# News from here and there

### Parliamentary report on quality of medical education in India

The 157th report, 'Quality of Medical Education in India' was presented in the Rajya Sabha by the Department-related Parliamentary Standing Committee on Health (Chairman: Bhubaneswar Kalita, Rajya Sabha Member of Parliament) on 9 February 2024 (available at *https://sansad.in/getFile/rsnew/Committee_site/Committee_File/ReportFile/14/187/157_2024_2_19.pdf?source=rajyasabha*).

The committee observed a major gap between the number of medical aspirants and the availability of seats. There were nearly 100 000 MBBS seats for over 1 100 000 students who cleared the undergraduate National Eligibility-cum Entrance Test (UG NEET) in 2023–24. At the postgraduate (PG) level, only about 68 000 seats were available for over 200 000 aspirants. Measures proposed by the committee to ensure greater availability of seats included continuing the initiative to establish medical colleges attached to district or referral hospitals; online and distance learning; and encouraging private investment in medical education.

The committee noted that there existed a considerable imbalance in the distribution of medical colleges across the country and recommended formulation of region-specific guidelines and norms for teaching hospitals. Further, the committee noted that while the new competency-based medical education (CBME) curriculum regulations are comprehensive, they constituted a challenge for medical colleges with limited resources, to implement them. For this, the committee stressed the need to standardize the quality of medical education in India and recommended that reputed or established medical institutes mentor other medical colleges in the region. The committee also recommended measures such as needs-based scholarships for students, subsidizing laboratory equipment and machines, and tax concessions to organizations running medical colleges, and collaboration between private medical colleges and district hospitals as cost-cutting measures for reducing the considerable expenses involved in medical education.

A major point highlighted by the committee was the shortage in teaching faculty in medical colleges, the problem of ghost faculty, and of faculty not complying with the mandatory Aadhaar-enabled biometric attendance system (AEBAS) requirements. Monitoring and reporting by students, and also establishing a dedicated national institute for training of medical college faculty were recommended as measures for rectifying this.

The committee noted that, compared to USA (0.65%), UK (0.44%), India's expenditure on health research spending was only about 0.02% of the gross domestic product (GDP). Delineating priority areas of research and encouraging medical colleges to undertake research partly funded by government agencies were recommended as remedial measures.

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### New gene-altering drugs for sickle cell treatment

Treatment for sickle cell disease, an autosomal recessive hereditary disease caused by a point mutation in the haemoglobin beta gene (HbB) on chromosome 11p15, received a fillip with the recent approval of two drugs by the US Food and Drugs Administration (FDA) in December 2023. About 1 in every 365 African–American babies and 1 in every 16 300 Hispanic American children suffer from the disease; moreover, their symptoms and complications worsen with age.

The two new agents are Exagamglogene autotemcel (exa-cel) also known as *Casgevy*, and Lovotibeglogene autotemcel, popularly called *Lyfgenia*. *Casgevy* utilizes CRISPR/Cas9, a type of gene-editing technology, to increase the production of foetal haemoglobin (HbF), a version of haemoglobin (Hb) that carries oxygen during foetal development. *Lyfgenia* is a cell-based gene therapy utilizing a lentiviral vector (gene delivery vehicle) for genetic modification of the patient's blood stem cells to produce $HbA^{T87Q}$, a gene-therapy derived Hb that functions similar to HbA, which is the normal adult Hb, produced in healthy persons. Both these technologies help reduce the severe pain associated with, and to treat the organ damage that occurs as a sequelae of, vaso-occlusive events. Vaso-occlusive crises, which are common in patients suffering from sickle cell disease, are excruciatingly painful and associated with increased morbidity and mortality.

The technique for this form of therapy requires initial collection of the patient's own blood stem cells; these are then genetically modified and returned to the patient via a stem cell transplant as a one-time, single-dose infusion. A round of high-dose Busulphan-based chemotherapy is given before the modified stem cell transplant. Based on our current knowledge, the side-effects of the procedure are mainly related to the chemo-therapy, whereas the modified-stem cells transplant itself has been successful in all cases. The genetically modified Hb repopulates the red blood cells and prevents red blood cell sickling and its associated crises in up to 93.5% patients treated this way, for one year.

*Casgevy* (produced by Vertex Pharmaceuticals and by CRISPR Therapeutics) and *Lyfgenia,* (developed by Bluebird Bio) have been approved by US FDA for patients with sickle cell disease who are ≥12 years, and with a history of vaso-occlusive events. *Casgevy* also has conditional approval in the UK for sickle cell disease patients who are ≥12 years and for whom a donor for a stem cell transplant is not available. Two ongoing trials are currently evaluating the safety and the patient profile for these drugs. The CLIMB-131 extension study (NCT04208529) has been designed to assess the long-term safety of *Casgevy*; for up to 15 years. CLIMB-151 (NCT05329649), which is an open-label phase 3 trial being conducted across the USA and Europe, evaluates the safety and efficacy of *Casgevy* in children 2–11 years, with severe sickle cell disease.

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