2020

समाचार पत्रों से चयित अंश

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COVID-19: DRDO's Contribution

Outlook

Tue, 21 April 2020

DRDO lab developes 10,000 face shields for PGI, Chandigarh

Chandigarh, April 22 (IANS): The Terminal Ballistics Research Laboratory (TBRL) here is developing 10,000 full face protective shields for examining infected COVID-19 patients for the PGI Hospital, an official said on Wednesday.

"TBRL is producing 10,000 full face protective shields for the PGI. A total 2,000 face protective shields have been handed over to the PGI and 5,000 will be provided in next 5-6 days," TBRL Director Manjit Singh said in a statement.

TBRL is a lab of the Defence Research and Development Organisation (DRDO).

He said over 700 protective shields were given to the Chandigarh Police on Tuesday.

Director General of Police Sanjay Beniwal lauded the TBRL for providing PPE, sanitizers and face shield to the police.

He appreciated that the face shields are much useful and able to provide full face protection to the police personnel on duty.

The Director said the face shields are single-use as well as multiple-use even its shielding sheet could be replaced easily if required.

In addition, the TBRL is also acting as a facilitator for the procurement of bio-suits developed by another DRDO lab for use by healthcare service providers.

An important DRDO establishment based in Chandigarh, the TBRL is involved in development, production, processing and characterisation of different high explosive compositions, fragmentation studies of warheads, captive flight testing of bombs, missiles and airborne systems and ballistics evaluation of protective system like body armour, vehicle armour and helmets.

https://www.outlookindia.com/newsscroll/drdo-lab-developes-10000-face-shields-for-pgi-chandigarh/1810594

Wed, 22 April 2020

BrahMos Aerospace helps Jabalpur with PPE Kits, N-95 Masks

BrahMos Aerospace, the Indo-Russian joint venture known the world over for making missiles, has given 500 PPE kits and 2,500 N-95 masks to the Jabalpur district administration in Madhya Pradesh to help in the fight against coronavirus. The missile company's Chief Executive Officer (CEO) Dr Sudhir Kumar Mishra assured that they will provide more assistance to Jabalpur whenever required, a state public relations official said on Tuesday.

"The countrys prestigious BrahMos Aerospace has given 500 personal protective equipment (PPE) kits, 2,500 N-95 masks and 30 thermal scanners to the Jabalpur district administration, he said.

These vital equipment were handed over to Jabalpur Collector Bharat Yadav by the Red Cross Society secretary Ashish Dixit on behalf of the missile manufacturing company, the official said.

The collector also thanked BrahMos Aerospace CEO Sudhir Kumar Mishra, who is an alumnus of Government Jabalpur Engineering College, for the help.

https://idrw.org/brahmos-aerospace-helps-jabalpur-with-ppe-kits-n-95-masks/#more-225659

Tue, 21 April 2020

DRDO's AI subsidiary launches SAMPARC App to track Covid-19 patients: Report

After partnering with an Ahmedabad-based textile association to produce 'N-99' masks, DRDO has yet again taken steps to fight the COVID-19 pandemic. According to a report, the Centre for Artificial Intelligence and Robotics (CAIR) – one of DRDO's AI arms – has created a technology-focused solution to track patients who are under quarantine.

A team of 20 scientists have reportedly developed the app over three weeks. It is monikered SAMPARC, short for Smart Automated Management of Patients and Risks. The app has already been offered to various state governments to enable AI-driven measures to slow the outbreak. In fact, it has been hosted exclusively for state governments in India.

With several states including Maharashtra and Gujarat struggling to contain the spread of the virus, this initiative by CAIR will be effective as the country prepares to come out of an extended lockdown.

SAMPARC to track COVID-19 Patients

The technology consists of a server-side application that can be used to keep a check on whether or not patients affected by COVID-19 are respecting quarantine rules.

The app, released in the first week of April, was first offered to the Uttar Pradesh government. Less than a month on, the next version of the software is being readied based on the feedback received from users of the current version. Large scale usage is reportedly expected to happen with newer versions of the app.

According to the report, the app only needs the location of the patient and their photos, and nothing else. Moreover, since it is based on information fed by state officials (and not on crowd-sourced data), it may be more authentic and reliable.

However, an important point to note here is that the app is meant only for tracking patients, and not for contact tracing, which is key to curb the outbreak.

How Does It Work?

SAMPARC's system is anchored around geo-fencing and AI-based automated face recognition, and would enable state officials to keep a track on patients using a map-like interface that displays relevant information. This interface would also be colour-coded to depict hotspots and containment zones in an area.

Its widespread use could also mean that patients may be able to isolate themselves at home during the quarantine period, rather than rely on government facilities. This could greatly reduce the load on state functionaries.

https://analyticsindiamag.com/drdos-ai-arm-launches-samparc-app-to-track-covid-19-patients/

Firstpost.

Wed, 22 April 2020

DRDO, Ahmedabad textile body to produce high quality cloth to make N-99 masks to fight coronavirus

The Ahmedabad Textile Industry Research Association (ATIRA) in collaboration with the Defence Research and Development Organisation has produced a high-quality cloth to make masks of 99 per cent filter efficiency, the highest among all kind of masks available in the country.

ATIRA is developing the cloth material for the preparation of five lakh 'N-99 masks', which it says would be better in quality than the N-95 masks that have been in huge demand of late in the fight against coronavirus.

While the N-95 respirator is able to filter 95 per cent of the very small airborne particles, the efficiency of the N-99 mask to filter such particles will be 99 per cent.

The Ahmedabad-based textile research association claims it is the only facility in the country to produce filter cloth for N-99 masks.

"Ninty nine per cent filtration is the highest among all types of masks available in India. There were many challenges initially, but with the untiring efforts of our highly competent scientists and research technicians, we were able to successfully develop this cloth and produce it on large scale, ATIRA director Pragnesh Shah told PTI.

The N-95 respirator is able to filter 95 per cent of the very small airborne particles. Representational image

The N-99 mask has five layers out of which two are of nanomesh which are inside and three outer layers are of cloth, he said.

"Currently, the filter cloth is manufactured at a state-of-the-art facility of ATIRA as per the WHO guidelines. The Government of India and the Defence Research and Development Organisation (DRDO) have recognised the efficiency of these masks, Shah said.

The high-quality cloth for over 3.5 lakh masks has already been handed over to DRDO, while production of more such material is going on, said ATIRA deputy director Deepali Palawat, who is heading the project.

"This project is the finest example of collaboration and coordination with the government. It was difficult to procure raw materials during the lockdown. The government has moved mountains to help us procure the raw materials and provided full support during the lockdown," she said.

Palawat said it was difficult to convert the research centre into a production unit but a 15-member ATIRA staff, including scientific officers and technicians, are working round-the-clock to fulfil DRDO's order of five lakh masks.

"The DRDO is getting these masks ready for health ministry officials, doctors of the All India Institute of Medical Sciences (AIIMS) and top defence cadre, she said.

"We are happy that we are able to help the Indian government and people during such unprecedented times. Our partnership with DRDO has yielded something noteworthy for the country," ATIRA council member Punit Lalbhai said.

ATIRA is a renowned body set up here in 1947 by textile mills as an autonomous non-profit R&D institution.

Its activities cover various aspects, from fibre to finished fabrics in traditional textiles as well as technical textiles in the arena of geo-textiles, nano web technology and composites, as per the association's website.

https://www.firstpost.com/health/drdo-ahmedabad-textile-body-to-produce-high-quality-cloth-to-make-n-99-masks-to-fight-coronavirus-8285651.html

THE ECONOMIC TIMES
WWW.ECONOMICTIMES.COM

Wed, 22 April 2020

Made from cloth for employees' uniforms, Northern Railways to deliver its first order of 2,000 masks

With the government making wearing of masks mandatory in public and at the workplace, these come at a cost Rs 5.94 each against the market price of Rs 7.50 and could well serve to meet the rising demand of masks in the coming days.

New Delhi: Having made face masks out of fabric meant for employees' uniforms, the Northern Railways has bagged its first order of 2,000 masks that are washable, cheap and even available in orange, the colour worn by trackmen on duty.

A Delhi Residents' Welfare Association is the Northern Railways' first paying client and received the first batch of these masks on Tuesday.

With the government making wearing of masks mandatory in public and at the workplace, these come at a cost Rs 5.94 each against the market price of Rs 7.50 and could well serve to meet the rising demand of masks in the coming days.

Its USP of being a multi-use mask gives it a leg up from the ordinary masks which have to be disposed off after every use, making it an expensive affair for any household.

Since the priority for railways is to cater to the needs of its employees, the masks made by the zone will first be distributed among its 1.3 lakh employees.

The workshops under the zone have already manufactured 35,000 masks, officials said, adding that by May end the figure is likely to touch a lakh.

"They are such a hit now that some RWA's have shown interest in them and are placing orders. They are made of surplus cloth meant for uniforms for our employees which remained unused. We have received orders from a RWA and we will be supplying them with the reusable masks," Arun Arora, Principal Chief Mechanical Engineer of Northern Railway told.

The zone will be fabricating 10,000 such masks every week, some of which will be given to railway employees while others will be given to associations which are requesting them on a payment basis, he said.

The Jagadhri Workshop of northern railway has in fact also made disposable masks for the railways' medical staff, the cloth for which is being bought separately.

The washable masks are currently in use in the five divisions of northern railway, RDSO Lucknow and by its own workshop staff, besides the railway hospitals where the disposable ones are being used.

"We want people to know that we are making these masks, that they are available and we will ramp up production if needed," said Arora.

However, it is not just masks that the zone is manufacturing to augment the government's efforts to fight coronavirus, specially in areas where there is major shortfall.

It has produced DRDO approved coveralls for medical staff and hand sanitisers for their staffers.

While the railways' coveralls come for Rs 447, similar pieces in the market are pegged at Rs 808. Similarly, railways have produced sanitisers for Rs 119 for a litre, while in the open market it costs Rs 468.

Developed at the Jagadhri Workshop, the coveralls were approved by DRDO within five days.

https://economictimes.indiatimes.com/industry/transportation/railways/made-from-cloth-for-employees-uniforms-northern-railways-to-deliver-its-first-order-of-2000-masks/articleshow/75269988.cms

COVID-19: Defence Forces Contribution

The Tribune

Wed, 22 April 2020

Rajnath okays sharing of resources by armed forces

New Delhi: Four months after setting up the office of the Chief of Defence Staff and tasking it for jointness of the three armed forces, Defence Minister Rajnath Singh has okayed sharing of infrastructure, optimal use of resources, latest training by the armed forces – as per suggestions of high-powered committee.

