Polio emergence in Syria and Israel endangers Europe

WHO has confirmed an outbreak of at least ten cases of polio in Syria, where vaccination coverage has dramatically decreased during the civil war.\(^1\) Furthermore, wild-type poliovirus 1 (WPV1) has been isolated from sewage and faeces from asymptomatic carriers in Israel since February, 2013.\(^2\) Tourists and travellers could bring the infection to other countries. Precautions during the Hajj in Saudi Arabia in October, 2013, ensured that visitors from regions with known polio transmission were vaccinated, but Syria was not on the list.\(^3\)

Moreover, hundreds of thousands of people are fleeing Syria and seek refuge in neighbouring countries and Europe. Because only one in 200 unvaccinated individuals infected with WPV1 will develop acute flaccid paralysis (case/infection ratio C=0-005), infected individuals can spread the virus unrecognised.\(^4\) Inactivated polio vaccine, which is used throughout Europe, only partly prevents vaccinees from infection, but it reduces transmission and is highly effective in prevention of acute flaccid paralysis,\(^5\) and thus further reduces the ratio of acute flaccid paralysis to infection. In regions with low vaccination coverage (eg, Bosnia and Herzegovina [87%] or Ukraine [74%]), particularly those with low coverage of inactivated polio vaccine (eg, Austria [83%]), herd immunity might be insufficient to prevent sustained transmission.

Assuming a borderline effective reproduction number R of 1-1, we expect to see C(R\(^{n+1} - 1\))/(R – 1) cases (R is the reproduction number R of 1·1, we prevent sustained transmission. Immunity might be insufficient to make diagnosis, although hundreds of individuals would carry the infection. Vaccinating only Syrian refugees—as has been recommended by the European Centre for Disease Prevention and Control\(^6\)—must be judged as insufficient; more comprehensive measures should be taken into consideration. Oral polio vaccination provides high protection against acquisition and spreading of the infection, but this vaccine was discontinued in Europe because of rare cases of vaccination-related acute flaccid paralysis. Only some of the European Union member states still allow its use and none has a stockpile of oral polio vaccines.\(^2\) Routine screening of sewage for poliovirus has not been done in most European countries,\(^7\) but this intensified surveillance measure should be considered for settlements with large numbers of Syrian refugees.

We declare that we have no conflicts of interest.

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WHO’s new guidelines for antiretroviral treatment

Kenneth Mayer and Chris Beyrer’s Comment (July 27, p 287)\(^8\) on WHO’s new guidelines for antiretroviral therapy frames as all but inevitable “treatment as prevention”, now embraced by WHO. Absent from the gathering momentum for massive expansion of antiretroviral drug use is discussion of at least three important issues.

First, problems of delivery of and adherence to lifelong treatment are acknowledged as mere challenges whereas both pose a central threat to the strategy’s success. Successful treatment, including avoiding drug resistance, depends on health systems that can find, treat, and retain patients.\(^9\) Bolstering these systems, not treating the healthy, should receive priority. Next, treatment access remains far from assured and might become still more unequal. Even when treatment was recommended for individuals with more advanced HIV infection and CD4 cell counts below 350 cells per μL, in low-income and middle-income countries only 55% of those eligible for treatment received it.\(^3\)

Economic woes of donor nations make uncertain further financial support that countries would require for treatment expansion. Thailand, a middle-income country with successful treatment programmes, reacted cautiously.\(^9\) Finally, the new recommendations are not evidence-based, a usual requirement for guideline change.\(^1\)

The WHO advice is aimed largely at Africa, where most people with AIDS live and most Ministries of Health rely on WHO guidelines. WHO has a critical role as a non-partisan purveyor of treatment standards. Long a champion of primary health care and health systems strengthening, it seems WHO has
been dazzled by a medical model of unproven benefit.

We declare that we have no conflicts of interest.

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2 Kim JY, Farmer P, Porter ME. Redefining global ART=antiretroviral treatment. EDI=estimated date of HIV infection.


4 Bangkok Post. Government frets over new HIV infection. 554 participants were enrolled in the IAVI Early Infection Cohort within 6 months of estimated date of infection (EDI) and followed for general health, virus load, and CD4 count monthly for 3 months, quarterly until 2 years, then every 6 months. By similar populations of healthy HIV-negative adults had 457–1640 cells per μL, with 3.8% having ≤500 cells per μL.

The figure shows the time to reach the new threshold CD4≤500 using two definitions for time to event: time to first count ≤500 cells per μL and time to first of two consecutive counts ≤500 cells per μL. The first definition assumes ART eligibility on the basis of a single measurement while the second assumes a confirmatory count within about 3 months. CD4 counts prior to 3 months post-EDI were excluded because CD4 cell count frequently drops then rebounds after acute infection. Individuals were censored at last visit prior to onset of antiretroviral therapy. 18 participants initiated ART before reaching CD4≤500 and thus were censored. 50% of newly infected African men reached CD4≤500 cells per μL within 6 months (IQR 3–13 months), using the definition of one CD4 count ≤500 cells per μL. Women reached eligibility later with a median time of 8 months (IQR 3–23 months; log-rank p=0.001). Using the first of two consecutive CD4 counts ≤500 cells per μL, median time to confirmed eligibility was extended by about 2 and 6 months for men and women, respectively.

Of the 554 adults enrolled within 6 months of HIV infection, the majority fell below the new threshold within less than a year. Optimal implementation of the new WHO guidelines will require frequent testing—much like the alternative proposal of test-and-treat in which ART is initiated at diagnosis and CD4 count is not considered.

We declare that we have no conflicts of interest. We thank the IAVI African Early Infection (Protocol C) Research Group.

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Figure: Probability of individuals to be eligible for ART, by years since EDI

Kaplan-Meier curves for endpoint I (time to first CD4 count ≤500 cells per μL) and endpoint II (time to first of two consecutive CD4 count ≤500 cells per μL) in men and women enrolled within 6 months of their EDI. ART=antiretroviral treatment. EDI=estimated date of HIV infection.

Number at risk

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