News from here and there

DNA potentially reveals serial killer Jack the Ripper's identity posthumously

The identity of a notorious serial killer who terrorized large swathes of London in the late 1880s and who was never captured is expected to have been conclusively discovered by 21st century genetic analysis. The perpetrator, who killed at least five women across three months and mutilated their bodies in an anatomically similar manner by extracting their uteruses and kidneys, has at various points in time been referred to as 'Jack the Ripper' and 'Leather Apron'. The murders took place within a mile of each other in the then-impoverished Whitechapel district of London's East End.

Aaron Kosminski, a 23-year-old barber of Polish descent, was repeatedly questioned at the time as a prime suspect, but evidence was always found lacking. Forensic examination of a stained silk shawl found next to the body of the fourth victim has yielded specks of blood and semen for current-day methods of genetic analysis. A comparison of fragments of mitochondrial DNA retrieved from the shawl with those from living descendants of the victim and present-day relatives of Kosminski has revealed a match with the latter. The analysis also concludes that the perpetrator had brown hair and eyes, which matched the description given by eye witnesses at the time of the crime. The article, using DNA as supporting evidence for identifying Jack the Ripper, has been published in the *Journal of Forensic Sciences* (Louhelainen and Miller, *https://doi.org/10.1111/1556-4029.14038*). Earlier, unpublished results were also used to identify Aaron Kosminski as the murderer in a book released in 2014, called *Naming Jack the Ripper* by Russell Edwards.

Many suspects have been identified as the 'real' serial killer at various points over the past two centuries. These included an American doctor visiting London at the time of the murders and a member of the British ruling royal family. In the latter half of the 20th century, Walter Sickert, a 19th century British painter and printmaker, who was alive at the time of the murders and who created a painting titled *Jack the Ripper's Bedroom,* had been repeatedly proposed as the culprit or at least his accomplice. In 2006, Ian Findlay, an Australian professor of molecular and forensic diagnostics, used swabs of DNA from the back of stamps posted on envelopes of letters believed to have been sent to Scotland Yard by Jack the Ripper, to create a partial profile of the killer. Although the letters are now largely regarded as fake, his research suggests that the murderer may have been a woman.

Skeptics, however, are critical of the argument and the methods used for the genetic analysis to implicate Aaron Kosminski. Questions have been raised on the authenticity of the shawl being present at the crime scene, and the possibility of its subsequent contamination over the past two centuries. The basis of using mitochondrial DNA as a sole representation of genetic material has also been questioned. Mitochondrial DNA analysis is mainly used to show that two subjects are not related and thus to exclude a suspect. The sample match with Kosminski's living descendants could also potentially be true for descendants of other people who lived in London between 7 August and 10 September 1888—the time frame when the killings took place.

MAHARRA HUSSAIN, *United Arab Emirates*

Indian mission to end tuberculosis by 2025

Tuberculosis (TB), despite being curable and preventable, is the leading infectious killer in India. India bears a disproportionately large burden of patients with TB with almost a quarter of the Global TB Burden and the second highest estimate for HIV-associated TB patients. There were an estimated 2.8 million new patients of TB in 2016, with over 400 000 people succumbing to the disease. On 24 March 2019, World Tuberculosis Day, the Ministry of Health and Family Welfare, Government of India notified that 2.15 million new patients with TB were diagnosed in 2018. Thus, it remains one of the strongest parameters of India's health and wellness scale.

WHO launched the End TB campaign stretching from 2016 to 2035. Ending TB is defined as an incidence rate of <10 people per 100 000 population per year. The main targets in the End TB strategy are reduction of deaths due to TB by 95%, reduced incidence of TB by 90% and cutting the cost of treatment between 2015 and 2035. Taking a step ahead, India aims to be TB-free by 2025, five years ahead of the Global Mission.

What makes this issue more difficult is the recently discovered entity of totally drug-resistant TB (TDR-TB). India has taken up a bold challenge. The Delhi End TB Summit laid the stage for the Mission and the TB-Free India Campaign was launched on 13 March 2018 by Prime Minister Narendra Modi. On 6 September 2018, the first ever UN General Assembly (UNGA) High-Level Meeting on Tuberculosis (UNGA-HLM-TB) was held in New York and was attended by more than 1000 participants from across the world. On 24 March 2019, the World TB Day was celebrated with the aim to spread awareness and speed up the efforts to End TB. The theme of World TB Day 2019 is 'It's time'.

India is adopting a multilevel, multidimensional and multisectoral approach to curb the disease. The central theme is that not even a single patient must be left undetected, undiagnosed or untreated. The National Strategic Plan (NSP) 2017–2025, which aims to eradicate TB by 2025 is operational and the government is providing regular, ample funds. It is expected that the cost of implementing the new NSP will be nearly US$ 2.5 billion, as stated in the draft strategy devised by the Ministry of Health and Family Welfare. Programmes such as Swachh Bharat Abhiyan and providing liquified petroleum gas (LPG) connections for a smokeless kitchen will help reduce the infection too. Emergence of TB requires a check in all susceptible areas along with dedicated implementation of the plan.

The End TB campaign involves approaches at all levels: (i) integrated, patient-centred care and prevention includes diagnosis, treatment and prevention; (ii) bold policies and supportive systems involving all sectors of society, public and private; and (iii) intensified research and innovation: new tools, drugs and vaccines along with foolproof implementation.

India has immense capacity in information technology and software that can be used for better TB surveillance and treatment adherence along with improved data collection, management and effective implementation. The Ministry of Health is committed to eliminating TB in the country by 2025. Three critical components—funding, action and accountability—will play a pivotal role in the success of the End TB strategy.

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Food-borne diseases cost India US$ 15 billion in 2018

Safe food is a basic human right and is essential to fuel a healthy, educated and resilient workforce. Food-borne diseases are preventable. In many countries including India this issue receives much less attention. In 2018, the World Bank along with the government of the Netherlands released a report 'The safe food imperative: Accelerating progress in low and middle-income countries' on food-borne illness and its economic burden on nations. The report stated that low- and middle-income countries should spend and invest in protecting the masses from the impact of food-borne illness, to reduce the burden of diseases on the common people.

Food-borne diseases include diarrhoeal diseases caused by agents such as norovirus and *Campylobacter* spp., *Escherichia coli*, cholera, rotavirus, *Salmonella typhi*, *Taenia solium*, hepatitis A and E viruses and aflatoxins. According to WHO, each year worldwide, unsafe food causes 600 million cases of food-borne diseases resulting in 420 000 premature deaths. Around 30% of food-borne deaths occur among children under 5 years of age. Globally, about 33 million-year healthy lives are lost annually due to consuming unsafe food.

In India it cost about US$ 15 billion or around 0.25% of the gross domestic product (GDP) in 2018, even though it has halved from the previous year. The Food Safety and Standards Authority of India (FSSAI) has already set food safety regulations in place including stringent packaging and labelling norms, regular inspection and food products sampling of restaurant and street food to ensure quality of food. Nationwide initiatives such as the 'Eat Right India' movement and 'Swastha Bharat Yatra' have helped in improving the situation. However, more can be done as suggested by the report, such as improving food safety policies through coordination across the value chain, capacity building by training and retraining, push in food safety in nutrition programmes and strengthening key infrastructure such as cold chains, storage facilities, testing capacity, crop protection and, the most important, improving animal health.

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