Sources said Rajnath Singh at a meeting, yesterday, to review the pending recommendations of the Lt Gen DB Shekatkar committee, okayed better utilisation and sharing of resources by three services. The Minister also okayed what is 'optimal' training of armed forces.

An official explained that sharing resources would be using infrastructure optimally and sharing it among the three services.

The meeting was attended by the Chief of Defence Staff General Bipin Rawat, who is also the Secretary Department of Military Affairs (DMA), the Army Chief General MM Naravane, Navy chief Admiral Karambir Singh, Indian Air Force Chief Air Chief Marshal RKS Bhadauria and Defence Secretary Dr Ajay Kumar.

Lt Gen Shekatkar panel listed 99 points for structural changes in Army — cutting flab and reducing revenue (maintenance) expenditure. The MoD in 2017 accepted 65 of 99 suggestions. Of these 65, some are pending for implementation. The review meeting took these points.

Former Defence Minister Parrikar had set-up the Shekatkar panel. It suggested how to enhance combat potential of forces, re-balance expenses. It listed steps to trim, redeploy, integrate manpower. It suggested expenses 'could be cut by Rs 25,000 crore over 5 years'.

The committee had spoken about lack of jointness and how it was ramping up costs. Over the past few decades, the Army, IAF and Navy have grown as three separate verticals with sparse 'horizontal links'.

With no commonality, each service had its own wings doing the same things separately on communication, maintenance, logistics, operations, support services, etc., 'wasting' crores of rupees annually in manpower and literal triplication of effort. This is unlike the way other modern-day armed forces have evolved in the past five decades or so.

Newly-minted contours for the post of Chief of Defence Staff (CDS), announced by the Narendra Modi government, set a timeline on sorting out some vital issues that are 'holding back' integration and jointness of forces.

Already the DMA is looking to have a common training command and a war doctrine. This would have common doctrine and cross-postings of middle-level officers and common logistics is being worked out for all command platforms.

https://www.tribuneindia.com/news/nation/rajnath-okays-sharing-of-resources-by-armed-forces-74168

THE NEW INDIAN EXPRESS

Wed, 22 April 2020

Fighting COVID-19: Army readying teams for Bangladesh, Bhutan, Sri Lanka, Afghanistan

A 14-member Indian Army team was sent to Maldives last month to help the island nation set up coronavirus testing laboratories and train local medical professionals to fight the pandemic

New Delhi: The Indian Army is readying separate teams to be deployed in Sri Lanka, Bangladesh, Bhutan and Afghanistan to help those countries boost capabilities to deal with rising cases of coronavirus, official sources said on Tuesday.

A 14-member Indian Army team was sent to Maldives last month to help the island nation set up coronavirus testing laboratories and train local medical professionals to fight the pandemic.

Earlier this month, India dispatched a 15-member team of Army to Kuwait as part of bilateral cooperation between the two countries.

The sources said the teams for Sri Lanka, Bangladesh, Bhutan and Afghanistan are being readied as part of India's policy of extending helping hand to all friendly countries in the region to fight the pandemic.

India has also been playing a key role in pushing for a common framework in fighting the pandemic in the SAARC region.

At a video conference on March 15, Prime Minister Narendra Modi pitched for formulating a joint strategy to fight COVID-19 in the SAARC region and proposed an emergency fund with an initial offer of USD 10 million from India.

It is understood that India has already made the contribution.

The South Asian Association for Regional Cooperation (SAARC) is a grouping comprising Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.

All the SAARC member nations are reeling under adverse social and economic impact of the coronavirus pandemic.

As part of its policy to help friendly countries to deal with the pandemic, India is also supplying anti-malarial drug hydroxychloroquine to 55 countries.

A number of countries including the US, Mauritius and Seychelles have already received the drug.

Hydroxychloroquine has been identified by the US Food and Drug Administration as a possible treatment for COVID-19 and it is being tested on more than 1,500 coronavirus patients in New York.

The demand for the drug has swelled rapidly after India decided to lift a ban on its export.

In the neighbourhood, India is sending the drug to Afghanistan, Bhutan, Bangladesh Nepal, Maldives, Mauritius, Sri Lanka and Myanmar, sources said.

https://www.newindianexpress.com/nation/2020/apr/21/fighting-covid-19-army-readying-teams-for-bangladesh-bhutan-sri-lanka-afghanistan-2133393.html

ThePrint

Wed, 22 April 2020

Indian Army to send teams to Sri Lanka, Bangladesh, Bhutan & Afghanistan to fight Covid-19

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https://theprint.in/defence/indian-army-to-send-teams-to-sri-lanka-bangladesh-bhutan-afghanistan-to-fight-covid-19/406226/

Live हिन्दुस्तान .com

Wed, 22 April 2020

कोरोना से निपटने में भारतीय सेना करेगी बांग्लादेश, भूटान, श्रीलंका और अफगानिस्तान की मदद

नई दिल्ली: श्रीलंका, बांग्लादेश, भूटान और अफगानिस्तान को कोरोना वायरस संक्रमण के बढ़ते मामलों से निपटने में सहायता करने के लिए भारतीय सेना अलग-अलग दल बनाकर इन देशों में भेजने की तैयारी कर रही है। आधिकारिक सूत्रों ने मंगलवार (21 अप्रैल) को यह जानकारी दी। पिछले महीने भारतीय सेना के 14 सदस्यीय एक दल को मालदीव में कोरोना वायरस जांच प्रयोगशालाएं स्थापित करने और स्थानीय स्वास्थ्य कर्मियों को प्रशिक्षित करने के लिए भेजा गया था। इस महीने की शुरुआत में भारत ने सेना के 15 सदस्यीय एक दल को द्विपक्षीय सहयोग के तहत कुवैत भेजा था।

सूत्रों ने बताया कि मित्र देशों में महामारी से लड़ने के लिए सहायता प्रदान करने की नीति के तहत श्रीलंका, बांग्लादेश, भूटान और अफगानिस्तान भेजे जाने के लिए दलों को तैयार किया जा रहा है। दक्षेस क्षेत्र में महामारी से लड़ने के लिए साझा कार्यक्रम बनाने के वास्ते भारत मुख्य भूमिका निभा रहा है।

वर्तमान में दक्षेस के सभी सदस्य देश कोविड-19 महामारी का सामाजिक और आर्थिक दंश झेलने पर मजबूर हैं। संकट के समय मित्र देशों की सहायता करने की नीति के तहत भारत ने अमेरिका, मॉरिशस और सेशेल्स समेत 55 देशों को हाइड्रोक्सीक्लोरोक्वीन दवा की आपूर्ति की है। सूत्रों ने बताया कि भारत ने पड़ोसी देशों अफगानिस्तान, भूटान, बांग्लादेश, नेपाल, मालदीव, मॉरिशस, श्रीलंका और म्यांमार को भी दवाएं भेजी हैं।

https://www.livehindustan.com/national/story-coronavirus-indian-army-readying-teams-for-bangladesh-bhutan-sri-lanka-afghanistan-3166600.html

DEFENCE AVIATION POST
Your Connect To The World Of Defence And Aviation

Wed, 22 April 2020

Indian Air Force choppers airlift essential commodities and medical equipment to remote Arunachal Pradesh area

Indian Air Force (IAF) choppers are airlifting essential commodities and medical equipment to a remote Arunachal Pradesh area without road connectivity.

Vijoynagar, a remote circle in Changlang district without road connectivity is strategically located along the India-China-Myanmar tri-junction. It comprises of 16 villages and has a population of 4,438. The nearest town is Miao which is 157 km away and takes about six-days to reach by foot.

IAF choppers are airlifting essential commodities and medical equipment to Vijoynagar circle, Arunachal Pradesh Civil Supplies and Consumer Affairs minister Kamlung Mossang said on Monday.

"With Chief Minister Pema Khandu approving sorties by helicopters of Skyone and IAF to airlift rice given by the Centre under National Food Security Act, five kg free rice have been provided to each ration card holder besides other essential commodities, including medical equipment from Miao to Vijoynagar," Mossang told PTI over the telephone from Miao.

Mossang, who represents the Miao constituency, said he is trying to ensure that none starves in his assembly constituency during the ongoing nationwide lockdown.

"As air sorties are subject to weather clearance, five have materialised so far and rest will be undertaken when weather condition improves," the minister said.

Of the IAF sorties approved, four have been materialised till date in airlifting essentials under Central Purchase Organisation (CPO) system from March 29 to April 8.

https://www.defenceaviationpost.com/2020/04/indian-air-force-choppers-airlift-essential-commodities-and-medical-equipment-to-remote-arunachal-pradesh-area/

DEFENCE AVIATION POST
Your Connect To The World Of Defence And Aviation

Wed, 22 April 2020

Coronavirus in India: Air Force backs nation's efforts in fight against Covid-19

As India makes all possible efforts to contain and defeat the deadly novel coronavirus, the Indian Air Force (IAF) has stepped up with their efforts to meet all emerging needs.

In an effort to help the nation contain the spread of the Covid-19, the IAF has mobilised its transport and rotary wing aircraft along with support infrastructure to create and maintain 'air-bridges' between nodal supply bases and recipient locations across the country.

According to a note by the Ministry of Defence, issued by the PIB on April 20, the IAF has undertaken transportation of medical supplies including PPE, testing kits, sanitization material and other equipment along with the movement of medical personnel.

The medical supplies are being transported to equip state governments and supporting agencies to combat the contagion effectively, the IAF said. The IAF has already airlifted material to locations in 16 states and Union Territories of J&K, Ladakh and Puducherry.

Besides, the IAF continues to fulfil the critical requirement of transporting swab samples for testing from Ladakh. In addition, IAF has also airlifted Covid-19 support material for various agencies, including DRDO and ICMR.

Till date, IAF has transported approximately 450 tonnes of medical equipment and support material.

Earlier this month, IAF airlifted essential medical supplies and commodities from nodal points to Guwahati, Dibrugarh and Mohanbari in the north eastern region; Prayagraj, Gorakhpur, Bareilly and Agra in the central region; and the Union Territories of J&K and Ladakh.

