

News from here and there

Interest in Egyptology leads to discovery of a new, extinct species of hominins and a Nobel Prize in 2022...and the Ig Nobels winners are announced!

Swedish geneticist Svante Pääbo, founding director of the Department of Genetics at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany and currently an honorary professor teaching molecular evolutionary biology there, was awarded the Nobel Prize in Physiology or Medicine for 2022, for discovering a unique hominin called Denisova, who is genetically distinct from the previously known Neanderthals and *Homo sapiens*. The nuclear genome was sequenced from archaic DNA extracted from the distal phalanx of the fifth manual digit of a young human ancestor excavated in Denisova Cave in the Russian Altai mountain range. The archaic hominin species thus discovered is mitochondrial DNA (mtDNA) divergent from present-day humans and known extinct-ancestral human cousins like Neanderthals and is thought to have populated Eastern and Southern parts of Eurasia around 40 000 years ago. It is now estimated that the population split between Neanderthals and Denisovans happened 380 000–470 000 years ago while that between modern humans and Neanderthals/Denisovans was further back—around 550 000–760 000 years ago.

As a young boy, Svante Pääbo was fascinated with Egyptology and studied ancient Egyptian verb forms and hieroglyphs. As a medical student studying molecular biology at Uppsala University, Sweden, he managed to procure a small sample of an embalmed 2400-year-old mummy and cloned a DNA library from it as well. His work on this secret side-project led him to develop a deep understanding of the extent of damage that can be caused by contamination of ancient genetic endogenous material by contemporary humans and microbes and he subsequently spent several years developing extracting protocols that would address this issue and be reproducible independently by other laboratories.

Pääbo and his team devised an intricate, technically challenging method of extracting and sequencing the nuclear genome using restriction enzymes, established new radical protocols for library preparation where the process would physically be carried out and constructed specific adaptors to ensure the extremely fragile genetic material would not be damaged by environmental exposure and would successfully provide several hundred times more readable DNA than had previously been possible.

While amassing this wealth of genome sequence data, Pääbo established a new stream of research and science: 'Paleogenomics'. His group has since characterized mtDNA of three more Denisovan individuals and published extensively on intro-gression of Neanderthal genomes into early modern humans as well.

The oro-digestive tract featured prominently at the 32nd Annual Ig Nobel Prize ceremony, which was webcast on 15 September 2022. A Polish team consisting of Marcin Jasinski and colleagues won the Ig Nobel Prize in Medicine for proposing ice cream could be used as a form of cryotherapy, so as to reduce

the incidence and severity of oral mucositis, which is a common side-effect of preconditioning chemotherapy given before haemopoietic stem cell transplantation. Study subjects had to have three doses of ice cream and could choose between popsicles and dairy-infused products.

Ig Nobel award for Biology was jointly shared between researchers of Brazil and Columbia—Solimary Garcia-Hernandez and Glauco Machado for evaluating how loss of a tail caused constipation and subsequently reduced the locomotor performance of scorpions. The study concluded that a heavily laden intestine led to lower success rate of reproductive attempts by female rather than male scorpions.

The 2022 Ig Nobel Prize in Art History was bestowed on a multicontinent collaboration between The Netherlands, Guatemala, USA and Austria. Peter de Smet and Nicholas Hellmuth presented their study of ancient Mayan pottery that bore depictions of intoxicating enemas that were used to evoke ritual ecstasy. It is postulated that tobacco, water lily and other flowering plants were used as ingredients of the said enema along with copious levels of indigenously brewed alcohol. Characters in the act of vomiting were also found to be engraved on the potteryware, thus providing a potential explanation as to why the rectal route was a more preferred option. Both researchers attended the ceremony in person.

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Undergraduate medical education in Hindi medium: An idea whose time has come

English language-based education system and education in English medium are much sought-after in India. The importance of learning in one's mother tongue is being increasingly emphasized, especially at the school level. Medical education in India has conventionally been in the English medium. Now, an ambitious project, the first-of-its kind in India, has been initiated by the state government of Madhya Pradesh, which allows medical students to study MBBS in Hindi medium, instead of English medium, which is the norm for the rest of the country. A panel of experts (the *Chikitsa Hindi Prakoshth*) was set up on 7 February 2022 under the guidance of the Directorate of Medical Education, Madhya Pradesh, who have prepared the books.

