the timely detection of new and emerging threats to mothers and babies, as proven by experience with Zika virus. Both the African and Asian lineage of the virus could have been causing harm undetected for the past 50 years. Some settings in the Americas had surveillance infrastructures that were well positioned to identify and respond to the 2015–16 outbreak, thereby facilitating rapid understanding of the effect of the Asian lineage on the health of mothers and babies. Knowledge gleaned from the outbreak in the Americas has informed care and clinical management of pregnant women and children, and guidance for travellers. Both the US CDC and WHO advise counselling—with careful consideration of the risks, benefits, and the individual travel situation—for any pregnant women considering travel to an area where these is a risk of Zika virus infection.[10,11] Both organisations also recommend that pregnant women avoid travel to areas with Zika outbreaks and recommend caution about or avoidance of travel to areas with current or past Zika virus transmission.[10,11] Transmission of Zika virus in these settings is difficult to predict in the absence of robust surveillance and testing. By the time an outbreak is detected, pregnant women and their developing babies might have already have been exposed to Zika virus, as shown by the experience documented in Angola.

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Revisiting gonorrhoea transmission

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See Personal View pages e360 and e367

In two Personal Views in *The Lancet Infectious Diseases*, Christopher Fairley and colleagues[1] and Edward Hook and Kyle Bernstein[2] discuss the pros and cons relating to the proposal that oropharyngeal infection is an important factor in the transmission of *Neisseria gonorrhoeae* between men who have sex with men.

Fairley and colleagues argue that if gonorrhoea was thought of as a new sexually transmitted infection, and hence transmission was modelled on the basis of data alone as opposed to including preconceptions about the mechanism of transmission, then the oropharynx would seem to have an important role. If correct, this route of transmission potentially undermines existing approaches to transmission interruption (ie, via use of condoms). To explore the oropharyngeal hypothesis, Fairley and colleagues create models that reflect their proposal and the conventional view; arguing that the data better fit their proposal. Importantly, this hypothesis is limited to urban populations whom have ready access to health care.

Hook and Bernstein counter that assumptions related to the presence or absence of symptoms of gonococcal infection do not seem to be borne out by the data, leading to erroneous assumptions in the modelling.

Furthermore, symptoms do not seem to curtail sexual activity in a substantial proportion of men (an assumption that symptomatic infection quickly leads to treatment seeking is relied on by proponents of the oropharyngeal hypothesis). Also, the reliance on nucleic acid amplification tests to identify gonococci could be leading to the overinterpretation of positive results when these tests are unable to differentiate between concentrations likely to lead to transmission or not.

Ultimately, as argued in both Personal Views, this issue will only be laid to rest with more research. Until recently, data on kissing was not robustly collected in national surveys and other studies. If the involvement of the oropharynx proves to be important, there will need to be a substantial shift in how gonorrhoea transmission prevention is tackled. Although, this change in route would be worrying if confirmed, a new understanding of gonorrhoea transmission dynamics would inevitably open up new avenues in reducing transmission.

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Ebola in eastern DRC

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When the current Ebola outbreak was declared on Aug 1, 2018, in North Kivu, Democratic Republic of the Congo (DRC), confidence was high that the hundreds of experienced responders and the new therapeutics and vaccines would be able to quickly stop this tenth outbreak in DRC. As of July 28, 2019, 2671 probable and confirmed cases and 1790 probable and confirmed deaths have been reported.[1] Leadership and coordination shortfalls, increased insecurity, mistrust, and denial from both the community and the responders are now hallmarks of the response.[2]

The ineffectiveness of the collection, analysis, and diffusion of epidemiological data, the centrepiece of any response, is predictive of the situation worsening. The different and mainly incomplete databases combined with the absence of accurate and up-to-date chains of transmission makes case counts, monitoring, and intervention difficult or even impossible. Many cases of Ebola virus disease are identified late, with many previous transits through unprepared health-care facilities, or are detected as community deaths. Most of the probable cases (death without laboratory confirmation) are not recorded. Research activities are following a parallel agenda, which often differs from timely intervention goals, with numerous data collections kept for exclusive scientific publications and to advance personal careers.

Laboratory diagnosis is done at multiple sites by the Institut National de Recherches Biologiques. This achievement is tempered by an overconfidence in the capabilities of the laboratories, incomplete sharing of results with patient providers, low quality-control procedures, and unjustified fear of losing control. Rapid field molecular typing of the virus and bedside rapid diagnostic assays, both seen as a crucial support for the control of the 2014–16 west Africa outbreak, are not done to inform the response.

Early in the outbreak, new therapeutics were made available first under a monitored emergency use of unregistered and investigational interventions (MEURI) protocol, then through a randomised controlled trial supported by the US National Institutes of Health, the Institut National de Recherches Biologiques, and the DRC Ministry of Health.[3,4] As of July 30, 2019, 682 patients were recruited under the MEURI and 621 patients under the randomised controlled trial protocol. Late admission of cases due to fear from the community or ineffective follow-up of contacts has complicated the use of therapeutics and vaccines and analyses.

Ring vaccination of contacts and contacts of contacts of confirmed Ebola cases using rVSV-ZEBOV was rapidly implemented. As of July 27, 2019, 178 121 people have been vaccinated, 31 016 of whom were frontline workers, the rest being contacts and contacts of contacts of Ebola cases.[1] The epidemiological data generated by the vaccination and the contact tracing teams are mostly not shared. As a result, daily field reports have noted at least 651 identified contacts of confirmed cases who