

In this issue

Clinical Trials Registry-India

Making it world class

The Indian clinical trial registry figures prominently among the 18 clinical trial registries that provide data to the WHO's International Clinical Trials Registry Portal. To make reliable, logically sound and evidence-based inferences using data analytics, data in clinical trial registries need to be in a systematic form, without ambiguities, points out Gayatri Saberwal, in a General Article in this issue.

Critically analysing the Indian clinical trial registry, she highlights the problems that plague the system: missing data, errors and ambiguities in the classification of the type of study and type of trial, ill-defined taxonomy of terms, inconsistencies in names of individuals and the classification of organisations, incomplete or incorrect details of ethics committees, inadequate distinctions between the registration of retrospective and prospective studies, a faulty search function which provides misleading information, a lack of adequate compliance to the rules and requirements spelt out by the WHO...

The article also provides potential solutions to these problems, and recommendations to make the Clinical Trial Registry-India world class. Professionals in the Ministry of Health and the ICMR-National Institute of Medical Statistics need to read the article on **page 785**.

Managing Diabetes Type I

In children and adolescents

Type 1 diabetes often develops around the ages of 5–7. Treatment using frequent insulin injections can help manage the problem and reduce the chances of complications. However, it is not easy to monitor glucose levels and ad-

minister frequent injections to young people.

A Review Article in this issue highlights the lack of epidemiological data on type 1 diabetes among the young in India. Besides summarising the risk factors, the development of the pathology, management options available for the medical condition and their limitations, the review article suggests methods to reduce the chances of the development of complications due to unrecognised or inadequately managed diabetes type 1 in the young.

Read on from **page 790**.

X-ray Flares from the Sun

Impact on ionosphere

X-ray flares from the sun ionise atmospheric molecules at high altitudes. The electron density of the ionosphere increases, the height from the earth's surface to the ionosphere reduces to 60 kilometres or even less.

Though this phenomenon has been recognised for about a hundred years, our understanding of the dynamics of the ionosphere and its coupling to X-ray flares is still primitive. The response of the ionosphere to X-ray flares is complex since it also depends on the stage of the solar cycle at which the X-ray flare occurred, the season on the earth, time of day, geographic location, etc. And there is not enough data to make reliable inferences about how each of these factors influence the ionosphere above India.

A Research Article in this issue addresses this lacuna.

The variations in the height to the ionosphere disturb short-wave radio that depends on reflection from the ionosphere to communicate over long distances. By monitoring the 19.8 kHz signals from the navigational transmitter located in Australia and received at

Prayagraj in Uttar Pradesh, it is possible to make inferences about the status of the ionosphere.

Between 2011 and 2016, when solar activity changed from low to high, there were 18 X-class flares during the day time in India. The Research Article analyses the impact of nine of these events on the ionosphere.

Read about how the sun super charges our atmosphere on **page 812**.

Ticks of *Hyalomma* Genus

Identification made easy

Ticks of the *Hyalomma* genus are known to transmit zoonotic diseases. The species in the genus are difficult to distinguish due to hybridisation and morphological variations. A phylogenetic approach using genetic data was needed to understand the evolutionary relationships between species and for more accurate taxonomic classification.

A Research Communication in this issue demonstrates a quick and easy method to do this. Instead of collecting specimens from the field, the researchers took 14 samples of four tick species from the reference repository of the Zoological Survey of India, Kolkata. Besides constructing the phylogenetic tree of the genus based on the DNA sequences from the specimens, the researchers identified species-specific nucleotide sequences in the gene for subunit 1 of cytochrome C oxidase. This will now enable reliable identification of the four *Hyalomma* species.

The strategy of using specimens in repositories to extract and sequence DNA can help fast forward the process of constructing DNA sequence databases of other insects.

Turn to **page 851** for details.

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