

Possible risk of Ebola outbreak in India: how well are we prepared?

Ebola haemorrhagic fever (Ebola HF) is a fatal viral infection (family *Filoviridae*; genus *Ebolavirus*) of public health concern in West Africa. There are five identified subspecies of *Ebolavirus*, viz. *Zaire ebolavirus* (EBOV), *Bundibugyo ebolavirus* (BDBV), *Reston ebolavirus* (RESTV), *Sudan ebolavirus* (SUDV) and *Tai Forest ebolavirus* (TAFV)¹. Except RESTV, all the four subspecies have caused disease in humans. The first *Ebolavirus* species was discovered in 1976 (88% case fatality) in Zaire (presently Democratic Republic of the Congo (DRC)) near the Ebola river and since then, outbreaks have appeared sporadically². A total of 1,440 suspected cases (953 laboratory confirmed) and 826 deaths due to Ebola virus disease (EVD) have been reported in Guinea, Sierra Leone, Liberia and Nigeria³. EVD is characterized by fever, muscle pain, headache, sore throat, weakness followed by vomiting, diarrhoea, rashes, impaired kidney and liver functions, bleeding inside and outside the body. The incubation period ranges between 2 and 21 days. The virus is thought to be harboured by fruit bats of the species *Hypsignathus monstrosus*, *Epomops franqueti* and *Myonycteris torquata* in West Africa⁴. It is hypothesized that the virus might have spread to other animal species and thereby spread to human population through contact between infected animals and humans, or direct contact with infected bats⁵. Human to human transmission of EVD occurs from direct contact (through broken skin or mucous membranes) with the blood, secretions, organs or other bodily fluids of infected people^{1,2}. Exposure to objects such as needles and syringes (contaminated with infected secretions) and burial ceremonies (contact of mourners with the body of deceased persons) also plays a role in

the transmission of the virus^{1,2}. It has been reported that men who have recovered from EVD have the potential to transmit the virus through their semen up to seven weeks after recovery. In addition to healthcare workers, families and friends of EVD-infected patients are most susceptible in getting the disease due to their close contact with the patients. Usage of masks, gowns, gloves, goggles and proper cleaning/disposal/sterilization of instruments (needles, syringes) will prevent the transmission of the virus in health care setting. Identifying EVD-infected patients during early stages of illness is very difficult as the symptoms mimic with other common diseases. If a patient is suspected of having EVD, he must be treated in isolation and barrier nursing techniques must be employed to prevent the spread of the virus^{1,2}. Antigen-capture ELISA, IgM ELISA, PCR and virus isolation are used for confirming EVD infection. In the absence of any licensed drugs or vaccines for EVD, patients are given supportive care to help their immune system fight off the virus. Supportive care includes oral rehydration of patients with solutions containing electrolytes/intravenous fluids, maintaining their blood pressure and oxygen status, medicines for treating fever and infections. A recent study showed that, the current EVD outbreak which first started in March 2014 in Guinea is caused by *Zaire ebolavirus* with 97% sequence identity to EBOV strains from DRC and Gabon, indicating a parallel evolution of EBOV strains in these regions⁴. It is estimated that nearly 44,700 Indians are living in African countries (Guinea, Sierra Leone, Liberia and Nigeria) where EBOV is highly prevalent⁶. Among them, 300 CRPF personnel are deployed in Liberia for UN peacekeeping operations. What are the

potential possibilities that these people have in bringing the virus to India remain unclear. As a precautionary measure, strict quarantine measures should be adopted in airports and travellers coming from these areas should be tracked and monitored for EVD symptoms. Temporary suspension of flight services to the West African nation will keep a check on movement of the virus. The only good thing about EBOV is that it is not aerosol transmitted, otherwise the chaos it might have created would be unpredictable. The emergence of EBOV in Guinea highlights the risk of similar outbreaks in West Africa and in other countries.

1. CDC, Ebola hemorrhagic fever, available from: <http://www.cdc.gov/vhf/ebola/about.html>; accessed on 4 August 2014.
2. WHO, Ebola virus disease, available from: <http://www.who.int/mediacentre/factsheets/fs103/en/>; accessed on 4 August 2014.
3. CDC, Outbreak update, available from: <http://www.cdc.gov/vhf/ebola/outbreaks/guinea/index.html>; accessed on 4 August 2014.
4. Baize, S. *et al.*, *N. Engl. J. Med.*, 2014; DOI: 10.1056/NEJMoa1404505.
5. Weyer, J. *et al.*, *S. Afr. Med. J.*, 2014, **104**(8), 555–556.
6. Nearly 45,000 Indians in Ebola-hit countries, may bring virus home, available from: <http://timesofindia.indiatimes.com/India/Nearly-45000-Indians-in-Ebola-hit-countries-may-bring-virus-home/articleshow/39787121.cms>; accessed 7 August 2014.

