

Control Programme (NVBDCP) has developed a case definition<sup>2</sup> which is adopted from that recommended by the World Health Organization<sup>3</sup>. While it has been made clear that for surveillance purposes, only patients meeting this case definition should be included but how strictly these guidelines are followed at field level remains unclear. Therefore, not only better quality surveillance data are needed but also more precise information on the clinical presentation to enable the programme to revisit and possibly revise the case definition, if necessary.

It is also clear that the epidemiology of this illness varies from State to State in India, including the seasonality and possible aetiology. As already explained, there is lack of clarity regarding the aetiology as well as the possible factors that contribute to high mortality. In Muzaffarpur, outbreak classified as acute neurologic disease, consumption of litchi and missing evening meal leading to hypoglycaemia were established as the cause of illness<sup>4</sup>. Correction of hypoglycaemia with glucose contributed to reduction in case fatality rate thereby leading authors to recommend administration of glucose in all suspected patients during the outbreak period<sup>4</sup>.

In Uttar Pradesh, India, various studies<sup>5-7</sup> including one published<sup>7</sup> recently point towards scrub typhus and enterovirus as the underlying cause of encephalitis, while in Bihar in particular Muzaffarpur, the studies point towards toxic encephalopathy in association with exposure to litchi fruit<sup>4,8</sup>. According to a recent study from Assam while Japanese encephalitis is shown to contribute about 25 per cent of encephalitis cases, scrub typhus leads to encephalitis in about 20 per cent cases<sup>9</sup>. In Orissa, the preliminary investigations seem to indicate towards toxic origin<sup>10</sup>. In view of this, it is recommended that a more systematic and comprehensive multicentric investigation using a uniform methodology similar to that used by the National Centre for Disease Control (NCDC), India, and US CDC in Muzaffarpur including elaborate laboratory studies and case control studies be carried out to ascertain the aetiology and the risk factors of this illness.

The purpose of the editorial was to highlight the challenges and issues surrounding this tragedy which every year takes a heavy toll of children's lives in many States in India. This urgently requires deeper, wider and more comprehensive studies to better understand the distribution and the factors contributing to heavy mortality. Constructive suggestions and broader partnerships to this end are welcome and should be encouraged.

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### Authors' response

The issues raised by Cherian particularly relating to the clinical presentation, case definition and causes of mortality are valid. And our editorial<sup>1</sup> does sufficiently reflect the complex nature of the problem and that there are no easy and readily available solutions. The interest shown by the contributor on a health problem which is deeply troublesome for the country is however, appreciated. It is clear that the cases are generally seen in areas which are economically disadvantaged and remote rural communities, with rudimentary health infrastructure at the primary care level. Clinical management guidelines have already been developed including the protocol to be used for attending to respiratory distress and supported by establishing Paediatric Intensive Care Units (PICU) in high burden districts ([http://www.nvbdc.gov.in/Doc/JE-AES-Prevention-Control\(NPPCJA\).pdf](http://www.nvbdc.gov.in/Doc/JE-AES-Prevention-Control(NPPCJA).pdf)).

For the purpose of reporting and outbreak investigations, the National Vector-Borne Disease

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