On April 2, the IAF had airlifted critical medical supplies to Male, Maldives as 'Operation Sanjeevani'. Maldives was facing shortage of essential medical supplies as its connectivity with India, its main source of medical supplies, was broken after the Covid-19 lockdown.

https://www.defenceaviationpost.com/2020/04/coronavirus-in-india-air-force-backs-nations-efforts-in-fight-against-covid-19/

Wed, 22 April 2020

Coronavirus | Rise in number of positive cases among INS Angre personnel expected

'Containment zones and buffer areas have been designated'

Mumbai: Naval authorities in Mumbai feel that the number of SARS-CoV-2 coronavirus positive cases among sailors is only going to increase as the test results of several Indian Navy personnel at INS Angre is expected any time.

INS Angre is the shore-based logistics and administrative support establishment of the Western Naval Command. Located at Kala Ghoda in south Mumbai, it is the base depot ship for the Command.

Officials said that after a thorough scrutiny, authorities have identified the source of the virus' spread. The source of the congagion is now known to be a 55-year-old ex-serviceman living in Navy Nagar.

"The ex-serviceman, who tested positive in early April, had come into contact with a foreign-returned civilian in March. One sailor at INS Angre had met this ex-serviceman. He tested positive on April 7. From him, the virus spread to 26 other sailors," the official said.

Given that the sailors live in barracks and consume food at a mess, the number of cases is expected to rise. Many sailors have been tested and the results are awaited.

There has so far not been a single coronavirus positive case on board any ship, submarine or air station of the Indian Navy.

Aggressive Testing

"The detection of the coronavirus cases is a result of meticulous contact tracing and aggressive screening/testing carried out by the Western Naval Command after one sailor tested positive on April 7. All these sailors continue to remain asymptomatic and are being monitored at the naval hospital INHS Asvini, under the care of the best medical professionals," Indian Navy spokesperson Commander Mehul Karnik said.

Since the sailor tested positive, the entire unit has been sealed off. The INS Angre now has a skeletal crew.

https://www.defenceaviationpost.com/2020/04/coronavirus-rise-in-number-of-positive-cases-among-ins-angre-personnel-expected/

DEFENCE AVIATION POST
Your Connect To The World Of Defence And Aviation

Wed, 22 April 2020

Indian Navy cautious amidst growing tension between US-Iran, confidence given to maritime security

Amid growing tension between the US and Iran, the Indian Navy has said that it is maintaining its presence in the Indian waters.

New Delhi: Amid growing tension between the US and Iran, the Indian Navy has said that it is maintaining its presence in the Indian waters. Earlier this year, India launched Operation

Resolution to ensure its maritime security. In a statement, the Navy said that the operation is carrying forward the close coordination with the inter-ministerial meetings between the Ministry of Defense, Ministry of External Affairs, Ministry of Shipping, Petroleum and Ministry of Natural Gas and Shipping.

The Indian Navy took this initiative after the attacks on merchant ships in the Gulf of Oman. For the protection of the maritime sector Operation resolution Was launched in the Bay Area on 19 June last year. Under this, the Navy deployed warships and aircraft to respond to any emergency crisis. Let us tell you that the decades-old dispute between the US and Iran has rekindled. In Iraq, the US killed top Iranian commander Qasim Sulemani through an air strike.

https://www.defenceaviationpost.com/2020/04/indian-navy-cautious-amidst-growing-tension-between-us-iran-confidence-given-to-maritime-security/

DEFENCE AVIATION POST
Your Connect To The World Of Defence And Aviation

Tue, 21 April 2020

Coronavirus: Indian Navy's Southern Command develops UV unit to contain COVID-19

Inspired by a concept paper published by Indian Institute of Technology Bombay, the Southern Naval Command (SNC) has designed and fabricated an Ultra Violet Disinfection Unit, at Kochi, as part of its efforts to contain the spread of COVID-19.

The unit built at a cost of Rs 5,000, comprises a metallic container, two UV lamps one each on the opposite side, with aluminium foil pasted on its internal surfaces to facilitate UV radiation to reach every corner of the chamber.

The efficacy of the equipment has been validated by a team of medical experts from SNC, a press statement said.

The portable unit, produced by Naval Ship Repair Yard (NSRY), Kochi is considered ideal for disinfecting small objects like currency notes, all kinds of cards, wallets, diary, pens, mobile phones, keys, uniform accessories (e.g beret) and surgical instruments. It is best suited for disinfecting items on which sanitising gels and liquids cannot be applied.

The fabrication of the disinfectant unit is relevant due to the surface transmission aspects of the spread of COVID-19 in society.

https://www.defenceaviationpost.com/2020/04/coronavirus-indian-navys-southern-command-develops-uv-unit-to-contain-covid-19/

DEFENCE AVIATION POST
Your Connect To The World Of Defence And Aviation

Tue, 21 April 2020

Maritime Security in the age of the pandemic: The Naval Dimension

The recent incident of the COVID-19 outbreak on the USS Theodore Roosevelt, the 100,000 tonne US aircraft carrier which led to the removal of its Commanding officer and its repercussions which led to the subsequent resignation of the Acting Navy Secretary Thomas Modly brought to the fore two glaring revelations – firstly, it showed how political grandstanding can be detrimental

to national security considerations and secondly, in an operational context, the serious implications that the COVID-19 pandemic can have on navies and as a consequence, on maritime security.

The political fallout aside, the breakout of the pandemic on board the Theodore Roosevelt has led to the ship being docked in Guam while the Navy deals with the rapidly spreading pandemic amongst its crew. It is suspected that three crew members contracted the infection while the ship was visiting Danang in Vietnam from 4th to 9th April where the crew went ashore. It was on 24 March that three sailors were evacuated by which time the cases had started multiplying. By 27th March when the ship berthed in Guam, many more crew members had tested positive.

Within a week thereafter, more than 600 of the 5000 crew members have been tested positive and one fatality has also occurred. The Roosevelt is not the only ship affected by the pandemic. Unconfirmed media reports indicate some other US Naval ships may also have coronavirus cases on board. Hopefully, the lessons learnt from the poor handling of the Roosevelt case may prevent the virus from spreading widely on board other ships and submarines all over the world. One of the measures being taken by navies is to keep the ships at sea.

This may be possible for large blue water navies with adequate sustenance capability and logistic support but that too cannot be indefinite because it affects other aspects like crew morale, fatigue and lowered operational efficiency. Smaller navies will be even more challenged in preventing the ingress of the Coronavirus into their midst.

https://www.defenceaviationpost.com/2020/04/maritime-security-in-the-age-of-the-pandemic-the-naval-dimension/

Wed, 22 April 2020

कोरोना के खिलाफ लड़ाई में आगे आया CRPF, AIIMS को एक लाख सर्जिकल मास्क दान में दिए

अखिल भारतीय आयुर्विज्ञान संस्थान (एम्स) के चिकित्सा अधीक्षक डी. के. शर्मा ने केंद्रीय रिजर्व पुलिस बल को धन्यवाद देते हुए कहा, ‘‘तीन स्तरीय सर्जिकल फेस मास्क अग्रिम मोर्चा के स्वास्थ्य कर्मियों के जीवन की रक्षा में महत्वपूर्ण भूमिका निभाएंगे जो कोविड-19 महामारी के खिलाफ लड़ाई में हमारे महत्वपूर्ण संसाधन हैं।’’

नयी दिल्ली: केंद्रीय रिजर्व पुलिस बल (सीआरपीएफ) ने मंगलवार को एम्स के कर्मचारियों के उपयोग के लिए एक लाख सर्जिकल मास्क सौंपे। अधिकारियों ने कहा कि तीन स्तरीय मास्क को राष्ट्रीय राजधानी में सीआरपीएफ के एक केंद्र में अर्द्धसैनिक बल के परिवार कल्याण संगठन द्वारा तैयार किया गया है। देश के सबसे बड़े अर्द्धसैनिक बल ने देश भर में न केवल अपनी इकाइयों बल्कि दूसरे संगठनों में आपूर्ति के लिए मास्क बनाने वाला स्वचालित मशीन लगाया था।

अखिल भारतीय आयुर्विज्ञान संस्थान (एम्स) के चिकित्सा अधीक्षक डी. के. शर्मा ने बल को धन्यवाद देते हुए कहा, ‘‘तीन स्तरीय सर्जिकल फेस मास्क अग्रिम मोर्चा के स्वास्थ्य कर्मियों के जीवन की रक्षा में महत्वपूर्ण भूमिका निभाएंगे जो कोविड-19 महामारी के खिलाफ लड़ाई में हमारे महत्वपूर्ण संसाधन हैं।’’ बल ने अपने ट्विटर हैंडल पर कहा कि यह प्रतिष्ठित चिकित्सा संस्थान के प्रति हमारा योगदान है। एक वरिष्ठ अधिकारी ने कहा कि एम्स को नि:शुल्क मास्क दिए गए हैं।

https://www.prabhasakshi.com/national/crpf-donates-one-lakh-surgical-masks-to-aiims-against-corona

hindustantimes

Wed, 22 April 2020

Covid-19: CISF to go for contactless frisking of passengers at airports, Delhi metro

The SOPs will also include use of the Aarogya Setu app to identify Covid-19 patients passing through security gates, officials familiar with developments said

By Neeraj Chauhan

New Delhi: The Central Industrial Security Force (CISF) is preparing new standard operating procedures (SOPs) for operations at airports and the Delhi Metro after the lockdown that are expected to include contactless frisking and fewer passengers in each coach.

The SOPs will also include use of the Aarogya Setu app to identify Covid-19 patients passing through security gates, officials familiar with developments said.

For CISF personnel, who come in direct contact with hundreds of thousands of travellers every day at metro stations and airports, the force has plans for them to sanitise their hands after every two or three travellers. Personal protective equipment (PPE) will be provided to all personnel and X-ray machines and other equipment will be regularly sanitised, the officials said.

CISF director general Rajesh Ranjan told HT: "Essentially, we want to make sure our men and commuters are protected from Covid-19 to the best possible extent without compromising on safety. We are looking at changing the process for access to airports and metro stations.

"The SOPs are in the final stages and will be sent to the civil aviation ministry and Delhi Metro Rail Corporation (DMRC) soon."

Ranjan added, "We are exploring the use of contactless frisking as much as we can. However, it will not be possible to make it fully contactless and pat-down searches will depend on person to person."

