Current Affairs 22nd December 2023 by Saurabh Pandey CSE

Terms related new variants of corona

- The World Health Organisation, has decided, due to its rapid spread, to classify the variant JN.1 as a separate variant of interest (VOI) from the parent lineage BA.2.86.
- It was previously classified as VOI as part of BA.2.86 sublineages.
- As per WHO's updated definition of a VOI, it would be a SARSCoV2 variant with genetic changes that are predicted or known to affect virus characteristics such as transmissibility, virulence, antibody evasion, susceptibility to therapeutics and detectability.
- It has also been identified to have a growth advantage over other circulating variants in more than one WHO region with increasing relative prevalence alongside increasing number of cases over time, or other apparent epidemiological impacts to suggest an emerging risk to global public health.
- "The continued growth of JN.1 suggests that it is either more transmissible or better at evading our immune systems.
- Mutation: A mutation refers to a single change in a virus's genome (genetic code). Mutations happen frequently, but only sometimes change the characteristics of the virus.
- Lineage: A lineage is a group of closely related viruses with a common ancestor. SARS-CoV-2 has many lineages; all cause COVID-19.
- Sublineage: A term used to define a lineage as it relates to being a direct descendent of a parent lineage. For example, BA.2.75 is a sub lineage of BA.2.
- Variant: A variant is a viral genome (genetic code) that may contain one or more mutations.
- SARS-CoV-2 Interagency Group (SIG) as a Variant of Interest (VOI), Variant of Concern (VOC), Variant of High Consequence (VOHC) or Variant Being Monitored (VBM) due to shared attributes and characteristics that may require public health action.
- Recombination: A process in which the genomes of two SARS-CoV-2 variants combine during the viral replication process to form a new variant that is different from both parent lineages.
- This may occur when a person is infected with two variants at the same time.
- The lineage that results from recombination is called a "recombinant."

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- **Pango Lineage System**
- **The Pango lineage system is hierarchical like a family tree. Lineages are evolutionarily descendants of a "parent" lineage. A lineage may be described as a "sublineage" when it is being discussed in relation to its parent lineage.**
- The Hindu

Next clade

- **Next clade is a tool that is used to classify SARS-CoV-2 sequences according to their genetic relatedness.**
- **Potentially important branches of the SARS-CoV-2 family tree are given names, indicating members of that branch are a "clade" and are thought to arise from a common ancestor.**

Uses four types of classifications:

- **Variant of high consequence (VOHC)**
- **Variant of concern (VOC)**
- **Variant of interest (VOI)**
- **Variants being monitored (VBM)**

What is Variants of interest?

Variants designated as VOI include variants that have:

- **reduced neutralization by antibodies generated against previous infection or vaccination.**
- **Reduced efficacy of FDA approved treatments, or diagnostic tests.**
- **Predicted increase in transmissibility or disease severity.**

Possible attributes of a Variant of Interest include:

- **Specific genetic markers that are predicted to affect transmission, diagnostics, therapeutics, or immune escape.**
- **Evidence that it is the cause of an increased proportion of cases or unique outbreak clusters.**

A VOHC has clear evidence that prevention measures or medical countermeasures (MCMs) have significantly reduced effectiveness relative to previously circulating variants.

In addition to the possible attributes of a variant of interest, variants designated as VOC include:

- **Increase in transmissibility.**
- **More severe disease (for example, increased hospitalizations or deaths).**
- **Significant reduction in neutralization by antibodies**

generated during previous infection or vaccination.

- Reduced effectiveness of treatments or vaccines, or diagnostic detection failures.

- The Hindu

Cotinine

- Nicotine Replacement Therapy (NRT) nicotine patches or lozenges relies on providing additional nicotine to the body. Researchers have now turned to nicotine's oxidative metabolite, cotinine.

- Using ascorbic acid as a potential reducing agent, they converted cotinine in smokers' plasma back to nicotine, targeting both nicotine addiction and detoxification simultaneously

- A team of researchers from the Faculty of Pharmacy, Sri Ramachandra Institute of Higher Education and Research, have developed a dissolvable film containing Vitamin C that a smoker places on the tongue whenever tempted to smoke.

