

countries have fully decriminalised sex work), the results presented cannot be interpreted to suggest evidence that legalisation is the preferred approach. Indeed, we know from several settings that legalisation (which includes explicit regulation of where and how the industry can operate) rather than decriminalisation of sex work (where the industry can follow regulations of other businesses) can create a two-tier system and lead to punitive and coercive practices that stigmatise some female sex workers and displace the most marginalised (eg, individuals who use drugs, migrant female sex workers) away from health and social services.<sup>5</sup>

In conclusion, despite its limitations, this study provides useful ecological-level data across many European countries that should raise caution for governments and policy makers considering criminalised or end-demand models. Understanding how criminalisation increases exposure to interacting structural barriers, which affect HIV risks and intervention access and uptake, and how the elimination of some or all of these negative structural factors affects HIV risk in different settings, from ecological-level and longitudinal individual-level data, is key to HIV prevention but is also challenging. Evidence consistently suggests that criminalisation might increase HIV risk through recurrent police harassment, violence, and arrests or fear of arrests of female sex workers or clients, which can perpetuate unsafe working conditions, drug use risks, and physical or sexual violence against female sex workers without recourse. Future research should consider careful monitoring of municipal-level enforcement and arrest data alongside violence and sex worker-level evidence (eg, female sex worker experiences

of policing) to disentangle fully how and whether laws translate to enforcement on the ground and how this in turn affects violence outcomes and HIV prevalence for female sex workers. Mathematical models anchored in empirical evidence, in collaboration with social scientists, and in partnership with the sex work community, remain crucial to the attempt to disentangle legal and policing approaches, violence, and HIV burden.<sup>3</sup>

Considering that many countries are currently reviewing legislation around sex work and that community-based randomised trials are unlikely to be possible, it is crucial that researchers plan in advance rigorous monitoring and evaluation of the effect of these changes on female sex workers' health, safety, and human rights.

\*Marie-Claude Boily, Kate Shannon

Infectious Diseases Epidemiology, Imperial College London, London N13LG, UK (M-CB); and Gender and Sexual Health Initiative, BC Centre for Excellence in HIV/AIDS, University of British Columbia, Vancouver, BC, Canada (KS)  
mc.boily@imperial.ac.uk

We declare no competing interests.

- 1 Reeves A, Steele S, Stuckler Dr, McKee M, Amato-Gauci A, Semenza J. National sex work policy and HIV prevalence among sex workers: an ecological regression analysis of 27 European countries. *Lancet HIV* 2017; published online Jan 24. [http://dx.doi.org/10.1016/S2352-3018\(16\)30217-X](http://dx.doi.org/10.1016/S2352-3018(16)30217-X).
- 2 WHO, UNFPA, UNAIDS, NSWP. Prevention and treatment of HIV and other sexually transmitted infections for sex workers in low- and middle-income countries: recommendations for a public health approach. 2012. [http://apps.who.int/iris/bitstream/10665/77745/1/9789241504744\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/77745/1/9789241504744_eng.pdf) (accessed Jan 20, 2017).
- 3 Shannon K, Strathdee SA, Goldenberg SM, et al. Global epidemiology of HIV among female sex workers: influence of structural determinants. *Lancet* 2015; **385**: 55–71.
- 4 Harcourt C, O'Connor J, Egger S, et al. The decriminalization of prostitution is associated with better coverage of health promotion programs for sex workers. *Aust N Z J Public Health* 2010; **34**: 482–86.
- 5 Decker MR, Crago AL, Chu SK, et al. Human rights violations against sex workers: burden and effect on HIV. *Lancet* 2015; **385**: 186–99.

## Towards a new health diplomacy in eastern Ukraine

Conflicts and resulting humanitarian crises in countries with high burdens of infectious disease present political, strategic, and logistic public health challenges for agencies charged with implementing health programmes. One need look no further than the ongoing conflict in eastern Ukraine, to illustrate this.

Access to treatments for HIV and drug-resistant tuberculosis in the separatist Donetsk and Luhansk territories has been an issue of concern from the early days of the conflict. Even before the conflict, these regions had some of the highest incidences and

prevalences of HIV and drug-resistant tuberculosis in Ukraine and Europe.<sup>1</sup> Donetsk has an estimated 30 000 cases of HIV and Luhansk 5000—above 1% of the population in both territories. 18 000 patients are enrolled in care in the territories and 8200 patients are on antiretroviral therapy. 2200 cases are newly diagnosed each year, and an estimated 12 500 patients will be in need of treatment at the end of 2017 (on the basis of a CD4 count eligibility threshold of 500 cells per  $\mu\text{L}$ ).

