

3 months. The overall incidence of HIV in this cohort was 8.5 cases per 100 person-years. The incidence of HIV in participants who reported unprotected receptive anal intercourse was 14.5 per 100 person years versus 2.0 per 100 person-years in those reporting no unprotected receptive anal intercourse. Using the population-attributable fraction like Buchbinder and colleagues, based on the above rate ratios and the prevalence of exposure, we calculated that unprotected receptive anal intercourse accounted for 77% of infections.

In addition to calculating the prevalence of unprotected receptive anal intercourse and its association with HIV incidence, we identified where participants were having anal intercourse outside of the home. Participants reported anal intercourse primarily at hotels or hostels (68%), in public places (eg, parks; 18%), night clubs (14%), and bathhouses (13%).

The results of our analysis can inform evidence-based public health action. Population-specific HIV prevention efforts for MSM and transgender women in Lima should target those who engage in risk behaviours including unprotected receptive anal intercourse. The venues identified in our analysis in Lima should be prioritised for outreach, education, and PrEP promotion efforts. Additionally, other prevention programmes should identify sites, venues, and subpopulations associated with high-risk sexual behaviour.

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## Barriers to simplified HIV treatment in low-resource settings

Pedro Cahn and colleagues<sup>1</sup> reported the results of the GARDEL trial, which showed non-inferiority of dual antiretroviral therapy (ART; consisting of lopinavir/r plus lamivudine) compared with the standard regimen of triple antiretroviral therapy (lopinavir/r plus two nucleoside reverse transcriptase inhibitors [NRTI]) with respect to treatment efficacy in patients with HIV not previously treated with ART. However, in this study 54% of the control group used a combination of zidovudine and lamivudine (old fixed-NRTIs), which might have restricted the study results and the generalisation of the findings from this study.

Present guidelines, by the International Antiviral Society-USA panel and the Department of Health and Human Services (USA), for initiation of HIV treatment recommend the use of tenofovir disoproxil fumarate and emtricitabine as the preferred NRTI combination.<sup>2</sup> Furthermore, Joel Gallant and colleagues<sup>3</sup> showed that the tenofovir combination is better in terms of virological suppression, immunological response, and fewer adverse events than is a fixed-dose combination of zidovudine and lamivudine. Thereby, the efficacy outcome noted and the high toxicity-related discontinuations in the control group of standard triple ART could be partly attributed to the use of inferior NRTI combinations.

Despite these restrictions the role of this simplified strategy for

treatment cannot be underestimated, particularly in resource-limited settings where issues related to drug costs and laboratory monitoring are crucial. Nevertheless, even in those regions, I believe that appropriate selection of patients for this strategy might be troublesome. In low-resource countries, where hepatitis B virus is endemic, the burden of the co-infection of HIV and hepatitis B virus is higher than in developed countries with more available resources.<sup>4</sup> For instance, in a prospective observational study<sup>5</sup> of adult inpatients with HIV in Malawi in 2004, co-infection of HIV and hepatitis B virus was 20.4%. Conversely, a seroprevalence study<sup>6</sup> done in Iran during 2004-05, co-infection of these viruses was 44.3%. Thus, a substantial proportion of candidates were excluded for dual ART. Additionally, because of widespread ART-roll out programmes in those countries, transmitted drug-resistance is increasing in patients who are ART-naïve.<sup>7</sup> M184V mutations might have accounted for 1.2% of resistance-associated mutation patterns, but the pretreatment genotypic test for resistance are rarely done in developing countries, compromising the efficacy of this simplified strategy.

Although the use of dual ART with lopinavir/r plus lamivudine seems an exciting strategy, further research is needed to confirm the GARDEL findings<sup>1</sup> in a real-world setting.

I declare no competing interests.

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For the International Antiviral Society USA panel guidelines see <https://www.iasusa.org/guidelines>

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## Antibiotic use worldwide

We applaud Ann Versporten and colleagues<sup>1</sup> for drawing attention to the important issue of antibiotic use in eastern Europe and hope that this spurs more work to be done in this area. As a USAID-supported team working to improve the management of paediatric respiratory infections in clinics and hospitals in Georgia, we are encouraged to see that the findings from Versporten and colleagues<sup>1</sup> for proportionally high use of co-amoxiclav (42%) in Georgia accord with our results from a chart audit of treatment for paediatric respiratory tract infections in outpatient clinics and hospitals (Broughton E I, unpublished).

We noted the use of combined penicillin in 45% of outpatient children with respiratory tract infections, with a low use of combined penicillins (36%) for children whose final discharge diagnosis was of pneumonia. Cephalosporins were used in 83% of children with pneumonia in hospital, and aminoglycosides used in 22% of children. We also noted substantial variability in a choice of group of antibiotics (not only between the

two groups of penicillin) between the sampled hospitals and outpatient clinics.

The authors<sup>1</sup> asserted that “only strengthening...health coverage can become the basis for rational use of...antibiotics”. In Georgia, hospital care for children with pneumonia is free at the point of care. However, we noted that in a large proportion of cases, antibiotics were not prescribed in accordance with evidence-based guidelines. Common problems identified in both hospital and ambulatory settings included the inappropriate use of antibiotics for viral infections of the respiratory tract, the use of non-evidence based antibiotics, and subtherapeutic dosing that could contribute to antibiotic resistance and poor outcomes for patients (correct dosing was reported in 38% of outpatient and in 74% of medical charts of children with respiratory infections in hospital that were reviewed).

Although we agree with the authors<sup>1</sup> that broadening of health coverage and regulating over-the-counter antibiotic sales are necessary, these measures are insufficient. Equally important are clinical data to examine antibiotic use and to help to guide improvement interventions, including monitoring of antibiotics use and other drugs. This is particularly important for paediatric care where inappropriate dosing of drugs, including antibiotics, represents a major issue for patient safety.<sup>2</sup>

The European Surveillance of Antimicrobial Consumption-Network is important for highlighting antibiotic use problems, particularly in countries with weak health information systems and poorly regulated pharmaceutical markets. However, to understand antibiotic use, no substitute exists to monitor service delivery data. Preliminary results from an improvement intervention that was implemented in hospitals and clinics from March, 2012, to November, 2013, in collaboration with the Georgian

Ministry of Labour, Health and Social Affairs showed a significant decrease in the non-evidence-based use of antibiotics in intervention compared with their use at control sites.

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We read with great interest the report by Ann Versporten and colleagues<sup>1</sup> about antibiotic use in eastern Europe. These data complement that for European Union (EU) member states, Iceland, and Norway provided by the European Surveillance of Antimicrobial Consumption Network (ESAC-Net), thus making data available from 42 countries in WHO's European region. An article by Thomas Van Boeckel and colleagues<sup>2</sup> showed an increase in global consumption of antibiotics between 2000 and 2010, but consumption was reported in so-called standard units, which did not allow for comparisons with previously published data. Because comparative data from countries outside the EU or USA are scarce, the report by Versporten and colleagues<sup>1</sup> provides valuable additional information about the international use of antibiotics.

We would like to add to the knowledge base by providing data for a large number of additional countries that covers six continents. Antibiotic sales in 2004 from 69 geographical areas, representing 64 countries, three regions (Hong Kong, Northern Marina Islands, Puerto Rico, and Taiwan), and two country groups



For ESAC-Net see <http://www.eccdc.europa.eu/en/activities/surveillance/esac-net/pages/index.aspx>