- Ascorbic acid in a specified dose (Vitamin C) converts cotinine back to nicotine within the smokers' plasma, they claim.

- Individuals find it difficult to quit smoking because of nicotine withdrawal. Current NRT products provide additional nicotine to the body.

- Nicotine is metabolised into cotinine, an oxidative metabolite.

- Cotinine will stay in the body for six weeks (the quantity of cotinine depends on an individual's tobacco consumption).

- Generally, 80% of nicotine accumulates as cotinine in the body, while the remaining 20% is eliminated in urine.

- Cotinine can cause cancer.

- So, for the first time, instead of adding on to the nicotine content in the body, we have showcased that vitamin C can be utilised to recirculate cotinine.

- Side effects are negligible, the person does not receive additional nicotine and detoxification occurs at the end of the cycle."

- The Namdapha flying squirrel. Nocturnal flying squirrel has resurfaced in Arunachal Pradesh after going missing for 42 years.

- The Namdapha flying squirrel (Biswamoyopterus biswasi) was last described in 1981

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- Namdapha Flying Squirrel
- **SCIENTIFIC NAME:** *BISWAMOYOPTERUS BISWASI*
- **LAST SEEN:** 1981 IN INDIA
- **YEARS LOST:** 42
- **RED LIST STATUS:** CRITICALLY ENDANGERED

- The Namdapha flying squirrel (***Biswamoyopterus biswasi***) is an arboreal, nocturnal flying squirrel endemic to Arunachal Pradesh in northeast India, where it is known from a single specimen collected in Namdapha National Park in 1981

- It was the sole member in the genus ***Biswamoyopterus*** until the description of the Laotian giant flying squirrel (***Biswamoyopterus laoensis***) in 2013

- Arboreal locomotion is the locomotion of animals in trees. In habitats in which trees are present, animals have evolved to move in them.

- Nocturnality is a behavior in some non-human animals characterized by being active during the night and sleeping during the day.

R21/MatrixM

- The World Health Organization (WHO) added the R21/MatrixM malaria vaccine, developed by Oxford University and manufactured by Serum Institute of India, to its list of prequalified vaccines.

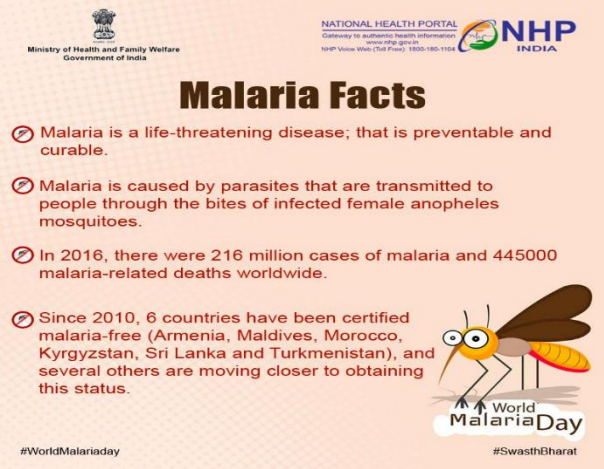
- In October 2023, the WHO had recommended its use for the prevention of malaria in children.

- The R21 vaccine is the second malaria vaccine prequalified by the WHO.

- "The prequalification means larger access to vaccines as a key tool to prevent malaria in children, with it

being a prerequisite for vaccine procurement by UNICEF and funding support for deployment by Gavi, the Vaccine Alliance," the WHO said in a statement

- Achieving WHO vaccine prequalification ensures that vaccines used in global immunisation programmes are safe and effective within their conditions of use in the targeted health systems."



The Hindu

Post Office bill 2023 & concern

What are the key features of the Bill?

- The Post Office Bill, 2023 allows the interception of articles transmitted via post on grounds such as the security of the state, friendly relations with foreign states, public order, emergency, public safety, or contravention of the provisions of the Bill or any other laws.
- The officer in charge appointed by the Union government is empowered to 'intercept, open or detain' any postal article on the aforementioned grounds.
- Such an item can also be disposed of by the government in a manner it deems appropriate.

The Hindu