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Perils of faculty applicants

Attempts to gain a faculty position can involve encountering certain hurdles. Many of these can be encountered by international applicants as well. Therefore, I document these hurdles with the

hope that the concerned authorities will take these aspects into account in future.

Recommendation letters. Asked what the greatest mystery in the world was, Yudhishtir replied: 'that, when he sees

death all around, man can still live each day as though he were immortal'¹. Few organizations ask recommendation letters from various sources. Some of these organizations also mention who should

recommend. These typically include the doctoral programme supervisor and superiors at the previous place of work. As far as my Ph D supervisor is concerned, he left this world a year after completion of my Ph D and that was a decade ago. The same can be said with regard to one of my post-doctoral mentors.

Bosses at the most recent place of work are also mortal and as I learnt, the hard way, mobile as well, in the sense that one of my superiors at my previous place of work, although his name appeared in the organization website, moved over to greener pastures. And as the institute to which I was applying asked for more than five referees, I happened to mention this person without realizing that he has moved over. For any organization, on an average, the selection procedures, which involve contacting the referees, if need be, is completed within six months. In the present times, when anything can happen in 24 h, six months is like an aeon. While the superiors, at work place, may inform the employers about their mobility, they may not do so to their inferiors.

Impact factors. Recently, the University Grants Commission (UGC) came up with an interesting academic performance index (API), both for the faculty and prospective applicants. While this effort of UGC is highly appreciated, this scheme of API still seems to be in its infancy and needs a thorough polishing. One aspect of this API is that it gives points to every journal publication of the concerned candidate. One variant of this API augments the points based on the impact factors (IF) of the journals

wherein the candidate has published. A simple search in *Google* reveals that multiple versions of IF are in circulation – the popular *Science Citation Index (SCI)*, *Journal Impact Factors (JIF)* and *Global Impact Factors (GIF)*, to name a few. Whether all these are taken into account by the concerned authorities is not clear. This is important because the journal that does not appear in one appears in the other. Additionally, the IF of journals can either increase or decrease. Therefore, UGC should clarify as to which IF should be mentioned – IF of the year in which the paper/article was published or the latest. Furthermore, for some journals, there is the five-year IF which is different from the IF of the most recent year. Additionally, some publications might have been done when the concept of IF did not enter the popular academic domain.

Conference presentations. Many-a-time, a conference participation certificate is issued even when the participant has made a (poster) presentation. When, in the rare cases, it is indicated in the certificate that a presentation has been made, the title of the presentation is rarely indicated. These things complicate the already confused applicant as to whether a claim can be made with regard to conference presentation.

Research guidance. By default, lacunae exist in the API scheme with regard to research guidance. It does not include undergraduate project guidance. Because project work is mandatory for programmes like B Tech, this is one significant aspect wherein academics that have put up experience in teaching engineer-

ing graduates are done injustice. Only recently, the All India Council for Technical Education (AICTE) has included in its website a 'project factory'. However, UGC is yet to rise to the occasion.

Complicating this scenario is recognition of courses by UGC. Some degree and research programmes of recognized universities are not recognized. While the students in such programmes are eligible to approach the consumer forum, no clear guidelines exist for the affected faculty. Universities take students into such programmes thinking positive that in due course recognition will be granted. It may be noted that in such unrecognized research programmes, both the faculty and the student put in the same amount of effort as the faculty and students of recognized research programmes. This includes efforts put towards review of literature, drafting manuscripts, designing and execution of experiments, making presentations, writing synopsis and thesis. When faculty of such tainted programmes claim students under research guidance in applications, no credit is given to the applicant by the evaluators as the research programme is not recognized and injustice prevails.

1. Jug Suraiya, In *The Best of Speaking Tree*, Bennett, Coleman & Co Ltd., New Delhi, 2007, vol. 4, pp. 161–162.

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Impact of M Sc Biotechnology programme supported by DBT on research and teaching of modern biology in India

The Department of Biotechnology (DBT), Govt of India supports the M Sc Biotechnology programme across different Universities and institutes in India. Although it may not have made a visible impact on the job prospects of Masters degree holders has certainly made significant impact on advancing biological research and teaching in the country.

The discovery of DNA double helix structure in 1953 not only laid the foun-

dation for modern biology, but also revolutionized the perception of biological science. One aspect of the unprecedented progress and the addition of 'new knowledge' in biology can be well appreciated by assessing the accumulation of the huge quanta of genomic sequences, within the last two decades.

In India, the much needed revolution in biology education started in the later part of 1980s with the introduction of the

M Sc Biotechnology programme by DBT, which resulted in several distinct impacts on biology education and research:

- It attracted many young talented science graduates to take up this modern biology course. It is pertinent to note that the first venture that introduced the concept of biology as an interdisciplinary science, managing to draw graduates from mathematics,