As of March 1, 2016, there were 650 patients with drug-resistant tuberculosis on treatment in Donetsk

and Luhansk. During the period of May 2016 to December 2017, an additional 900 patients with drug-resistant tuberculosis are expected to require treatment in the civil sector and the prison sector. The situation is of particular concern in the penitentiary sector because international programmes focusing on drug-resistant tuberculosis, including that of Médecins sans Frontières, were discontinued by the local authorities at the end of 2015.<sup>2</sup> Medical needs associated with HIV and tuberculosis also include laboratory supplies for testing (including GeneXpert), CD4 cell counts, and plasma viral load measurement, as well as ensuring laboratory quality control.

Finances are needed to sustain the work of non-governmental organisations (NGOs) that support patients in care and prevention programmes, including the distribution of clean injecting materials for people who inject drugs—opioid substitution programmes were discontinued in both Donetsk and Luhansk in 2015.<sup>3</sup> Before the conflict, most antiretroviral drugs were funded by the Ukrainian Ministry of Health. Medicines for drug-resistant tuberculosis were funded by the Global Fund To Fight AIDS, Tuberculosis, and Malaria and channelled to Donetsk and Luhansk through a Ukrainian NGO. However, the funding for medicines was discontinued in both the Donetsk and Luhansk territories by the Kiev authorities at the end of 2014, when these territories (and self-proclaimed Donetsk and Luhansk Peoples' Republics) were declared by the Ukrainian Government as non-government-controlled areas (NGCAs).<sup>4</sup>

In June 2015, I expressed concern about the pending risk of an abrupt interruption in the availability of antiretroviral drugs for thousands of patients with HIV in the Donbass (the region of which Donetsk and Luhansk are part). The clinics in Donetsk and Luhansk continued to treat patients until July 2015 when the interruption to supply became an urgent public health threat. What followed were intense health diplomacy efforts to alert and then to involve the de facto authorities in the NGCAs, the Ukrainian Government, the European Commission, bilateral donors, the UN and the Global Fund. The primary aim was to frame the critical situation to all stakeholders as a humanitarian emergency that required a special set of responses that were geared to ensuring stakeholder cooperation with the twin goals of securing funding for the essential medicines and providing access on the ground to the affected peoples in the conflict region.

Meetings with officials in Luhansk in January 2016 and Donetsk in March 2016 resulted in roadmaps to seek temporary solutions to the risks of interruptions to supplies of drugs to treat HIV and drug-resistant tuberculosis until the end of 2017.<sup>6</sup> Health diplomacy facilitated the search for possible funding sources to finance emergency support to the NGCAs, which ultimately brought together the Global Fund, UNICEF, WHO, UNAIDS, the Ukrainian Government, and non-governmental partners to set up the mechanism that enabled the drug supply needs to be met and soon came in the form of an emergency grant of US\$3.6 million from the Global Fund to UNICEF, covering the supply needs of antiretroviral medicines and laboratory reagents in both territories for 1 year.<sup>7</sup> The Global Fund is considering an extension to this grant. UNICEF successfully implemented a public health approach in which most treatment naive patients would start ART on an optimised single pill formulation of tenofovir disoproxil fumarate, emtricitabine (or lamivudine), and efavirenz and 60% of patients already on first-line therapy would switch to that regimen, resulting in significant financial savings.<sup>8</sup>

Funding for drug-resistant tuberculosis medicines procurement was consolidated in the Global Fund grant to the Ukrainian NGO recipient until the end of 2017. All in all, a solution was found for over 10 000 HIV patients on antiretroviral treatment in the NGCAs and about 500 cases per year of people living with drug-resistant tuberculosis.

Of equal importance to funding guarantees, the Donetsk and Luhansk authorities agreed on key logistic issues, including facilitating the delivery of antiretroviral drugs to the territories by UNICEF and that drugs to treat drug-resistance tuberculosis were still to be provided under the Global Fund grant and delivered safely and on expected schedule to Luhansk. The medical teams and authorities were also made accountable for delivering care and treatment and provide the needed epidemiological and treatment monitoring and evaluation data to WHO, according to international standards.

This diplomatic intervention was a success in terms of permitting the delivery of essential medicines; however, that is only a short-term solution while uncertainties around drug supply remain. The most realistic solution for the mid-term, beyond 2017, is to have the issue of the funding of HIV and drug-resistant

tuberculosis treatments addressed within the frame of the Minsk negotiation process on the future status of the Donetsk and Luhansk separatist territories within Ukraine.<sup>9</sup> Since mid-2016, discussions have been underway with the support of the Chair of the Humanitarian Working Group for the Minsk process, with the governments of France, Germany, the Russian Federation, and Ukraine and with the European Union, to attempt to place the issue of the funding of expensive tuberculosis and HIV medicines on the agenda of the negotiations.

The evolving geopolitics in Ukraine, Europe, the Russian Federation, and the USA brings fragility to the Minsk process. If no solution is found in the coming months, the region may again be at risk of treatment interruptions for HIV and drug-resistant tuberculosis that would lead to a regional public health crisis.

