EDITORIAL

The Ebola Emergency — Immediate Action, Ongoing Strategy

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The 25th known outbreak of Ebola virus infection is unlike any of the previous epidemics. It has already killed over 2800 people — more than all previous epidemics combined; it's affecting virtually the entire territory of three countries, involving rural areas, major urban centers, and capital cities; it has been going on for almost a year; and it is occurring in West Africa, where no Ebola outbreak had previously occurred. Above all, the epidemic seems out of control and has evolved into a major humanitarian crisis that has finally mobilized the world, with responses ranging from an emergency health mission launched by the United Nations Security Council to proposed military-style interventions and the global provision of emergency aid.

The disintegration of the health care systems in the affected countries is already having a profound impact on the populations' health beyond Ebola, as clinics close or become overwhelmed or nonfunctional. These health system effects will only worsen as the epidemic progresses: West Africa will see much more suffering and many more deaths during childbirth and from malaria, tuberculosis, HIV–AIDS, enteric and respiratory illnesses, diabetes, cancer, cardiovascular disease, and mental health during and after the Ebola epidemic. Indeed, there is a very real danger of a complete breakdown in civic society, as desperate communities understandably lose faith in the established systems.

A report from the Ebola Response Team of the World Health Organization now published in the *Journal* presents the first comprehensive analysis of epidemiologic surveillance data on the West African epidemic.[1] Though the completeness and quality of the data are uncertain — collecting information under such extreme conditions is an enormous challenge, and the remarkable contribution of the data-collection teams in West Africa must be acknowledged — they provide a convincing case that the epidemic is still expanding, with a conservative projection that there will be close to 20,000 cases by early November. Without a more effective, all-out effort, Ebola could become endemic in West Africa, which could, in turn, become a reservoir for the virus's spread to other parts of Africa and beyond.

Yet despite the vast scale of the current outbreak, the clinical manifestations of Ebola virus disease, the duration of illness, the case fatality rate, and the degree of transmissibility are similar to those in earlier epidemics. It is therefore unlikely that the particularly devastating course of this epidemic can be attributed to biologic characteristics of the virus. It is more likely to be a result of the combination of dysfunctional health systems, international indifference, high population mobility, local customs, densely populated capitals, and lack of trust in authorities after years of armed conflict. Perhaps most important, Ebola has reached the point where it could establish itself as an endemic infection because of a highly inadequate and late global response. Not only did it take more than 3 months to diagnose Ebola as the cause of the epidemic (in contrast to the recent outbreak in the Democratic Republic of Congo, where it took a matter of days), but it was not until 5 months and 1000 deaths later that a public health emergency was declared, and it was nearly another 2 months before a humanitarian response began to be put

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in place. It is not that the world did not know: Médicins sans Frontières, which has been spearheading the response and care for patients with Ebola, has been advocating for a far greater response for many months. This epidemic, in other words, was an avoidable crisis, and as the Ebola Response Team's article stresses, a prompt response to an emerging outbreak is critical in order to contain it before it becomes too vast in terms of both numbers of cases and geographic reach.

The current Ebola epidemic highlights three transformations required in our approach to rapidly emerging public health emergencies.

First, in today's world, it's important to recognize that if certain conditions are met — biologic shifts in a pathogen, changes in the interactions between humans and our environment, dysfunctional and underresourced health systems, national and international indifference, lack of effective timely response, high population mobility, local customs that can exacerbate morbidity and mortality, spread in densely populated urban centers, and a lack of trust in authorities — what might once have been a limited outbreak can become a massive, nearly uncontrollable epidemic.

Second, classic "outbreak control" efforts are no longer sufficient for an epidemic of this size. Rather, what's required is a large-scale, coordinated humanitarian, social, public health, and medical response, combining classic public health measures with safe and effective interventions including behavioral changes, therapies, and when possible, vaccination. An appropriate response, moreover, requires an appreciation of the culture of the societies in the affected countries and deployment of interventions with the population's consent. Development of interventions in collaboration with the affected communities and rebuilding of trust will be essential to their success. And these integrated efforts will need to be accompanied by much better coordination and real-time, open sharing of information across diverse disciplines and with all the players involved, from civil society, national governments, nongovernmental organizations, and academic institutions to regional and international organizations and, when appropriate, the military.

Third, the development of diagnostic tools, therapies, and vaccines (at least up through the acquisition of phase 1 safety data) for these relatively rare but inevitable and potentially devastating epidemic diseases must be prioritized during interepidemic periods, with an accepted, preapproved, and ethical mechanism for accelerating development and testing such interventions when epidemic situations arise. We believe that in this epidemic, we are reaching the limit of what classic containment can achieve.

Meanwhile, the current Ebola epidemic, which is in grave danger of spiraling out of control, must remain the primary focus of our efforts. We are concerned that without a massive increase in the response, way beyond what is being planned in scale and urgency, alongside the complementary deployment of novel interventions (in particular the use of safe and effective vaccines and therapeutics), it will prove impossible to bring this epidemic under control.

But we must also look to the future. There will be more epidemics and outbreaks of Ebola and other new or reemerging infections. Yet our response to such events remains slow, cumbersome, poorly funded, conservative, and ill prepared. We have been very lucky with the severe acute respiratory syndrome (SARS), H5N1 and H1N1 influenza, and possibly the Middle East respiratory syndrome coronavirus (MERS-CoV), but this Ebola epidemic shows what can happen when luck escapes us. With a different pathogen and a different transmission route, a similar crisis could strike in New York, Geneva, and Beijing as easily as this one has in West Africa.

Despite great improvement over the past decade, there is still a need for better surveillance, sharing of data in real time, and rapid action based on the available information. But we cannot think that surveillance alone will bring such events under control. We have become better at picking these things up; we now must also learn to act more effectively.

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1. WHO Ebola Response Team. Ebola virus disease in West Africa — the first 9 months of the epidemic and forward projections. N Engl J Med 2014;371:1481-95.

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