Business outlets within metro stations, such as food stalls, will have additional access control for their personnel while CISF personnel will be informed about safety measures they have to follow, both while on duty and after going back to their barracks.

An interesting aspect of CISF's new SOP for the Delhi Metro is the reduction of passengers in each coach by at least half so that distancing norms are followed. Each coach usually has about 50 to 60 people during rush hours.

At airports, another official said, the CISF is considering suggesting to the government that passengers be asked to download the Aarogya Setu app before coming to the airport for a colour-coded risk analysis for identifying Covid-19 patients. All CISF personnel across the country have already downloaded the application.

Passengers will also be asked to sanitise their hands at pre-embarkation security check points and in the security hold area.

The paramilitary force is likely to advise airlines to provide small bottles of hand sanitiser to passengers once they pass the security hold area since CISF doesn't allow liquids to get across at airport security check points.

The SOPs pertaining to queues and distancing, use of PPEs, gloves and masks will also be followed in government facilities where CISF is deployed.

The force is augmenting its stock of face-masks, gloves, alcohol-based sanitisers and PPEs so as to have sufficient numbers available for an initial period of three months.

Apart from this, almost all 349 units of CISF across the country are distributing face-masks, sanitisers, dry soaps, dry rations or cooked meals to the underprivileged in surrounding areas while maintaining proper hygiene and distancing, said CISF spokesperson Hemendra Singh.

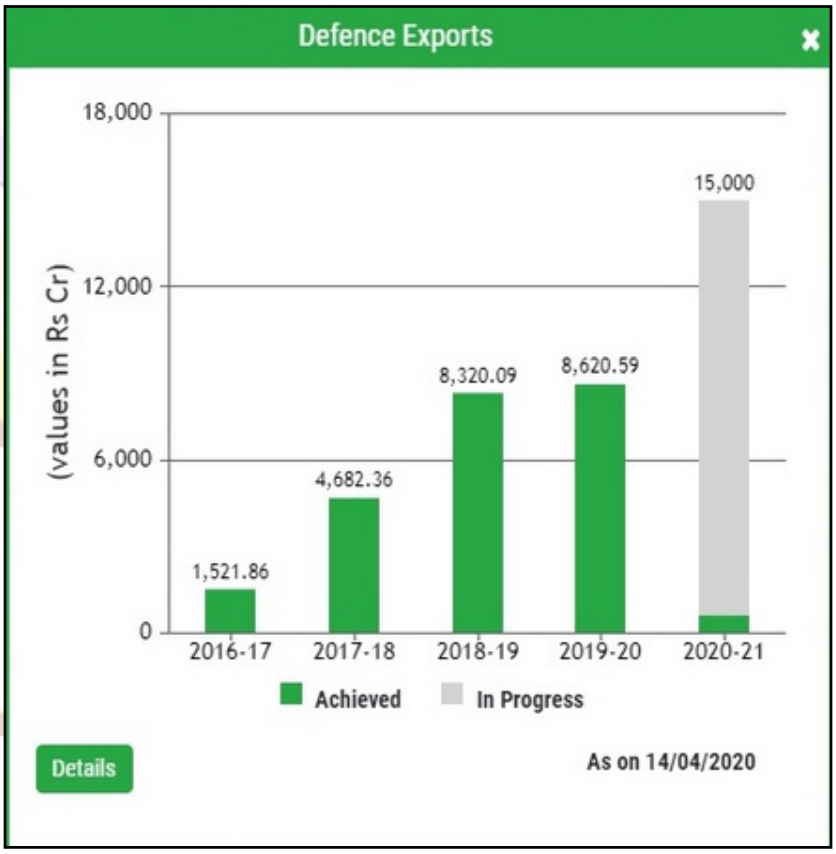
https://www.hindustantimes.com/india-news/covid-19-cisf-preparing-new-sops-for-checks-at-airports-delhi-metro/story-TQ6pOYOKXxcuaWg1L6j6OP.html

DefenceNews

Wed, 22 April 2020

India's defence exports rise over 5 times in last 4 years

From one of the world's biggest importer of defence hardware and equipment, India is slowly emerging as an exporter now and has seen a growth of over five times in its order books in the last four years. According to the Ministry of Defence's Department of Defence Production dashboard, India's export of military equipment increased from Rs 1521.86 in Financial Year 2016-17 to Rs 8,620.59 in the last fiscal 2019-20.



India's defence exports have increased in the last four years has been more than 5-and-half times while the target for FY 2020-21 is Rs 15,000 crore, according to the data updated by the Department of Defence Production on April 14, 2020. The increase in the last few years has been mainly due to Prime Minister Narendra Modi's emphasis on Make in India.

Private sector companies have been the biggest beneficiaries of the export orders as per the data released by the Department of Defence Production. Their exports have increased from just Rs 194.35 in FY 2016-17 to over Rs 8013.65 in fiscal 2019-20. On the other hand export by Defence Public Sector Undertakings (PSUs)/Ordnance Factory Board (OFB) have come down from Rs 1327.51 in FY 2016-17 to just Rs 403.94 in fiscal 2019-20.

In the last two years, several steps have been taken to boost India's defence sector. Minister of State (Defence) Shripad Naik in a written reply to P Bhattacharya in the Rajya Sabha on March 16, 2020, stated that the measures mentioned below have been taken.

Industrial Licensing

Industrial licensing regime for Indian manufacturers in the defence sector has been liberalized. Defence products list requiring industrial licences has been rationalised and manufacture of most of the parts and components does not require Industrial Licence. The total number of defence licences issued has more than doubled from 215 as on March 31, 2014, to 460 till December 31, 2019, covering a total of 275 companies.

Year	Export Authorizations to Private Companies (Rs Crore)	Export by DPSU/OFB* (Rs Cr)	SCOMET** Issued by DGFT# (Rs Cr)	Total Export (Rs Cr)
2016-17	194.35	1327.51	0.00	1521.86
2017-18	3163.16	1519.20	0.00	4682.36
2018-19	7387.23	932.86	0.00	8320.09
2019-20	8013.65	403.94	203.00	8620.59
2020-21	25.11	403.94	203.00	632.05

*Export by Defence Public Sector Undertakings/Ordnance Factory Board
**Export of Special Chemicals, Organisms, Materials, Equipment and Technologies
#Directorate General of Foreign Trade

Foreign Direct Investment (FDI)

FDI Policy has been revised and under the revised policy foreign investment is allowed under automatic route upto 49% and above 49% through government route, wherever it is likely to result in access to modern technology or for other reasons to be recorded. Significant FDI inflows in the defence and aerospace sectors have been witnessed.

Defence Procurement Procedure (DPP)

This was revised in 2016. Specific provisions have been introduced for stimulating the growth of the domestic defence industry. A new category of procurement 'Buy {Indian-IDDM (Indigenously Designed, Developed and Manufactured)}' has been introduced in DPP-2016 to promote indigenous design and development of defence equipment. This category has been accorded topmost priority for procurement of Capital equipment. Besides this, preference is being given to 'Buy (Indian)' and 'Buy & Make (Indian)' categories of capital acquisition over 'Buy (Global)' & 'Buy & Make (Global)' categories. As a result of the aforesaid initiatives, the Government in the last three years i.e. from 2016-17 to 2018-19 and current year till December 2019, has accorded Acceptance of Necessity (AoN) to 138 proposals worth Rs.2,69,465.26 crore approximately, under these categories of Capital Procurement which promote domestic manufacturing as per DPP-2016.

"Make" Procedure

In February 2018 a separate procedure for 'Make-II' sub-category has been notified wherein a number of industry-friendly provisions have been introduced. This effort of the Government to promote industry participation in indigenous development of defence items has yielded an extremely encouraging response. Make-II Procedure for implementation at OFB/DPSUs has also been notified in February 2019. Government has notified the 'Strategic Partnership (SP)' Model which envisages the establishment of long-term strategic partnerships with Indian entities through a transparent and competitive process, wherein they would tie-up with global Original Equipment Manufacturers (OEMs) to seek technology transfers to set up domestic manufacturing infrastructure and supply chains.

iDEX

Innovations for Defence Excellence (iDEX) framework, was launched with the aim to achieve self-reliance and to foster innovation and technology development in Defence and Aerospace Sector by engaging Industries including MSMEs, startups, individual innovators, R&D institutes and academia. Indigenisation policy: Government has notified a Policy for indigenisation of components and spares used in Defence Platforms in March, 2019 with the objective to create an

industry ecosystem which is able to indigenize the imported components (including alloys & special materials) and sub-assemblies for defence equipment and platforms manufactured in India.

Defence Corridors

Government has decided to establish two defence industrial corridors to serve as engines of economic development and growth of defence industrial base in the country. They span across Chennai, Hosur, Coimbatore, Salem and Tiruchirappalli in Tamil Nadu and Aligarh, Agra, Jhansi, Kanpur, Chitrakoot and Luchnow in Uttar Pradesh. Department of Defence Production has notified 127 items under Public Procurement Order 2017 notified by Department for Promotion of Industry and Internal Trade (DPIIT). The Defence PSUs and OFB are thereby required to give preference to domestic manufacturers while procuring these items in accordance with the said policy.

Testing facilities

The Test facilities/infrastructure available with various Government agencies (OFB, DPSUs, DRDO, DGQA, DGAQA & SHQs) have been made available to private sector with the objective to assist them in design and development of defence systems. The details of test facilities, procedure and other Terms and Conditions are available on websites of respective Government Agencies. An 'SoP for allocation and utilization of Proof Ranges/Field Firing Ranges for Private Industry' has also been notified.

Defence Ministry has instituted a new framework titled 'Mission Raksha Gyan Shakti' which aims to provide boost to the IPR culture in indigenous defence industry. Defence Investor Cell has been created in the ministry to provide all necessary information including addressing queries related to investment opportunities, procedures and regulatory requirements for investment in the sector. The process for export clearance has been streamlined and made transparent & online. Offset guidelines have been made flexible by allowing change of Indian Offset Partners (IOPs) and offset components, even in signed contracts.

