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## COVID-19 Transmission to New Born

- Recently a three-day-old baby and his mother tested positive for COVID-19 in a private lab in Mumbai, but subsequently tested negative later in another hospital.
- A virus may be transmitted after delivery either from mother during breastfeeding or from the hospital environment.
- The World Health Organization notes that there is no evidence yet to show that pregnant women are more vulnerable or are at a higher risk of severe illness from COVID-19 than the general population.
- While there is no concrete evidence for vertical transmission of SARS-CoV2 from mother to foetus, it is known that pregnancy involves a risk, after birth, of adverse outcomes from many respiratory viral infections.
- It has, however, advised pregnant women to wash their hands frequently, to avoid crowded spaces and to practice respiratory hygiene.
- In India, efforts have been made to create a pregnancy registry at the Indian Council of Medical Research.
- So far no reliable evidence recommends any specific COVID-19 treatment for pregnant women.

## DST's Effort on COVID-19

- Department of Science and Technology (DST) is India's apex science and technology (S&T) agency.
- With the help of institutions under DST and sister ministries, DST is taking the lead in coordinating the effort to map and upscale appropriate technologies in India for addressing issues related to COVID-19.
- It is also scouting for solutions that are more relevant to the country and also to help prepare the country for exigencies arising out of COVID-19 pandemic.
- DST through its autonomous institutions and statutory bodies has instituted three ways to fight COVID-19:

1. Extensive mapping of solutions requiring R&D support,
2. Startups with viable products requiring facilitation, manufacturing support.
3. Identification of market deployable products requiring seed support.

## Intensification of Research in High Priority Area (IRPHA)

- Science and Engineering Research Board (SERB) is an autonomous body under DST.
- Under its Intensification of Research in High Priority Area (IRPHA) scheme, SERB had invited competitive proposals having a strong interdisciplinary component to ramp up national R&D efforts for epidemiological studies such as

1. Studies on immune response and immunity during respiratory viral infections,
2. New anti-viral, vaccines
3. Affordable diagnostic against COVID-19 and related respiratory viral infections.

- Apart from this, SERB also invited short-term 'Core Research Grant Special Call on COVID-19' to meet the current requirements of the health workers such as
    a. Affordable and portable rapid diagnostic kits or tools,
    b. Computational identification and validation of COVID-19 molecular targets,
    c. Drug repurposing against key COVID-19 targets and in-vitro/clinical dose testing of nutritional supplements for immunity.
- Tracking and trailing the virus through a data-driven approach is an important step to contain its spread. In this direction, SERB has announced short-term project on mathematical modeling of COVID-19 spread;
- In the absence of preventive and curable measures, mathematical models may help in assessing the potential for sustained transmission to occur in new areas.

## Anti-microbial coating

- The **Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)**, an autonomous institution under DST, has come up with a one-step curable anti-microbial coating.
- This coating is capable of completely killing the influenza virus and

resistant pathogenic bacteria and fungi, including methicillin-resistant Staphylococcus aureus, fluconazole-resistant C. albicans spp. and a range of virus type Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-COV-19).

- It is anticipated that the coating will not allow microorganisms to become active on coated surfaces.
- During the COVID-19 outbreak, the coating may be used to protect personal protective tools, clothes and equipment of health workers.

## Grassroots Innovations

- The National Innovation Foundation (NSF), another autonomous institution of DST encourages and supports grassroots innovations developed by individuals and local communities in any technological field.
- NSF has invited citizens to come up with creative and innovative ideas through its 'Challenge COVID-19 Competition (C3)' for tackling the following issues:

a. Healthy food for nutrition and boosting immunity;
b. Reducing transmission of coronavirus;
c. Sanitizing one's hands, body, home items and home, public places wherever required;
d. Supply and distribution of essential items to people, especially the elderly living alone;
e. Gainful engagement of people at home;
f. PPEs and rapid diagnostic testing facilities for capacity building of healthcare; and
g. Rethinking "contactless" devices for post-corona implementation needs.

- Besides inculcating scientific temperament among masses, this initiative will also encourage them to participate actively in the government's programmes against the pandemic.

## COVID-19 Task Force

- Union government has set up a *'COVID-19 Task Force'* for mapping the COVID-19 related technology capabilities in start-ups, academia, research and development labs and industry.
- The capacity mapping group consists of representatives from

1. DST,
2. Department of Biotechnology (DBT),
3. Indian Council for Medical Research (ICMR),

4. Ministry of Electronics and Information Technology (MEIT),
5. Council for Scientific and Industrial Research (CSIR),
6. Atal Innovation Mission (AIM),
7. Ministry of Micro, Small and Medium Enterprises (MSME),
8. Startup India,
9. All India Council for Technical Education (AICTE).

- This Task Force has identified over 500 entities in the areas of diagnostics, drugs, ventilators, protection gear, disinfecting systems, etc.
- The solutions identified include masks and other protective gear, sanitizers, affordable kits for screening, ventilators and oxygenators, data analytics for tracking, monitoring, and controlling the spread of outbreak through AI and IoT-based solutions, to name a few.

## COVID-19 on Tigers

- A tiger named Nadia, at the Bronx Zoo, in New York, US died, had tested COVID-19 positive.
- It is believed to have been infected by an asymptomatic zookeeper.
- In India NTCA is puzzled on whether the tiger should be tested for the novel coronavirus disease.
- However, it was unlikely to be enough to test for COVID and given the remoteness of the forests and lockdown in effect, would likely degrade and be unsuitable for testing
- The Bronx Zoo case led to India's Central Zoo Authority alerting all zoos to monitor animals 24×7 for signs of abnormal behavior. It mentioned cats, ferrets and primates.
- The designated testing centers are the

1. National Institute of High Security Animal Disease, Bhopal;
2. National Research Centers on Equines, Haryana;
3. Centre for Animal Disease Research and Diagnostics,
4. Indian Veterinary Research Institute, Uttar Pradesh.

- The directive to Wildlife Wardens in States and reserves adds that tigers ought to be observed for symptoms consistent with COVID-19 such as respiratory signs of nasal discharge, coughing and labored breathing and that personnel handling tigers have to be ascertained negative

## National Tiger Conservation Authority (NTCA)

- The National Tiger Conservation Authority (NTCA) was established in December 2005 following a recommendation of the Tiger Task Force.

- It is constituted by the Prime Minister of India for reorganized management of Project Tiger and the many Tiger Reserves in India.
- A programme for protection called, 'Tiger Protection Program' (popularly known as Project Tiger) was started in 1973, by the Government of India in co-operation with WWF.
- The Wildlife Protection Act of 1972 was amended in 2006 to provide for constituting the National Tiger Conservation Authority responsible for implementation of the Project Tiger plan to protect endangered tigers.
- The National Tiger Conservation Authority is set up under the Chairmanship of the Minister for Environment and Forests.
- The Authority will have eight experts or professionals having qualifications and experience in wildlife conservation and welfare of people including tribal, apart from three Members of Parliament of whom two will be elected by the House of the People and one by the Council of States.
- The Inspector General of Forests, in charge of project Tiger, will be ex-officio Member Secretary.

**Source:** PIB, Indian Express, the Hindu