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News Analysis (25 Apr, 2019)

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World's First Malaria Vaccine

The world first malaria vaccine has been rolled out in Malawi for children under two.

- RTS,S/AS01, trade name Mosquirix, is an injectable vaccine targeting *P. falciparum*, the most prevalent malaria strain in Africa. It is the first and only vaccine to show partial protection in young children. In clinical trials, the vaccine was found to prevent approximately 4 in 10 malaria cases, including 3 in 10 cases of life-threatening severe malaria.
- The WHO-coordinated pilot programme is a collaborative effort with ministries of health in Ghana, Kenya and Malawi and a range of in-country and international partners, including PATH, a non-profit organization, and GSK, the vaccine developer and manufacturer, which is donating up to 10 million vaccine doses for this pilot.
PATH is an international nonprofit team of innovators which advises and partners with public institutions, businesses, grassroots groups, and investors to tackle the world's toughest global health problems, including malaria.
- The malaria vaccine pilot aims to reach about 360,000 children per year across the three countries.
- Recently the World Bank released World Malaria Report, 2018, according to which Malaria occurs in 91 countries but about 90% of the cases and deaths are in sub-Saharan Africa.

Mechanism

- RTS,S aims to trigger the immune system to defend against the first stages of malaria when the *Plasmodium falciparum* parasite enters the human host's bloodstream through a mosquito bite and infects liver cells.
- The vaccine is designed to prevent the parasite from infecting the liver, where it can mature, multiply, re-enter the bloodstream, and infect red blood cells, which can lead to disease symptoms.

Financing and Support

Financing for the pilot programme has been mobilized through an unprecedented collaboration among three key global health funding bodies: Gavi, the Vaccine Alliance; the Global Fund to Fight AIDS, Tuberculosis and Malaria; and Unitaid. Additionally, WHO, PATH and GSK are providing in-kind contributions

Weaknesses

- **It is Inconvenient:** A child must receive four injections before age 2, sometimes at intervals that do not match the routine vaccine schedules for most other diseases.
- **Partly effective:** Testing in more than 10,000 African children from 2009 to 2014 showed that, even after four doses, the vaccine prevented only about 40 percent of detectable malaria infections.
- **Not long lasting:** It is unclear how long even those relatively low levels of protection last; previous trials followed vaccinated children for four years. Experts also worry that parents whose children are vaccinated will become less vigilant about using mosquito nets, and less likely to seek medical care when their children develop fevers.
- **Develop Resistance:** The vaccine reduced the occurrence of severe malaria by about 30 percent, and the occurrence of severe anemia — a complication that often kills children — by about 60 percent. It did not protect well against parasite strains that were poor genetic matches, raising a concern that, over time, parasites could evolve resistance to the vaccine as they have to drugs

Malaria in India

India ranks very high in the list of countries with a serious malaria burden. In 2018, 3,99,134 cases of malaria and 85 deaths due to the disease were reported in the country, according to data from the National Vector Borne Disease Control Programme.

Malaria

- Malaria is caused by **Plasmodium parasites**.
- The parasites are spread to people through the bites of infected female Anopheles mosquitoes, **called "malaria vectors."**
- There are more than 400 different species of Anopheles mosquito; around 30 are malaria vectors of major importance.
- All of the important vector species bite between dusk and dawn.
- There are 5 parasite species that cause malaria in humans, and 2 of these species – P. falciparum (the most prevalent malaria parasite on the African continent and it is responsible for most malaria-related deaths globally) and P. vivax (the dominant malaria parasite in most countries outside of sub-Saharan Africa) – pose the greatest

threat.

- Most malaria cases and deaths occur in sub-Saharan Africa.
 - However, the regions of South-East Asia, Eastern Mediterranean, Western Pacific, and the Americas are also at risk.
 - WHO recommends protection with effective malaria vector control. Two forms of vector control – insecticide-treated mosquito nets and indoor residual spraying – are effective in a wide range of circumstances.
 - World malaria day is celebrated on 25th April every year.
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Massive Open Online Courses

Massive Open Online Courses (MOOC) is a free Web-based distance learning program that is designed for the participation of large numbers of geographically dispersed students.

- They are changing the world of education by providing free online courses for **higher education, executive education, and employee development**. These courses are provided by well-qualified lecturers from some of the most renowned institutes in the world.
- These courses provide virtual education to people from any corner of the world where there is accessibility to the internet. Massive open online courses are expected to complement the future of higher education in the world.
 - MOOC has indeed played an important role in democratising education.
 - Example: The government recently launched SWAYAM platform for open online courses.
- India is one of the largest countries in terms of MOOC learners, and MOOCs provide an efficient way to bridge Industry-University divide and upskilling for better opportunities.