During the last two years, the government has signed Agreements on Defence Cooperation with Argentina, Russia, Serbia, Myanmar, Indonesia, Comoros, Jordan, Madagascar, Uganda, Zambia, Saudi Arabia and Finland.

https://www.defencenews.in/article/India%e2%80%99s-defence-exports-rise-over-5-times-in-last-4-years-830264

DEFENCE AVIATION POST
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Tue, 21 April 2020

Over 40% of defence MSMEs face closure within 3 months

The coronavirus crisis-led lockdown could wipe out about 40% of the defence sector's micro, small and medium enterprises within three months unless a support package is put in place by the government, an Ernst & Young study shows. The study, which involved discussions with Indian defence industry representatives, says that a complete revival of all MSMEs is expected to take a year and the cost of products could go up marginally when production is resumed.

ET has a copy of the report which accountancy firm Ernst & Young shared with industry representatives. "It is anticipated that due to complete halt of all activities, the problems of cash flow, raw material prices and logistics problems will arise after lockdown is over," the study by Ernst & Young, India, says. "It appears that complete revival of any MSME shall require at least 6-12 months." There is concern that input cost for defence equipment may rise and suppliers of raw materials have already started reaching out due to a 'low supply, high demand situation' as imports have been hit by the lockdown as well.

The study says there's concern among manufacturers that defence modernisation may be impacted after the lockdown is lifted as budgets are stretched, and adds that there should be no reduction in capital procurement, even if training activities have to be tapered in the coming months. According to the study, the industry wants the government – which is the sole buyer of defence products to be proactive in the coming months by placing orders that are already in the pipeline and making necessary payments on time.

"As far as the issue of financial resources for procurement from industry is concerned, it is important to realise a way so that military modernisation doesn't not take a hit. Capital defence budget consists not only of modernisation, but also land, construction work, etc. The 20% cap should be enforced on the budget outlay for such segments without hampering military modernisation," the report says, alluding to the spending curbs announced by the government earlier in the month.

https://www.defenceaviationpost.com/2020/04/over-40-of-defence-msmes-face-closure-within-3-months/

hindustantimes

Wed, 22 April 2020

India must turn focus inward for military needs in post-Covid world: Top officials

By Rahul Singh

India must turn focus inward for its military needs in the post-Covid world and make every effort to cut dependence on imported military hardware that could not only become cost prohibitive but also hard to come by in the coming years, three senior military officers said on Tuesday on condition of anonymity.

The armed forces will have to get rid of their traditional appetite for imported weapons and equipment, and work in harness with the domestic industry to guarantee self-reliance in defence, said the officers with direct knowledge of the military's modernisation goals.

Despite pursuing the Make in India programme vigorously to reduce military imports, the country was the second-largest arms importer in the world over the last five years, according to data published by the Stockholm International Peace Research Institute last month.

"Indigenisation with Make in India as the dictum can no longer be a mere slogan. If the coronavirus crisis has energised us to produce ventilators, personal protective equipment and other gear for our healthcare workers in a matter of weeks, the focus in the coming times should be on fuelling a new wave of innovation in the defence sector," said the first officer cited above.

Imports account for 60-65% of the country's military requirements and it has signed contracts worth billions of dollars during the last decade for a raft of weapons and systems including fighter jets, air defence missile systems, submarine hunter planes, attack helicopters, heavy-lift choppers and lightweight howitzers.

"This is the time for us to look inward. The local industry is willing to support indigenisation, although it may not be able produce the best weapons and equipment. But if given the opportunity, it will reach global standards over time. It requires the full support of the armed forces. The temptation to import hardware will have to be resisted," said the second officer cited above.

From warships, fighter jets to air defence systems and helicopters, modern artillery gun systems to ammunition, the domestic industry has demonstrated that it has potential to contribute to building a stronger military, the second officer pointed out.

One of the key responsibilities assigned by the government to the department of military affairs, headed by chief of defence staff General Bipin Rawat, is to promote the use of indigenous military equipment in the armed forces.

"After the 2016 Uri strike, the armed forces scrambled to fill worrying gaps in their arsenal, including ammunition. We can't allow this to happen. Encouraging the domestic industry will help us get more bang for the buck and ensure we are not in dire straits in times of conflict," said the third officer cited above.

He added a robust indigenous defence industry would allow the armed forces to cut costs by holding lesser stocks of weapons and ammunition because production and supplies could be ramped up when required.

"Storage in itself is cost prohibitive because high-grade weapons and ammunition require special storage conditions, including air conditioning. Round-the-clock security of large ammunition and weapon storage depots also adds to the cost," he stressed.

The draft Defence Production Policy-2018 visualises India as one of the top five countries in the aerospace and defence sectors in the coming years, with defence goods and services accounting for a turnover of ₹1.7 lakh crore by 2025. It also seeks to drastically reduce India's dependence on imported military hardware over the next five years.

https://www.hindustantimes.com/india-news/india-must-turn-focus-inward-for-military-needs-in-post-covid-world-top-officials/story-b2NWg20gmn7MSShReQ0V1H.html

DEFENCE AVIATION POST
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Wed, 22 April 2020

China reportedly begin delivery of modern VT4 main battle tanks to Pakistan

Inner Mongolia First Machinery Group Co.,Ltd., subsidiary of China North Industries Group Corporation (NORINCO), reportedly begins delivering new VT4 main battle tanks to Pakistan.

In mid-April 2020, at the Chinese tank factory located in Baotou in the province of Inner Mongolia, was held the ceremony of shipment of the first batch of VT4 main battle tanks equipped with explosive reactive armour (ERA) (Option FY-IV) for a foreign customer.

Chinese media reported that Pakistan is a foreign customer for these tanks that were produced after the country begin emerges from the coronavirus crisis.

In 2019, the Pakistan Army Armoured Corps has selected the Chinese VT4 tank – produced by Norinco – to meet requirements for procuring hundreds of new main battle tanks.

A military analyst, Muzammil Hatami announced the selection of the Norinco VT4 for increasing of Pakistani armoured vehicle fleet.

"VT4 has confirmed for future Pakistan army tank and Alkhalid II main battle tank is in developing phase," – said Muzammil Hatami during 10th International IDEAS defense exhibition in Karachi, Pakistan.

The VT4 is a third-generation MBT offered for export by Norinco. It is an improvement over the Al-Khalid MBT (also known as MBT-2000), which is currently in service with Pakistan Army, although it retains the 125 mm main gun, carousel auto-loader, and crew configuration of the older vehicle.

Despite the fact that the future tank's tender details kept at a secret, it was reported that Pakistan might procure around 100 MBTs in order to meet the deficiency of MBT production in the country.

Last week also it was reported that the Nigerian Army has taken delivery of a shipment of military vehicles from the China North Industries Corporation (NORINCO).

https://www.defenceaviationpost.com/2020/04/china-reportedly-begin-delivery-of-modern-vt4-main-battle-tanks-to-pakistan/

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Wed, 22 April 2020

Russia's MiG manufacturer says MiG-35 Fighter Jets face tight competition in Indian tender

Russian-made MiG-35 light fighter jets are competing in the Indian Air Force tender for the purchase of 110 aircraft of this class with virtually all of the world's industry leaders, Anton Chernov, the regional director of the MiG Aircraft Corporation, said on Tuesday

By Sumaira FH

Moscow: Russian-made MiG-35 light fighter jets are competing in the Indian Air Force tender for the purchase of 110 aircraft of this class with virtually all of the world's industry leaders, Anton Chernov, the regional director of the MiG Aircraft Corporation, said on Tuesday.

"The competition is very tight," Chernov said in a video, broadcast on the company's social media accounts, adding that MiG has already responded to India's request for necessary information and has good chances to participate in the tender.

According to him, the competition is among all global industry leaders, such as SAAB with its Gripen E aircraft, Boeing with its FA-18, Dassault with its Rafal, Eurofighter with its Typhoon, and Lockheed Martin with its F-16 aircraft, which was relabeled into F-21 specifically for the Indian market.

"The American [manufacturers] are very decisive and have declared their readiness to completely transfer the production line [to India]. There are twin-engine aircraft as well," Chernov said.

According to the Russian manufacturer, MiG's competitive advantage is its reputation, particularly the "projects already implemented within the 'Make in India' initiative and their already established infrastructure." Make in India is the Indian government's initiative aimed at transforming the country into a global manufacturing hub by encouraging manufacturers to move production to India.

The Indian Air Force tender requires that production be localized and the bidder have a strategic partner in India to act as a work integrator, Chernov said.

According to MiG, its fighters would cost New Delhi 20 percent cheaper than foreign competitors.

MiG-35 is the newest in the MiG family of fighter jets. The fifth-generation avionics combined with advanced high-precision weapons enable it to beat four and fifth generation fighters and intercept attacks in any weather conditions, including as part of group attacks. The fighter jet is capable of air reconnaissance using optical-electronic and radio-technical equipment.

https://www.urdupoint.com/en/world/russias-mig-manufacturer-says-mig-35-fighter-899621.html

ScienceDaily

Wed, 22 April 2020

New scavenger technology allows robots to 'eat' metal for energy

When electronics need their own power sources, there are two basic options: batteries and harvesters. Batteries store energy internally, but are therefore heavy and have a limited supply. Harvesters, such as solar panels, collect energy from their environments. This gets around some of the downsides of batteries but introduces new ones, in that they can only operate in certain conditions and can't turn that energy into useful power very quickly.

New research from the University of Pennsylvania's School of Engineering and Applied Science is bridging the gap between these two fundamental technologies for the first time in the form of a "metal-air scavenger" that gets the best of both worlds.

This metal-air scavenger works like a battery, in that it provides power by repeatedly breaking and forming a series of chemical bonds. But it also works like a harvester, in that power is supplied by energy in its environment: specifically, the chemical bonds in metal and air surrounding the metal-air scavenger.

The result is a power source that has 10 times more power density than the best energy harvesters and 13 times more energy density than lithium-ion batteries.

In the long term, this type of energy source could be the basis for a new paradigm in robotics, where machines keep themselves powered by seeking out and "eating" metal, breaking down its chemical bonds for energy like humans do with food.

In the near term, this technology is already powering a pair of spin-off companies. The winners of Penn's annual Y-Prize Competition are planning to use metal-air scavengers to power low-cost lights for off-grid homes in the developing world and long-lasting sensors for shipping containers that could alert to theft, damage or even human trafficking.

The researchers, James Pikul, assistant professor in the Department of Mechanical Engineering and Applied Mechanics, along with Min Wang and Unnati Joshi, members of his lab, published a study demonstrating their scavenger's capabilities in the journal *ACS Energy Letters*.

The motivation for developing their metal-air scavenger, or MAS, stemmed from the fact that the technologies that make up robots' brains and the technologies that power them are fundamentally mismatched when it comes to miniaturization.

