Ebola in west Africa

A geographical perspective on how and why the current Ebola crisis is so much worse than previous outbreaks

Comparing outbreaks of diseases is difficult. The geography of a disease depends on the way it is spread, and this varies from one illness to another. SARS was reported in 37 countries in 2002–03, whereas both Ebola and cholera are more geographically contained.

The table shows that fatality rates between diseases vary enormously. Cholera can be treated quite effectively and easily compared to Ebola. There is no cure for SARS, but it is not as virulent as Ebola so patients can often fight off the disease with appropriate medical support.

It is worth noting that the number of laboratory-confirmed cases probably underestimates the true number of Ebola cases by a factor of two or three. It is likely that a lot of patients never seek medical care, die before they can receive care, or are hidden by family members from medical officials and buried close to home. The true number of cases so far (as opposed to deaths in the table) could be 30,000–50,000.

Changing geographies

Ebola is relatively new to medicine. It was first recognised in 1976 in Zaire (now the Democratic Republic of Congo, DRC) and retrospectively in Sudan in the same year. Between 1976 and 2012 the disease was confined to a narrow equatorial belt between southern Sudan and Uganda, west through the DRC to Congo and Gabon (see map). These outbreaks took the lives of a few hundred people, although sometimes with fatality rates of 80–90%. They were usually confined to isolated rural areas. Ebola remained within this belt between 1976 and 2013.

The current outbreak is much further west, and has moved into the cities and slums of Monrovia, Freetown and Conakry, in Liberia, Sierra Leone and Guinea respectively. Rural geography aids health workers in isolating and containing the virus. Cities aid its spread. This shift from rural to urban is one explanation of

### Three disease outbreaks compared

<table>
<thead>
<tr>
<th>Disease outbreak</th>
<th>Number of deaths</th>
<th>Outbreak fatality rate</th>
<th>Transmission method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ebola, west Africa 2014 (ongoing)</td>
<td>5,500</td>
<td>38%</td>
<td>Direct contact with blood or bodily fluids</td>
</tr>
<tr>
<td>Cholera, Haiti and Dominican Republic 2010 (ongoing)</td>
<td>9,100</td>
<td>About 1%</td>
<td>Water or food contaminated with cholera bacterium (from other people)</td>
</tr>
<tr>
<td>SARS, Asia 2002–03</td>
<td>773</td>
<td>9–10%</td>
<td>Close contact, e.g. coughs and sneezes, touching contaminated surfaces</td>
</tr>
</tbody>
</table>

Data as of mid-November 2014, from WHO and the CDC
why the current outbreak has lasted nearly a year, while previous outbreaks petered out after 3–5 months.

Cultural issues

Some factors that are contributing to the Ebola epidemic are deeply rooted in local cultural practices. Bodies are extremely infectious just after death, but local funeral rituals include washing and re-dressing bodies prior to burial. This is often done by a family member. Touching and kissing the deceased is also part of many funerals in west Africa. All of these traditional rituals ensure the spread of Ebola. Breaking the traditions is necessary to defeat the disease, but it is extremely painful for families and communities. People have strongly held beliefs that bad luck or ill-health will befall a family that does not carry out funeral rites in a traditional, respectful way.

A further factor is the widespread consumption of bushmeat in rural Africa. Although this has not been fully proven, fruit bats are suspected to be a natural wild host of Ebola. Bats, rodents, primates and other wild animals are an important protein source in tropical Africa but may also be the initial source of animal–human Ebola transmission.

Changing people’s behaviour in both food consumption and burial practices is a huge task in the midst of a terrifying disease outbreak.

Questions for debate

1. Can the developed world stand by and ‘let the disease run its course’, or is it in our own interest to step in and help both practically and financially?
2. How far should cultural traditions in west Africa be respected? Would it be better to make some cultural practices illegal to help control the outbreak, or could that approach have unforeseen consequences?