India has become the **second largest** market after the US.

Challenges

- However, MOOC platforms have in general failed as compared to the edu-tech startups that charge for every content, because of the low retention rate and rising affluence among students.
- Motivation to complete the course, and immediate doubt resolution are learners' needs which cannot be met by MOOCs and often this leads to drop offs.
- The biggest shortcoming of MOOCs, especially when it comes to technical training is the lack of interactivity and real-life projects which live, online learning model can easily provide.
- More than 90 per cent of those who sign up for MOOC courses do not complete the courses and this throws up questions about the efficacy of the model.

Way Forward

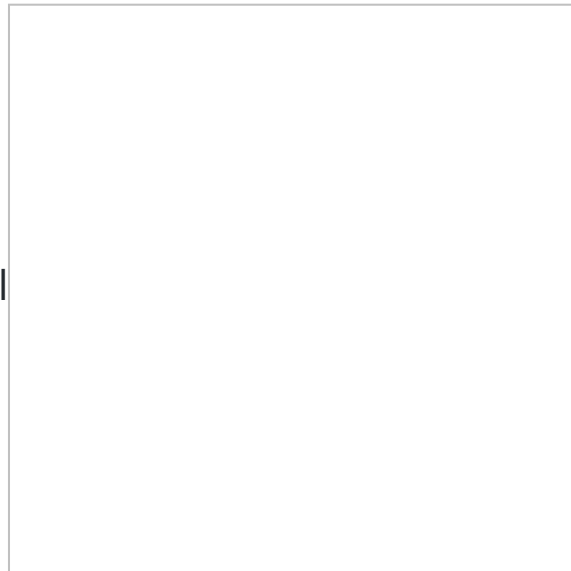
- MOOCs need to take different forms to keep engagement high, monetise for sustaining and staying relevant. Partnered with universities, created tiered approach, enterprise solutions for reskilling and upskilling to reinvent themselves.
- For balancing the dichotomy of sustainability and access to all, businesses must look at **Freemium models** with a layered approach. Different pricing mechanisms for basic, with assignments/grading, with certification or mentor-led levels of the same courses are required.

Freemium is a combination of the words "free" and "premium" used to describe a business model that offers both free and premium services. The freemium business model works by offering simple and basic services for free for the user to try and more advanced or additional features at a premium.

- **B2B model** can be adopted where MOOC platform can partner with several large corporates for skill development of their employees.
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Important Facts For Prelims (25th April 2019)

Echidnas Milk as Antimicrobial



- Scientists have isolated an antimicrobial protein found in the milk of an **egg-laying mammal, Echidnas**.
- The protein can serve as an alternative to **antibiotics used on livestock**.
- The protein in the milk of echidna can puncture the cell membranes of multiple bacterial species, thus destroying the source of infection.
- There are many ways to produce the protein in large quantities and one among them is using E. coli bacteria. It can then be used to fight infections.
- The scientist pointed out that there is a rise of the antimicrobial resistance bugs in livestock which can be checked by use of this antibiotics in the animal husbandry

industry.

Monotremes: Egg Laying Mammals

- Egg laying mammals are also known as **Monotremes**.
- There are only **five living monotreme species: the duck-billed platypus and four species of echidna** (also known as spiny anteaters).
- All of them are found only in Australia and New Guinea.

Marsquake

- NASA's Mars **InSight lander** has measured and recorded, for the first time ever, tremors on Mars called "Marsquake." (Like Earthquakes on Earth)
- A faint seismic signal was detected by the lander's **Seismic Experiment for Interior Structure (SEIS)** instrument, was recorded on April 6, the lander's **128th sol (Mars Solar Day)**.
- The new seismic event was too small to provide solid data on the Martian interior, which is one of InSight's main objectives.
- **Mars and the Moon do not have tectonic plates, but they still experience quakes.**
- On Mars and Moon, quakes are caused by a **continual process of cooling and contraction of the surface that creates stress**. This stress builds over time until it is strong enough to break the crust, causing a quake.

World Book and Copyright Day

- World Book and Copyright Day are celebrated **by UNESCO** every year on the **23rd of April**.
- It is an occasion to **promote the joy of books and the art of reading**.
- 23rd April was selected by UNESCO to pay **tribute to great literary figures including William Shakespeare, Miguel Cervantes and Inca Garcilaso de la Vega** who died on this day.
- This date was **finalized in the year 1995** in the UNESCO General Conference, held in Paris.
- The 24th edition of World Book and Copyright Day celebrated literature and reading while focusing particularly on the **importance of enhancing and protecting Indigenous languages**.
- Each year UNESCO on the recommendation of the three major sectors of the book industry - publishers, booksellers, and libraries, **declare the world book capital for one year effective from 23rd April**.
- In 2019 **Sharjah in the United Arab Emirates has been recognized as World Book Capital**.