As the size of individual transistors shrink, chips provide more computing power in smaller and lighter packages. But batteries don't benefit the same way when getting smaller; the density of chemical bonds in a material are fixed, so smaller batteries necessarily mean fewer bonds to break.

"This inverted relationship between computing performance and energy storage makes it very difficult for small-scale devices and robots to operate for long periods of time," Pikul says. "There are robots the size of insects, but they can only operate for a minute before their battery runs out of energy."

Worse still, adding a bigger battery won't allow a robot to last longer; the added mass takes more energy to move, negating the extra energy provided by the bigger battery. The only way to break this frustrating inverted relationship is to forage for chemical bonds, rather than to pack them along.

"Harvesters, like those that collect solar, thermal or vibrational energy, are getting better," Pikul says. "They're often used to power sensors and electronics that are off the grid and where you might not have anyone around to swap out batteries. The problem is that they have low power density, meaning they can't take energy out of the environment as fast as a battery can deliver it."

"Our MAS has a power density that's ten times better than the best harvesters, to the point that we can compete against batteries," he says, "It's using battery chemistry, but doesn't have the associated weight, because it's taking those chemicals from the environment."

Like a traditional battery, the researchers' MAS starts with a cathode that's wired to the device it's powering. Underneath the cathode is a slab of hydrogel, a spongy network of polymer chains that conducts electrons between the metal surface and the cathode via the water molecules it carries. With the hydrogel acting as an electrolyte, any metal surface it touches functions as the anode of a battery, allowing electrons to flow to the cathode and power the connected device.

For the purposes of their study, the researchers connected a small motorized vehicle to the MAS. Dragging the hydrogel behind it, the MAS vehicle oxidized metallic surfaces it traveled over, leaving a microscopic layer of rust in its wake.

To demonstrate the efficiency of this approach, the researchers had their MAS vehicle drive in circles on an aluminum surface. The vehicle was outfitted with a small reservoir that continuously wicked water into the hydrogel to prevent it from drying out.

"Energy density is the ratio of available energy to the weight that has to be carried," Pikul says. "Even factoring in the weight of the extra water, the MAS had 13 times the energy density of a lithium ion battery because the vehicle only has to carry the hydrogel and cathode, and not the metal or oxygen which provide the energy."

The researchers also tested the MAS vehicles on zinc and stainless steel. Different metals give the MAS different energy densities, depending on their potential for oxidation.

This oxidation reaction takes place only within 100 microns of the surface, so while the MAS may use up all the readily available bonds with repeated trips, there's little risk of it doing significant structural damage to the metal it's scavenging.

With so many possible uses, the researchers' MAS system was a natural fit for Penn's annual Y-Prize, a business plan competition that challenges teams to build companies around nascent technologies developed at Penn Engineering. This year's first-place team, Metal Light, earned $10,000 for their proposal to use MAS technology in low-cost lighting for off-grid homes in the developing world. M-Squared, which earned $4,000 in second place, intends to use MAS-powered sensors in shipping containers.

"In the near term, we see our MAS powering internet-of-things technologies, like what Metal Light and M-Squared propose," Pikul says. "But what was really compelling to us, and the motivation behind this work, is how it changes the way we think about designing robots."

Much of Pikul's other research involves improving technology by taking cues from the natural world. For example, his lab's high-strength, low-density "metallic wood" was inspired by the cellular structure of trees, and his work on a robotic lionfish involved giving it a liquid battery circulatory system that also pneumatically actuated its fins. The researchers see their MAS as drawing on an even more fundamental biological concept: food.

"As we get robots that are more intelligent and more capable, we no longer have to restrict ourselves to plugging them into a wall. They can now find energy sources for themselves, just like humans do," Pikul says. "One day, a robot that needs to recharge its batteries will just need to find some aluminum to 'eat' with a MAS, which would give it enough power to for it work until its next meal."

This work was supported by the Office of Naval Research, grant N00014-19-1-2353. It was carried out in part at the Singh Center for Nanotechnology, which is supported by the NSF National Nanotechnology Coordinated Infrastructure Program under grant NNCI-1542153.

https://www.sciencedaily.com/releases/2020/04/200421134420.htm

ScienceDaily

Wed, 22 April 2020

Diamonds shine in energy storage solution

QUT researchers have proposed the design of a new carbon nanostructure made from diamond nanothreads that could one day be used for mechanical energy storage, wearable technologies, and biomedical applications.

Dr Haifei Zhan, from the QUT Centre for Materials Science, and his colleagues successfully modelled the mechanical energy storage and release capabilities of a diamond nanothread (DNT) bundle -- a collection of ultrathin one-dimensional carbon threads that store energy when twisted or stretched.

"Similar to a compressed coil or children's wind-up toy, energy can be released as the twisted bundle unravels," Dr Zhan said.

"If you can make a system to control the power supplied by the nanothread bundle it would be a safer and more stable energy storage solution for many applications."

The new carbon structure could be a potential micro-scale power supply for anything from implanted biomedical sensing systems monitoring heart and brain functions, to small robotics and electronics.

"Unlike chemical storage such as lithium ion batteries, which use electro-chemical reactions to store and release energy, a mechanical energy system itself would carry much lower risk by comparison," Dr Zhan said.

"At high temperatures chemical storage systems can explode or can become non-responsive at low temperatures. These can also leak upon failure, causing chemical pollution.

"Mechanical energy storage systems don't have these risks so make them more suited to potential applications within the human body.

"Carbon nanothread bundles could be made into twist-spun yarn-based artificial muscles that respond to electrical, chemical or photonic excitations.

"Previous research has shown such a structure made with carbon nanotubes could lift 50,000 times its own weight."

Dr Zhan's team found the nanothread bundle's energy density -- how much energy it could store for its mass -- was 1.76 MJ per kilogram, which was 4-5 orders higher than a conventional steel spring, and up to 3 times compared to Li-ion batteries.

"Energy dense materials are very important to many applications, which is why we are always looking for lightweight materials that still perform well.

"The benefits for aerospace applications are obvious. If we can reduce the weight of a system, we can significantly reduce its fuel requirements and costs."

The application of carbon nanothread bundles as an energy source could be endless, according to Dr Zhan.

"The nanothread bundles could be used in next-generation power transmission lines, aerospace electronics, and field emission, batteries, intelligent textiles and structural composites such as building materials.

Research findings were published by *Nature Communications* in the paper: 'Ultra-high Density Mechanical Energy Storage with Carbon Nanothread Bundle', and form the basis of Dr Zhan's ARC Discovery project -- 'A Novel Multilevel Modelling Framework to Design Diamond Nanothread Bundles'.

Dr Zhan and his team are now planning production of an experimental nanoscale mechanical energy system as proof of concept.

Dr Zhan said the research team would spend the next two to three years building the control mechanism for the system to store energy -- the system which controls twisting and stretching of the nanothread bundle.

https://www.sciencedaily.com/releases/2020/04/200421090540.htm

COVID-19 Research

theguardian

Tue, 21 April 2020

Coronavirus: five months on, what scientists know about Covid-19

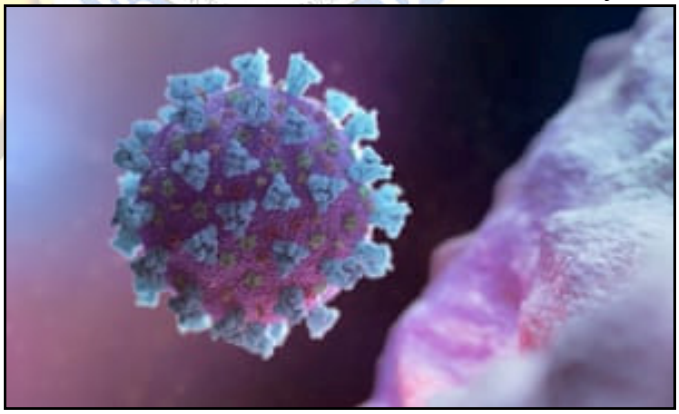
Medical researchers have been studying everything we know about Covid-19. What have they learned – and is it enough to halt the pandemic?

By Robim McKie, Science Editor

Coronaviruses have been causing problems for humanity for a long time. Several versions are known to trigger common colds and more recently two types have set off outbreaks of deadly illnesses: severe acute respiratory syndrome (Sars) and Middle East respiratory syndrome (Mers).

But their impact has been mild compared with the global havoc unleashed by the coronavirus that is causing the Covid-19 pandemic. In only a few months it has triggered lockdowns in dozens of nations and claimed more than 100,000 lives. And the disease continues to spread.

That is an extraordinary achievement for a spiky ball of genetic material coated in fatty chemicals called lipids, and which measures 80 billionths of a metre in diameter. Humanity has been brought low by a very humble assailant.



A model of a betacoronavirus, the virus linked to Covid-19. Photograph: NEXU Science Communication/Reuters

On the other hand, our knowledge about the Sars-CoV-2, the virus that causes Covid-19, is also remarkable. This was an organism unknown to science five months ago. Today it is the subject of study on an unprecedented scale. Vaccines projects proliferate, antiviral drug trials have been launched and new diagnostic tests are appearing.

The questions are therefore straightforward: what have we learned over the past five months and how might that knowledge put an end to this pandemic?

Where did it come from and how did it first infect humans?

The Sars-CoV-2 virus almost certainly originated in bats, which have evolved fierce immune responses to viruses, researchers have discovered. These defences drive viruses to replicate faster so that they can get past bats' immune defences. In turn, that transforms the bat into a reservoir of rapidly reproducing and highly transmissible viruses. Then when these bat viruses move into other mammals, creatures that lack a fast-response immune system, the viruses quickly spread into their new hosts. Most evidence suggests that Sars-CoV-2 started infecting humans via an intermediary species, such as pangolins.

“This virus probably jumped from a bat into another animal, and that other animal was probably near a human, maybe in a market,” says virologist Professor Edward Holmes of Sydney University. “And so if that wildlife animal has a virus it’s picked up from a bat and we’re interacting with it, there’s a good chance that the virus will then spread to the person handling the animal. Then that person will go home and spread it to someone else and we have an outbreak.”

As to the transmission of Sars-CoV-2, that occurs when droplets of water containing the virus are expelled by an infected person in a cough or sneeze.

How does the virus spread and how does it affect people?

