THIS WEEK

EDITORIALS

WORLD VIEW Algorithms cannot replace due diligence in wiping out plagiarism **p.435**

SHOCKING STORMS Thunderclouds found to reach shocking voltages **p.436**

PROTEST Scientists don lab coats and goggles in rally against Brexit **p.438**

Build trust to combat Ebola

Researchers can do more to contain an escalating public-health crisis in Africa. Helping to build trust with communities is central to this effort.

A disaster is quietly unfolding in the Democratic Republic of the Congo (DRC), where Ebola has infected nearly 1,000 people and killed more than 600. It is the second-largest outbreak of the disease — and epidemiologists worry that it will continue to grow because the virus could be spreading undetected. New cases are being diagnosed late, which means that the virus has ample time to spread.

Central to this problem is a lack of trust. Many people in the hard-hit northeastern province of North Kivu are not seeking care because they don't think that those responding to the disaster will help and protect them. Responders and clinics are receiving death threats, assaults and attacks, and rumours are rife. Some community members see Ebola as a government scheme to marginalize people or as a business that profits aid workers, researchers and government officials, or think that the government's health system is unable to help.

North Kivu and the surrounding region have been afflicted by wars since 1997, leaving an estimated six million people dead and millions more displaced. The DRC government, the United Nations and humanitarian groups have failed to bring peace to the region, or to provide sustainable health care. Rates of maternal and infant deaths are among the highest in the world. So, after years of neglect — and a longer history of rich countries exploiting the DRC for resources — communities are understandably suspicious about authorities who have suddenly appeared on the scene to fight Ebola.

Communities hit by Ebola in the DRC also see few obvious benefits from research. Experimental Ebola vaccines, treatments and diagnostic tests — many resulting from studies done during the last outbreak — are now being successfully deployed and studied there, and they are helping. Even so, the outbreak is now in its ninth month, and the fatality rate is as high as it's been in past outbreaks, at around 60%. Mistrust means that some people refuse the vaccine, and that many show up at clinics too late to be saved by drugs.

Further research is crucial in the current situation, but members of the international research community can do more to sound the alarm and highlight the broader problems. Specifically, researchers can pressure politicians in wealthier countries to step up funding for the efforts of the World Health Organization (WHO) and their national partners in North Kivu. The WHO's staff remain in North Kivu and, among other duties, talk at length with community leaders to gain trust. In late February, the WHO announced that US$148 million was urgently needed to continue the work, but that less than $10 million had been pledged.

"Many show up at clinics too late to be saved."

Researchers can also play a part in strengthening the DRC's biomedical and health institutions, helping to build communities' trust in the nation's health system. For now, many people seek help elsewhere — visiting private clinics or traditional healers, for example. And researchers who conduct Ebola studies can better support public-health agencies and local scientists by offering long-term mentorship, salary boosts from their grants, scholarships to conferences and authorship on publications.

The DRC outbreak could continue for a year and the virus could spread into fragile nations such as Rwanda, Uganda, South Sudan and the Central African Republic. The opportunity to act is now. ■

Brain storm

A surprise finding could spur debate — and a new approach to treating Alzheimer's disease.

For a small fold of tissue, the hippocampus has an outsized influence. It stores and retrieves human memories, capturing the life history that makes us who we are. It is also one of the brain areas most affected by Alzheimer's disease, which robs people of those memories. And some research has hinted that new neurons might be born there throughout adult life, in a process called neurogenesis.

But this idea is hotly debated, in part because well-preserved samples of human brain tissue are rare, and techniques to identify immature neurons vary. Last year, a paper in *Nature* made the case that neurogenesis in the hippocampus is not seen beyond childhood in humans (S. F. Sorrells *et al. Nature* **555**, 377–381; 2018).

A study published this week in *Nature Medicine* extends the controversial debate (E. P. Moreno-Jiménez *et al. Nature Med.* https://doi.org/10.1038/s41591-019-0375-9; 2019). Working with post-mortem brain tissue from healthy adults aged 43–87, the team reports seeing newborn neurons and a modest decline in neurogenesis with age.

By contrast, in brain tissue from people aged 52–97 who had Alzheimer's disease, the group saw a sharper and progressive drop in neurogenesis. The results await critique and replication by other groups, but they raise a tantalizing possibility that halting or reversing this decline might slow Alzheimer's.

Recent work has tested ways to promote the generation of neurons in the rodent hippocampus, such as exercise and certain drugs, and has shown that some of these approaches can lessen cognitive deficits in transgenic mouse models of Alzheimer's. Researchers' next challenge — a huge one — is to work out whether this could be translated to people.

Most of the research on Alzheimer's-disease therapies has focused on targeting pathways that contribute to the accumulation of pathogenic amyloid-β and tau proteins. So far, nothing works well. Whether or not a focus on neurogenesis leads to a therapy, the latest study adds to substantial research suggesting that treatments for Alzheimer's and other neurodegenerative diseases could be found by shifting attention away from the usual suspects to different targets. And that will require studying the rich biology — and every fold — of the human brain. ■

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