- **New Delhi was declared as the world book capital in the year 2003.**

United Nations Educational, Scientific and Cultural Organization (UNESCO)

- Formed in **1945**, it is a **specialized agency of the United Nations** (UN) based in Paris.
- Its declared purpose is to **contribute to peace and security by promoting international collaboration through educational, scientific, and cultural reforms in order to increase universal respect for justice, the rule of law, and human rights along** with fundamental freedom proclaimed in the United Nations Charter.
- As of **January 2019**, it has **193 member states**.

Domkhar Rock Art Sanctuary

- **Created in 2012**, it is a **constellation of rock art** on the right bank of the river Indus **in Domkhar village in lower Ladakh**.
- **Stanzin Thangjuk**, a farmer, has been instrumental in single-handedly **protecting 500 odd rock carvings** at Domkhar.
- The archaic scripts on these rocks have been discovered to be **similar to those found among the nomadic tribes of the steppe region of Central Asia who lived 2,000 years ago**.
- No one has been able to put an exact date to the carvings, but they are believed to be over two millennia old. They also shed some light on the pattern of human movement during that era. Also, there is a stylistic representation of animal figures.

INC-22

- INC-22 is the **Notice of situation or change of address of the registered office of the company**.
- INC-22 form requires companies incorporated on or before December 31, 2017, to provide details regarding the location of their offices, directors, and proof of business.

E-Way Bill System

- Recently, the Finance Ministry has introduced changes in the **e-way bill system**, including auto calculation of distance based on PIN codes for the generation of e-way bill and blocking generation of multiple bills on one invoice, as it seeks to crack down on GST evaders.
- Additionally, Non-filers of GST returns for two straight months will be barred from generating e-way bills for transporting goods.
- **EWay Bill is an Electronic Waybill for movement of goods to be generated on the eWay Bill Portal. A GST registered person cannot transport goods in a vehicle whose value exceeds Rs. 50,000 (Single Invoice/bill/delivery challan) without an e-way bill .**

- These enhanced features would add value to both, businesses and tax officers as the mixed bag aims at propelling ease of doing business together with acting as a deterrent for tax evaders.

Composition Scheme

- **Taxpayers under the composition scheme of the GST will now have more relaxed rules with an increased turnover limit for the applicability, inclusion of service providers and reduced tax rates.**
- This scheme is also applicable to the real estate sector with respect to under-construction, ready and affordable homes.
- **The composition scheme is an alternative method of tax levy under GST designed to simplify compliance and reduce compliance costs for small taxpayers.**
- The main feature of this scheme is that the business or person who has opted to pay tax under this scheme can pay tax at a flat %age of turnovers every quarter, instead of paying tax at a normal rate every month.

Eligibility

- The **composition scheme is applicable to manufacturers or traders whose taxable business turnover is up to ₹1.5 crore** (₹75 lakh in case of North-Eastern States).
- A service provider can opt for the scheme **if his taxable turnover is up to ₹50 lakh.**
- Businesses with inter-State supplies, manufacturers of ice cream, pan masala and tobacco, and e-commerce players cannot opt for the composition scheme.

Importance

The composition scheme effectively **acknowledges the importance of the MSME sector**, by granting relief to it on GST filings, procedures and tax rates.

- The **Reserve Bank of India (RBI) has divested its entire stake in Nabard and National Housing Bank (NHB).** The move is part of ending the cross-holding in regulatory institutions and follows the recommendation of the second Narasimham committee.
- The **Committee on Banking Sector Reforms (Narasimham Committee II)**, inter-alia, observed that it is inconsistent with the principles of effective supervision that the regulator is also an owner of a bank and this would require the Reserve Bank of India (RBI) to divest its holding in banks and financial institutions.
- With this divestment, **the government now holds a 100 % stake in both these financial institutions.**
- The current change in the capital structure of both the financial institutions was

brought in by the Government of India through amendments to the NABARD Act, 1981 and the NHB Act, 1987 which were notified vide gazette notifications dated January 19, 2018, and March 29, 2018, respectively.

- The **Nabard came into existence on July 12, 1982**, by transferring the **agricultural credit functions of RBI and refinance functions of the then Agricultural Refinance and Development Corporation**.
 - The **National Housing Policy of 1988 envisaged setting up of NHB as the apex level institution for promoting the housing sector**.
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