Virus-ridden particles are inhaled by others and come into contact with cells lining the throat and larynx. These cells have large numbers of receptors – known as Ace-2 receptors – on their surfaces. (Cell receptors play a key role in passing chemicals into cells and in triggering signals between cells.) “This virus has a surface protein that is primed to lock on that receptor and slip its RNA into the cell,” says virologist Professor Jonathan Ball of Nottingham University.

Once inside, that RNA inserts itself into the cell’s own replication machinery and makes multiple copies of the virus. These burst out of the cell, and the infection spreads. Antibodies generated by the body’s immune system eventually target the virus and in most cases halt its progress.

“A Covid-19 infection is generally mild, and that really is the secret of the virus’s success,” adds Ball. “Many people don’t even notice they have got an infection and so go around their work, homes and supermarkets infecting others.”

By contrast, Sars – which is also caused by a coronavirus – makes patients much sicker and kills about one in 10 of those infected. In most cases, these patients are hospitalised and that stops them infecting others – by cutting the transmission chain. Milder Covid-19 avoids that issue.

Why does the virus sometimes cause death?

Occasionally, however, the virus can cause severe problems. This happens when it moves down the respiratory tract and infects the lungs, which are even richer in cells with Ace-2 receptors. Many of these cells are destroyed, and lungs become congested with bits of broken cell. In these cases, patients will require treatment in intensive care.

Even worse, in some cases, a person’s immune system goes into overdrive, attracting cells to the lungs in order to attack the virus, resulting in inflammation. This process can run out of control, more immune cells pour in, and the inflammation gets worse. This is known as a cytokine storm. (In Greek, “cyto” means cell and “kino” means movement.) In some cases, this can kill the patient.

Just why cytokine storms occur in some patients but not in the vast majority is unclear. One possibility is that some people have versions of Ace-2 receptors that are slightly more vulnerable to attacks from the coronavirus than are those of most people.

Are we protected for life if we get infected?

Doctors examining patients recovering from a Covid-19 infection are finding fairly high levels of neutralising antibodies in their blood. These antibodies are made by the immune system, and they coat an invading virus at specific points, blocking its ability to break into cells.

“It is clear that immune responses are being mounted against Covid-19 in infected people,” says virologist Mike Skinner of Imperial College London. “And the antibodies created by that response will provide protection against future infections – but we should note that it is unlikely this protection will be for life.”

Instead, most virologists believe that immunity against Covid-19 will last only a year or two. “That is in line with other coronaviruses that infect humans,” says Skinner. “That means that even if most people do eventually become exposed to the virus, it is still likely to become endemic – which means we would see seasonal peaks of infection of this disease. We will have reached a steady state with regard to Covid-19.”

The virus will be with us for some time, in short. But could it change its virulence? Some researchers have suggested that it could become less deadly. Others have argued that it could mutate to become more lethal. Skinner is doubtful. "We have got to consider this pandemic from the virus's position," he says. "It is spreading round the world very nicely. It is doing OK. Change brings it no benefit."

In the end, it will be the development and roll-out of an effective vaccine that will free us from the threat of Covid-19, Skinner says.

When will we get a vaccine?

On 9 April, the journal *Nature* reported that 78 vaccine projects had been launched round the globe – with a further 37 in development. Among the projects that are under way is a vaccine programme that is now in phase-one trials at Oxford University, two others at US biotechnology corporations and three more at Chinese scientific groups. Many other vaccine developers say they plan to start human testing this year.

This remarkable response raises hopes that a Covid-19 vaccine could be developed in a fairly short time. However, vaccines require large-scale safety and efficacy studies. Thousands of people would receive either the vaccine itself or a placebo to determine if the former were effective at preventing infection from the virus which they would have encountered naturally. That, inevitably, is a lengthy process.

As a result, some scientists have proposed a way to speed up the process – by deliberately exposing volunteers to the virus to determine a vaccine's efficacy. "This approach is not without risks but has the potential to expedite candidate vaccine testing by many months," says Nir Eyal, a professor of bioethics at Rutgers University.

Volunteers would have to be young and healthy, he stresses: "Their health would also be closely monitored, and they would have access to intensive care and any available medicines." The result could be a vaccine that would save millions of lives by being ready for use in a much shorter time than one that went through standard phase three trials.

But deliberately infecting people – in particular volunteers who would be given a placebo vaccine as part of the trial – is controversial. "This will have to be thought through very carefully," says Professor Adam Finn of Bristol University. "Young people might jump at the opportunity to join such a trial but this is a virus that does kill the odd young person. We don't know why yet. However, phase-three trials are still some way off, so we have time to consider the idea carefully."

(D*ue to the unprecedented and ongoing nature of the coronavirus outbreak, this article is being regularly updated to ensure that it reflects the current situation as best as possible. Any significant corrections made to this or previous versions of the article will continue to be footnoted in line with Guardian editorial policy.)*

https://www.theguardian.com/world/2020/apr/21/coronavirus-five-months-on-what-scientists-know-about-covid-19

Science

Wed, 22 April 2020

Antibody surveys suggesting vast undercount of coronavirus infections may be unreliable

Science's COVID-19 reporting is supported by the Pulitzer Center.

By Gretchen Vogel

Surveying large swaths of the public for antibodies to the new coronavirus promises to show how widespread undiagnosed infections are, how deadly the virus really is, and whether enough of

the population has become immune for social distancing measures to be eased. But the first batch of results has generated more controversy than clarity.

The survey results, from Germany, the Netherlands, and several locations in the United States, find that anywhere from 2% to 30% of certain populations have already been infected with the virus. The numbers imply that confirmed COVID-19 cases are an even smaller fraction of the true number of people infected than many had estimated and that the vast majority of infections are mild. But many scientists question the accuracy of the antibody tests and complain that several of the research groups announced their findings in the press rather than in preprints or published papers, where their data could be scrutinized. Critics are also wary because some of the researchers are on record advocating for an early end to lockdowns and other control measures, and claim the new prevalence figures support that call.

Some observers warn the coronavirus' march through the population has only just begun, and that even if the antibody results can be believed, they don't justify easing controls. "You would have hoped for 45% or even 60% positive," says Mark Perkins, a diagnostics expert at the World Health Organization. "That would mean that there is lots of silent transmission, and a lot of immunity in the population. It now looks like, sadly, that's not true. Even the high numbers are relatively small."

The many different academic and commercial tests for coronavirus antibodies are still being refined and validated. They can show whether someone's immune system has encountered the virus. But because no one knows what level of antibodies, if any, confers protection against the new virus, the tests can't tell whether a person is immune to a future infection. And no one knows how long such immunity might last.

A German antibody survey was the first out of the gate several weeks ago. At a press conference on 9 April, virologist Hendrik Streeck from the University of Bonn announced preliminary results from a town of about 12,500 in Heinsberg, a region in Germany that had been hit hard by COVID-19. He told reporters his team had found antibodies to the virus in 14% of the 500 people tested. By comparing that number with the recorded deaths in the town, the study suggested the virus kills only 0.37% of the people infected. (The rate for seasonal influenza is about 0.1%.) The team concluded in a two-page summary that "15% of the population can no longer be infected with SARS-CoV-2, and the process of reaching herd immunity is already underway." They recommended that politicians start to lift some of the regions' restrictions.

Streeck had argued even before the study that the virus is less serious than feared and that the effects of long shutdowns may be just as bad if not worse than the damage the virus could do. However, Christian Drosten, a virologist at Charité University Hospital in Berlin, told reporters later that day that no meaningful conclusions could be drawn from the antibody study based on the limited information Streeck presented. Drosten cited uncertainty about what level of antibodies provides protection and noted that the study sampled entire households. That can lead to overestimating infections, because people living together often infect each other.

Streeck and his colleagues claimed the commercial antibody test they used has "more than 99% specificity," but a Danish group found the test produced three false positives in a sample of 82 controls, for a specificity of only 96%. That means that in the Heinsberg sample of 500, the test could have produced more than a dozen false positives out of roughly 70 the team found.

A California serology study of 3300 people released last week in a preprint also drew strong criticisms. The lead authors of the study, Jay Bhattacharya and Eran Bendavid, who study health policy at Stanford University, worked with colleagues to recruit the residents of Santa Clara county through ads on Facebook. Fifty antibody tests were positive—about 1.5%. But after adjusting the statistics to better reflect the county's demographics, the researchers concluded that between 2.49% and 4.16% of the county's residents had likely been infected. That suggests, they say, that the real number of infections was as many as 80,000. That's more than 50 times as many as viral gene tests had confirmed and implies a low fatality rate—a reason to consider whether strict lockdowns are worthwhile, argue Bendavid and co-author John Ioannidis, who studies public health at Stanford.

On the day the preprint posted, co-author Andrew Bogan—a venture capitalist with a molecular biology Ph.D.—published an op-ed in *The Wall Street Journal* asking, "If policy makers were aware from the outset that the Covid-19 death toll would be closer to that of seasonal flu … would they have risked tens of millions of jobs and livelihoods?" He did not disclose his role in the study.

Yet Twitter threads and blog posts outlined a litany of apparent problems with the Santa Clara study. Recruiting through Facebook likely attracted people with COVID-19–like symptoms who wanted to be tested, boosting the apparent positive rate. Because the absolute numbers of positive tests were so small, false positives may have been nearly as common as real infections. The study also had relatively few participants from low-income and minority populations, meaning the statistical adjustments the researchers made could be way off. "I think the authors of the paper owe us all an apology," wrote Columbia University statistician and political scientist Andrew Gelman in an online commentary. The numbers "were essentially the product of a statistical error." Bhattacharya says he is preparing an appendix that addresses the criticisms. But, he says, "The argument that the test is not specific enough to detect real positives is deeply flawed."

Bhattacharya and Bendavid have also collaborated with Neeraj Sood, a health policy expert at the University of Southern California, to do a similar study in Los Angeles county. They used the same antibody test on 846 people selected by a marketing firm to represent the county's demographics. In a press release issued this week, they estimated that roughly 4% of the county's adult population has antibodies to the virus—as many as 300,000 people. (Sood told *Science* that 35 subjects tested positive.)