*Michel Kazatchkine*

United Nations, Geneva, Switzerland  
contact@michelkazatchkine.com

I am UN Secretary-General's Special Envoy on HIV/AIDS in Eastern Europe and Central Asia. I declare no competing interests.

- 1 Ukrainian Center for Socially Dangerous Disease Control of the Ministry of Health of Ukraine. HIV infection in Ukraine, Information Bulletin No. 45. <http://ucdc.gov.ua/uploads/documents/c21991/6048649d4a2a9832cba2b4df9a576be1.pdf> (accessed Jan 31, 2017).
- 2 Médecins sans Frontières. Ukraine. <http://www.msf.org/en/where-work/ukraine> (accessed Jan 31, 2017).
- 3 Alliance for Public Health. Situation Report on the Status of HIV/TB/HCV Prevention and Treatment and OST Programs in Donetsk and Luhansk oblasts (as of 23 January 2017). [http://aph.org.ua/wp-content/uploads/2016/07/SitRep-23-01-17\\_en.pdf](http://aph.org.ua/wp-content/uploads/2016/07/SitRep-23-01-17_en.pdf) (accessed Jan 31, 2017)
- 4 OHCHR. Report on the human rights situation in Ukraine 15 December 2014, [http://www.ohchr.org/Documents/Countries/UA/OHCHR\\_eighth\\_report\\_on\\_Ukraine.pdf](http://www.ohchr.org/Documents/Countries/UA/OHCHR_eighth_report_on_Ukraine.pdf) (accessed Jan 31, 2017).
- 5 Michel Kazatchkine. An AIDS Crisis in Ukraine. *New-York Times*, [http://www.nytimes.com/2015/07/27/opinion/an-aids-crisis-in-ukraine.html?\\_r=2](http://www.nytimes.com/2015/07/27/opinion/an-aids-crisis-in-ukraine.html?_r=2) (accessed Jan 31, 2016).
- 6 Office of the UN Secretary-General's Special Envoy on HIV/AIDS in Eastern Europe and Central Asia. Road Map for Emergency Access to antiretroviral (ART) medicines and Anti-Tuberculosis (TB) drugs in Donetsk and Road Map for Emergency Access to antiretroviral (ART) medicines and Anti-Tuberculosis (TB) drugs in Luhansk, June 2016.
- 7 The Global Fund To Fight AIDS, Tuberculosis and Malaria to UNICEF. Emergency fund grant to ensure continuity of essential HIV-related commodities and services to Donetsk and Lugansk regions of Ukraine. <http://theglobalfund.org/en/portfolio/country/grant/?k=a4dae114-5406-4f4e-bbc7-9a204471fe5d&grant=UKR-H-UNICEF> (accessed Jan 31, 2017).
- 8 Van Der MEER J. Antiretroviral treatment in the non-government controlled areas of Donetsk and Lugansk. Geneva: UNICEF, 2016.
- 9 German Federal Foreign Office. Ukraine talks in Minsk: Need flexibility on both sides. [http://www.auswaertiges-amt.de/EN/Aussenpolitik/Laender/Aktuelle\\_Artikel/Ukraine/161129\\_Minsk.html](http://www.auswaertiges-amt.de/EN/Aussenpolitik/Laender/Aktuelle_Artikel/Ukraine/161129_Minsk.html) (accessed Jan 31, 2017).

## Reducing transmission of HIV in southeastern USA

The HIV epidemic in the USA is fuelled by ongoing transmission from those who are unaware of their HIV-positive status and those who have not achieved viral suppression (about 14% of 1.2 million infected individuals are unaware of their infection<sup>1</sup> and only 20–28% of those are virally suppressed).<sup>2–4</sup> In some areas, the proportion of those who achieve viral suppression is less than 10%.<sup>5</sup>

The southern USA is currently the nation's most affected region in terms of the burden of HIV and AIDS.<sup>6</sup> Of these states, Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Texas, the so called deep south carries the highest number of new HIV and AIDS diagnosis but also the lowest 5 year survival rate for new AIDS diagnosis in the country.<sup>7–8</sup> The rising number of cases in this region and its poor clinical outcomes is closely linked to the prevailing social ailments: rural and urban communities which rank among the poorest in the country with low educational attainment, high

rates of unemployment and incarceration, many lack health insurance and poorer health outcomes.<sup>7–12</sup> Historical psychosocial determinants in the rural geography of the south also play a central part in the disproportionate impact of HIV such as the prevailing social stigma, HIV denial, misconceptions about the disease, and distrust of the health-care system.<sup>9–10</sup> The concatenation of these pervasive social inequities disempowers people and deprives them from having some degree of control over their lives. In this context, HIV/AIDS need to be considered as a neglected infection of poverty in the region by further reducing lifetime opportunities of social and economic mobility among affected communities.<sup>11</sup> As huge investments are needed to reduce social disparities, and social policy and social engineering to modify structural changes may take generations to institute, there is an urgent need for short-term interventions that will reduce HIV transmission to promote the health of people living in the southeastern region.