adaptable to any other emerging infectious agent in the future. The feasibility of this global responsive and customisable structure for future emergent pathogens is supported by the strong platform of well established collaborations with 198 antenatal clinics from 23 countries in Africa, Asia, Europe, Oceania, and the Americas (figure). This structure will allow for the creation of a large dataset capturing global information in an attainable and realistic manner, with affordable costs and an acceptable timeframe.

For the ongoing SARS-CoV-2 pandemic, we hypothesise that the collected data will allow researchers and health-care professionals to better characterise the disease course and spectrum, quantitatively estimate associated risks, and identify specific risk factors that can be used to define screening strategies in pregnant women and adequate prevention measures, and to direct specific and early clinical management of women and fetuses at risk. In the spirit of open science and data sharing,¹⁰ the collected data will be available to any research group provided that they have a clear, non-redundant research question and biomedical research ethics committee approval. Any health-care provider supporting the registry by providing well documented cases will be considered as a collaborator of the registry in any future scientific publications.

We declare no competing interests.

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Published Online
April 27, 2020
[https://doi.org/10.1016/S0140-6736\(20\)30981-8](https://doi.org/10.1016/S0140-6736(20)30981-8)

For the COVI-Preg registry see
<http://chuv.ch/covi-preg/>

See Online for appendix

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- 1 Favre G, Pomar L, Musso D, Baud D. 2019-nCoV epidemic: what about pregnancies? *Lancet* 2020; **395**: e40.
- 2 Vouga M, Chiu YC, Pomar L, et al. Dengue, Zika and chikungunya during pregnancy: pre- and post-travel advice and clinical management. *J Travel Med* 2019; **26**: taz077.
- 3 Musso D, Ko AI, Baud D. Zika virus infection—after the pandemic. *N Engl J Med* 2019; **381**: 1444–57.
- 4 Zhang JP, Wang YH, Chen LN, Zhang R, Xie YF. Clinical analysis of pregnancy in second and third trimesters complicated severe acute respiratory syndrome. *Zhonghua Fu Chan Ke Za Zhi* 2003; **38**: 516–20 (in Chinese).
- 5 Chen H, Guo J, Wang C, et al. Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. *Lancet* 2020; **395**: 809–15.
- 6 Li Y, Zhao R, Zheng S, et al. Lack of vertical transmission of severe acute respiratory syndrome coronavirus 2, China. *Emerg Infect Dis* 2020; published online March 5. DOI:10.3201/eid2606.200287.
- 7 Zhu H, Wang L, Fang C, et al. Clinical analysis of 10 neonates born to mothers with 2019-nCoV pneumonia. *Transl Pediatr* 2020; **9**: 51–60.
- 8 Schwartz DA. An analysis of 38 pregnant women with COVID-19, their newborn infants, and maternal-fetal transmission of SARS-CoV-2: maternal coronavirus infections and pregnancy outcomes. *Arch Pathol Lab Med* 2020; published online March 17. DOI:10.5858/arpa.2020-0901-SA.
- 9 Panchaud A, Vouga M, Musso D, Baud D. An international registry for women exposed to Zika virus during pregnancy: time for answers. *Lancet Infect Dis* 2016; **16**: 995–96.
- 10 Wellcome Trust. Sharing research data and findings relevant to the novel coronavirus (COVID-19) outbreak. 2020. <https://wellcome.ac.uk/coronavirus-covid-19/open-data> (accessed April 8, 2020).

The Global Kidney Exchange programme

We read the Health Policy about the Global Kidney Exchange programme by Francesca Minerva and colleagues¹ with interest.

Suppose that Alyson, who grows crops on her family's small plot in Ohio, USA, cannot afford the kidney transplant that will save her child's life. Any public or private health-insurance

scheme in a high-income country (HIC) would make substantial savings by offering Alyson's child a transplantation, because dialysis costs more than twice as much as kidney transplantation over the equivalent period.^{2,3} Alyson wants to donate her compatible kidney to her child. She could also be included in a kidney exchange programme, helping biologically incompatible donor-recipient pairs to find suitable kidneys, thereby saving the health-insurance system additional funds. However, such savings are not deemed enough for Global Kidney Exchange proponents, who instead suggest that we forget Alyson's child and look for another pair in low-income and middle-income countries (LMICs).

In exchange for a kidney from an LMIC pair, the recipient from that pair would be offered a transplantation in an HIC and a US\$50 000 escrow fund to cover limited-time immunosuppression and follow-up. The LMIC kidney recipient would then be left to rely on their own resources. Should the LMIC donor have permanent disability or kidney failure, they would be in a similarly hopeless situation to the recipient. However, in the HIC all parties would be substantially better off, because multiple pairs would have received kidneys, the insurance scheme would have maximised savings, and the transplantation centres involved would have received their share of money for their services. Everyone would have gained, except for Alyson's child.

Arguably, there is exploitation here because the system in the HIC has taken unfair advantage of an unjust situation in which it can choose how to save one, while Alyson's child is not even considered as a transplantation candidate, and the pair in the LMIC is offered the choice of taking what is offered or receiving nothing at all. This situation is a concern expressed by the Council of Europe's Committee on Organ Transplantation⁴ and the Declaration of Istanbul Custodian

Group,⁵ but which Minerva and colleagues¹ refuse to see.

We declare no competing interests.

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- 1 Minerva F, Savulescu J, Singer P. The ethics of the Global Kidney Exchange programme. *Lancet* 2019; **394**: 1775–78.
- 2 Held PJ, McCormick F, Ojo A, Roberts JP. A cost-benefit analysis of government compensation of kidney donors. *Am J Transplant* 2016; **16**: 877–85.
- 3 Irwin FD, Bonagura AF, Crawford SW, Foote M. Kidney paired donation: a payer perspective. *Am J Transplant* 2012; **12**: 1388–91.
- 4 Council of Europe European Committee on Organ Transplantation. Statement on the Global Kidney Exchange concept. April 10, 2018. <https://www.edqm.eu/sites/default/files/statement-transplantation-global-kidney-exchange-concept-april2018.pdf> (accessed March 31, 2020).
- 5 The Declaration of Istanbul Custodian Group. Statement of the Declaration of Istanbul Custodian Group concerning ethical objections of the proposed Global Kidney Exchange Program. Nov 28, 2018. <https://www.declarationofistanbul.org/resources/policy-documents/795-statement-of-the-declaration-ofistanbul-custodian-group-concerning-ethical-objections-to-the-proposed-global-kidney-exchange-program> (accessed March 20, 2020).

Francesca Minerva and colleagues¹ recently presented an ethical solution to kidney failure, in response to the low numbers of transplantations in high-income countries (HICs) and low-income and middle-income countries (LMICs). It is the Global Kidney Exchange (GKE) programme, which matches donor-recipient pairs across HICs and LMICs.

It is worth noting two main ethical problems with GKE. The main problem is that GKE cannot properly be considered to be a donation, because even though at the level of the individual each person does donate, at the level of the group there is a true commodity exchange, like trade in any other market. To prove that GKE does not follow market rules, it is not sufficient to argue that the "donors are not selling because no money is paid for the kidney", as did Minerva