Another serology study, in the Netherlands, produced a similar figure for antibody prevalence that was revealed in the country's House of Representatives on 16 April. Hans Zaaijer, a virologist at Sanquin, the Dutch national blood bank, who helped lead the study, says the team used a commercial test, which "consistently shows superior results" in validation studies, but didn't provide more details. The results made it clear that the country was not yet near the "herd immunity" that some had hoped for. Nevertheless, the government said on 21 April that it would start to lift some restrictions in the coming weeks, opening elementary schools and allowing children's sports teams to practice.

A small study in the Boston suburb of Chelsea has found the highest prevalence of antibodies so far. Prompted by the striking number of COVID-19 patients from Chelsea colleagues had seen, Massachusetts General Hospital pathologists John Iafrate and Vivek Naranbhai quickly organized a local serology survey. Within 2 days, they collected blood samples from 200 passersby on a street corner. That evening, they processed the samples—and shared the results with a reporter from *The Boston Globe*. Sixty-three were positive—31.5%. The result carries several large caveats. The team used a test whose maker, BioMedomics, says it has a specificity of only about 90%, though Iafrate says MGH's own validation tests found a specificity of higher than 99.5%. And pedestrians on a single corner "aren't a representative sample" of the town, Naranbhai acknowledges.

The pair says a paper describing the team's results has been submitted to a journal but they shared the data with *The Boston Globe* first because "we felt there was an urgent infection control issue in Chelsea that warranted getting the information out." The Boston researchers do not think quarantines should be eased, however. Better containment is urgently needed in Chelsea, they say, to help prevent further spread both within the community and in the larger Boston area.

Even if the antibody surveys show a COVID-19 death rate well below 1%, says Michael Osterholm, an infectious disease expert at the University of Minnesota, Twin Cities, control measures will be needed for a long time to avoid overwhelmed hospitals. "The seroprevalence data only confirm the challenge we face. The data [these studies] are generating … is just showing how hard this is."

https://www.sciencemag.org/news/2020/04/antibody-surveys-suggesting-vast-undercount-coronavirus-infections-may-be-unreliable

Science

Tue, 21 April 2020

Coronavirus found in Paris sewage points to early warning system

Science's COVID-19 reporting is supported by the Pulitzer Center.

By Christa Lesté-Lasserre

Surveying large swaths of the public for antibodies to the new coronavirus promises to show how widespread undiagnosed infections are, how deadly the virus really is, and whether enough of the population has become immune for social distancing measures to be eased. But the first batch of results has generated more controversy than clarity.

By sampling sewage across greater Paris for more than 1 month, researchers have detected a rise and fall in novel coronavirus concentrations that correspond to the shape of the COVID-19 outbreak in the region, where a lockdown is now suppressing spread of the disease. Although several research groups have reported detecting coronavirus in wastewater, the researchers say the new study is the first to show that the technique can pick up a sharp rise in viral concentrations in sewage before cases explode in the clinic. That points to its potential as a cheap, noninvasive tool to warn against outbreaks, they say.

Tests at wastewater treatment plants in France have revealed levels of coronavirus that rise and fall over time like clinical cases. FREDERICK FLORIN/AFP VIA GETTY IMAGES

"This visibility is also going to help us predict a second wave of outbreaks," says Sébastien Wurtzer, a virologist at Eau de Paris, the city's public water utility. Wurtzer and his colleagues **posted the study**, which has not been peer-reviewed, on the preprint repository medRxiv on 17 April.

Sewers offer near–real-time outbreak data, because they constantly collect feces and urine that can contain coronavirus shed by infected humans. (Once excreted from the body, the virus degrades quickly, although scientists have found **limited instances** of infectious virus in fecal matter.) Polymerase chain reaction testing identifies fragments of RNA from SARS-CoV-2, the virus that causes COVID-19. Higher concentrations of virus in the wastewater corresponds to higher numbers of infected people who contribute to the sewer system.

For the Paris study, Wurtzer and his colleagues sampled wastewater from up to five Paris-area plants twice a week between 5 March and 7 April. They noted "high concentrations" of viral RNA several days before 10 March, the first day that Paris recorded multiple deaths from COVID-19. Concentrations continued to rise a few days ahead of an acceleration in clinical cases and deaths in Paris. "We have a very clear curve that precedes the curve in numbers of clinical cases, and now with confinement, we see a flattening of that curve," says Laurent Moulin, a study co-author and a microbiologist also at Eau de Paris. He estimates it took between a half a day and 3 days for the sewage to move from toilets to the treatment plants.

Sewer monitoring can illustrate the timing and scale of outbreaks that are currently difficult to visualize because of a general lack of human testing, says Zhugen Yang, a biomedical engineer at Cranfield University's Water Science Institute, a U.K. center that is developing $2 tests detecting SARS-CoV-2 in sewage. "In most countries, individual tests are in short supply, and outbreak figures are based on computer modeling," he says. "But sewer sampling gives a fairly inexpensive, evidence-based image of the actual viral load in a community." Using computer models that incorporate data on how many viral particles individuals shed, and how they become diluted in

sewage, it is even possible to translate detected viral concentrations into estimates of absolute numbers of infections in a sewage system's catchment area, he says.

Another advantage of wastewater sampling is that it picks up virus associated with the vast number of people who are infected with SARS-CoV-2 but do not present symptoms for the disease, says Paul Bertsch, science director of land and water at the Commonwealth Scientific and Industrial Research Organisation in Australia. Although viral shedding varies among individuals and over the course of their infection, he says, a sewage system blends these variations into an average that represents the wider community. And depending on the sewage system, the warnings can come quickly. He points out that wastewater monitoring in Israel, for example, picked up a polio outbreak before any clinical cases appeared at all, according to a 2018 study.

Building on similar studies in the Netherlands and the United States, Bertsch's group last week reported the first detection of coronavirus in Australian sewage. He and his colleagues sampled wastewater in Brisbane representing 600,000 people, in March and April. In contrast to the study in Paris, they found a peak of viral shedding that corresponded to the peak detected through direct human testing. The difference might be explained by more prevalent human testing in Australia, he says.

Bertsch says he hopes to "tap into" Australia's existing systems for monitoring wastewater for illegal drugs to develop a national COVID-19 monitoring system that could be in place within 1 month. Later, it might even be feasible to "go up-pipe" with specialized sampling portals allowing finer-scale community sampling. "We could test by postal code, for example," he says.

Meanwhile, as suppression measures drag on across the globe, exacting huge economic costs, some nations are easing up on restrictions and some people are protesting lockdowns. Sewage data might make them think twice, Yang says. "They could see the numbers and understand the seriousness of this seemingly invisible outbreak," he says. "Seeing is believing."

(*Christa Lesté-Lasserre is a journalist in Paris.*)

https://www.sciencemag.org/news/2020/04/coronavirus-found-paris-sewage-points-early-warning-system

INDIA TODAY

Wed, 22 April 2020

Covid-19: Human trials of coronavirus vaccine in UK start tomorrow

Human trials of a potential coronavirus vaccine developed at the University of Oxford in UK will begin Thursday, health minister Matt Hancock has said.

By Loveena Tandon

London: Human trials of a potential coronavirus vaccine will start in the UK on Thursday, Health Minister Matt Hancock said on Tuesday as he added a word of caution that "nothing about this process is certain".

In a press briefing on Tuesday, UK Health Minister Matt Hancock announced that the vaccine from the Oxford trial will be tested in people from this Thursday.

The vaccine is being developed by scientists at the University of Oxford who believe there is an 80 per cent chance of success.

Matt Hancock also promised £20million of public money for each of the vaccine development projects. Another institute trying to develop a vaccine for Covid-19 is the Imperial College London. The Jenner Institute team at Oxford though is planning production of the vaccine even before the trial is complete so that at least a million doses are ready by September.

Social distancing and a vaccine are the only two ways to deal with Covid-19 which has led to lockdown extensions across the world.

"The best way to defeat coronavirus is through a vaccine, after all this is a new disease, this is uncertain science, but I am certain we will throw everything we've got at developing a vaccine," Matt Hancock said.

The UK health minister said they are also investing in manufacturing capability, "so if either of these vaccines safely works, then we can make it available for the British people as soon as humanly possible."

Chairman of British Medical Association Dr Chaand Nagpaul welcomed the announcement and said, "It's clearly positive that trials are commencing for coronavirus vaccine as having an effective vaccine is the best way to eradicate it. I hope that there is co-operation with research across the world- to our collective efforts to develop a vaccine as soon as possible for it benefits all."

https://www.indiatoday.in/world/story/covid-19-human-trials-of-coronavirus-vaccine-in-uk-start-1669605-2020-04-22

INDIA TODAY

Wed, 22 April 2020

Coronavirus very likely of animal origin, no sign of lab manipulation: WHO

WHO spokeswoman Fadela Chaib said that all available evidence suggests the virus has an animal origin and is not manipulated or constructed in a lab or somewhere else.

Geneva: The World Health Organization (WHO) said on Tuesday that all available evidence suggests the novel coronavirus originated in animals in China late last year and was not manipulated or produced in a laboratory.

US President Donald Trump said last week that his government was trying to determine whether the virus emanated from a lab in the central Chinese city of Wuhan, where the coronavirus pandemic emerged in December.

"All available evidence suggests the virus has an animal origin and is not manipulated or constructed in a lab or somewhere else," WHO spokeswoman Fadela Chaib told a Geneva news briefing. "It is probable, likely, that the virus is of animal origin."

It was not clear, Chaib added, how the virus had jumped the species barrier to humans but there had "certainly" been an intermediate animal host. "It most likely has its ecological reservoir in bats but how the virus came from bats to humans is still to be seen and discovered."

She did not respond to a request to elaborate on whether it was possible the virus may have inadvertently escaped from a lab. The Wuhan Institute of Virology has dismissed rumours both that it synthesized the virus or allowed it to escape.

Chaib, asked about the impact of Trump's decision last week to suspend funding to the U.N. agency over its handling of the coronavirus pandemic, said: "We are still assessing the situation about the announcement by President Trump ...and we will assess the situation and we will work with our partners to fill any gaps."

"It is very important to continue what we are doing not only for COVID but for many, many, many, many other health programmes," she added, referring to action against polio, HIV and malaria among other diseases.

She said that the WHO was 81 percent funded for the next two years as of the end of March, referring to its $4.8 billion biennial budget. The United States is the Geneva-based agency's biggest donor. Other big contributors are the Gates Foundation and Britain.

https://www.indiatoday.in/world/story/coronavirus-very-likely-of-animal-origin-no-sign-of-lab-manipulation-who-1669595-2020-04-22