In a programme held at the state capital, Bhopal, the Union Home Minister launched the Hindi versions of textbooks of all three subjects of the first year—anatomy, physiology and biochemistry—on 16 October 2022. The Chief Minister of Madhya Pradesh and the state Medical Education Minister were also present. This pilot project of teaching MBBS in Hindi medium is scheduled to begin from the academic session 2022–23.

The textbook of medical biochemistry has new chapters such as water homeostasis, biochemistry techniques, radiation, radioisotopes, environmental pollutants and toxins. Several new line diagrams, tables and text boxes have been included to

facilitate easy learning. The textbook of anatomy has chapters on surface anatomy, figures of computed tomography and magnetic resonance imaging and flowcharts. The panel of the *Chikitsa Hindi Prakoshth* is planning to publish medical journals in Hindi.

This paradigm-changing project, considered to be not merely a translation, but a transformation, is expected to bring a major change in the lives of youth, especially those from Hindi background. As expected, this revolutionary move on medical education in Hindi medium has sparked an intense debate on the merits of the project, in both conventional print and electronic as well as the social media.

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World Medical Association introduces International Code of Medical Ethics 2022

The fourth revision of the World Medical Association's (WMA) International Code of Medical Ethics (ICoME) was adopted in October 2022 by the 73rd WMA General Assembly in Berlin, Germany (www.wma.net/policies-post/wma-international-code-of-medical-ethics/#:~:text=The%20physician%20must%20engage%20with,upheld%20when%20working%20in%20teams). Since its founding in 1947, the WMA has provided ethical and other guidance to the medical profession in the form of wide-ranging statements, declarations and resolutions.

The ICoME was first adopted in October 1949 at the 3rd General Assembly of the WMA in London, UK. It was revised in August 1968 by the 22nd World Medical Assembly in Sydney, Australia; then, in October 1983 by the 35th World Medical Assembly in Venice, Italy, and then again in October 2006 by the 57th WMA General Assembly in Pilanesberg, South Africa.

The WMA has three core documents, namely, the Declaration of Geneva; The Physician's Pledge, which outlines the fundamental ethical principles to be followed by the medical profession; the Declaration of Helsinki (DoH), which addresses

ethical challenges concerning human research participants in medical research; and, the ICoME that lays emphasis on the ethical principles and professional duties to be followed by the medical profession. These principles and duties include responsibilities to patients and society, other physicians, other healthcare professionals, and students.

The WMA Council instituted an international workgroup in 2018 to review and revise the ICoME. Constituent members and observers from 19 countries were part of this workgroup. Inputs were taken from several regional and international conferences and international bioethics conferences. Additionally, global experts participated in an online public consultation, wherein several hundred comments were received.

The most controversial issue, which required extensive deliberation and debate, was a physician's conscientious objection. This indicates the refusal of a physician to conduct a medical procedure (for instance physician-assisted suicide or abortion) on moral or religious grounds.

Considering the importance of this subject, a dedicated international conference was held in July 2022 in Jakarta, Indonesia. This resulted in a conciliatory statement (No. 29), which states that a physician can conscientiously object only if there is no endangerment to the patient's health and if that patient is not discriminated or harmed. In such a scenario, the patient must be immediately and respectfully informed, and allowed to consult another qualified physician.

Overall, there are 40 ethical principles in the ICoME 2022. They are divided into General Principles (12), Duties to the Patient (17), Duties to Other Physicians, Health Professionals, Student, and Other Personnel (4), Duties to Society (5), and Duties as a Member of the Medical Profession (2).

ICoME 2022 addresses issues such as patient autonomy, remote treatment, environmental sustainability, social media, physician well-being, and healthcare equity and justice. The document uses contemporary and gender-inclusive language. The entire document should be read as a whole, and not in parts.

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The National Medical Journal of India is looking for correspondents for the 'News from here and there' section. We are particularly interested in getting newswriters from the north and northeast regions of India as well as from other countries. By news, we refer to anything that might have happened in your region which will impact on the practice of medicine or will be of interest to physicians in India. The emphasis of the news items in this column, which are usually from 200 to 450 words, is on factual reporting. Comments and personal opinions should be kept to a minimum if at all. Interested correspondents should contact SANJAY A. PAI at sanjayapai@gmail.com or nmji@nmji.in