# समाचार पत्रों से चयित अंश Newspapers Clippings

A Daily service to keep DRDO Fraternity abreast with DRDO Technologies, Defence Technologies, Defence Policies, International Relations and Science & Technology

Volume: 45 Issue: 84 18 April 2020



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### **COVID-19: DRDO's Contribution**



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## DRDO introduces two new products to enable COVID-19 disinfection process

Defence Research and Development Organisation (DRDO) in its continuous quest to contribute towards fight against COVID-19, has been developing several solutions from its existing arsenal of technologies and experience. These consist of innovations and quickly configuring the products for present requirements. Today DRDO has introduced two products which can enhance the operations at public places during the pandemic.

#### Automatic Mist Based Sanitiser Dispensing Unit

Centre for Fire Explosive & Environment Safety (CFEES), Delhi along with HPO 1, using its expertise in mist technology for fire suppression, has developed automatic mist based sanitiser

dispensing unit. It is a contactless sanitiser dispenser which sprays alcohol based hand rub sanitiser solution for sanitisation of hands while entering the buildings/office complexes, etc. It is based on water mist aerator technology, which was developed for water conservation.

The unit operates without contact and is activated through an ultrasonic sensor. A single fluid nozzle with low flow rate is used to generate aerated mist to dispense the hand rub sanitiser. This sanitises the hands with minimum wastage. Using atomiser, only 5-6 ml sanitiser is released for 12 seconds in one operation and it gives the full cone spray over both palms so that disinfection operation of hands is complete.

It is a very compact unit and bulk fill option makes it economical and long lasting product. It is easy to install system as wall-mountable or on a platform. As an indication of operation an LED illuminates the spray.



The unit was manufactured with the help of M/s Riot Labz Pvt Ltd, Noida, and one unit has been installed at DRDO Bhawan. The unit can be used for sanitisation of hands at entry and exit to hospitals, malls, office buildings, residential buildings, airports, metro stations, railway stations, bus stations and critical installations. The product is also expected to be very useful for entry/ exit of isolation and quarantine centres.

#### UV Sanitisation Box and Hand-held UV device

Defence Institute of Physiology & Allied Sciences (DIPAS) and Institute of Nuclear Medicine & Allied Sciences (INMAS), DRDO laboratories in Delhi have designed & developed Ultraviolet C Light based sanitisation box and hand held UV-C (ultraviolet light with wavelength 254 nanometres) device. The UV-C consists of a shorter, more energetic wavelength of light. It is particularly good at destroying genetic material in COVID-19. The radiation warps the structure RNA which prevents the viral particles from making more copies of themselves. The UV-C kills microbes quickly. Sanitisation of the items by employing UV-C light avoids the harmful effects of

the chemicals used for the disinfection. This is environment friendly and is a contact free effective sanitisation method.

The UV-C box is designed for disinfecting personal belongings like mobile phone, tablets, purse, currency, cover of office files, etc. COVID-19 virus will be deactivated by using UVC lamps in one minute placed equi-distantly in a box with UV dose of 100 mJ/cm<sup>2</sup>. The UV lamps used in the sanitisation box also emits 185 nm which produces ozone and is able to take care of the unexposed area on the surfaces of the objects placed in the box.

The hand held device having eight watt UV-C lamp disinfects office and house hold objects like chairs, files, postal delivered items and food packets with an exposure of 45 second at a 100 mJ/cm<sup>2</sup> irradiance placed at a distance of less than two inches. This measure can reduce the transmission of Coronavirus in office and public environment which is required to work in all conditions.

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# डीआरडीओ ने कोविड-19 कीटाण्शोधन प्रक्रिया में

# सक्षम बनाने के लिए दो नए उत्पाद लॉन्च किए

रक्षा अनुसंधान एवं विकास प्रयोगशाला (डीआरडीएल), हैदराबाद ने कोविड नमूना संग्रह कियोस्क (कोवसैक/COVSACK) विकसित करके कोरोनावायरस (कोविड-19) से निपटने के लिए रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) की सूची में एक और उत्पाद शामिल कर दिया है।

रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) कोविड-19 से लड़ाई में योगदान देने के अपने सतत प्रयास में अपनी प्रौद्योगिकियों एवं अनुभव के वर्तमान शस्त्रागार से कई समाधानों का विकास करता रहा है। इनमें नवोन्मेषण एवं त्वरित गति से वर्तमान आवश्यकताओं के लिए उत्पादों की समाकृति बनाना शामिल है। आज डीआरडीओ ने दो नए उत्पाद लांच किए हैं जो महामारी के दौरान सार्वजनिक स्थानों पर परिचालनों को बढ़ावा दे सकते हैं।

### ऑटोमैटिक मिस्ट आधारित सैनिटाइजर डिस्पैंसिंग यूनिट

सेंटर फॉर फायर एक्सप्लोसिव एंड इनविरोनमेंट सेफ्टी (सीएफईईएस), दिल्ली ने एचपीओ 1 के साथ मिल कर आग बुझाने के लिए मिस्ट टेक्नोलॉजी में अपनी विशेषज्ञता का उपयोग करते हुए ऑटोमैटिक मिस्ट आधारित सैनिटाइजर डिस्पैंसिंग यूनिट का विकास किया है। यह एक संपर्करहित सैनिटाइजर डिस्पैंसर होता है जो भवनों/ कार्यालय परिसरों आदि में प्रवेश करने के दौरान हाथों के सैनिटाइजेशन के लिए अल्कोहल आधारित हैंड रब सैनिटाइजर सॉल्यूशंन का छिड़काव करता है। यह वाम्टर मिस्ट ऐरेटर टेक्नोलॉजी पर आधारित है जिसे जल संरक्षण के लिए विकसित किया गया था।

यह यूनिट बिना संपर्क के परिचालित होता है और एक अल्ट्रासोनिक सेंसर के जरिये गतिशील होता है। निम्न प्रवाह

दर के साथ एक सिंगल फ्लुइड नोजल का उपयोग हैंड रब सैनिटाइजर को डिस्पैंस करने के लिए ऐरेटेड मिस्ट को जेनेरेट करने के लिए किया जाता है। यह न्यूनतम बर्बादी के साथ हाथों को सैनिटाइज कर देता है। एटोमाइजर का उपयोग करते हुए, एक परिचालन में 12 सेंकेंड के लिए केवल 5-6 एमएल सैनिटाइजर का उपयोग किया जाता है और यह दोनों हथेलियों के ऊपर फुल कोन स्प्रे देता है जिससे कि हाथों का कीटाणुशोधन परिचालन पूरा हो जाता है।

यह एक बहुत कैम्पैक्ट यूनिट है और बल्क फिल ऑप्शन इसे किफायती और दीर्घकालिक समय तक चलने वाला उत्पाद बना देता है। इस सिस्टम को किसी प्लेटफॉर्म पर या वॉल-माउंटेबल के रूप में संस्थापित करना आसान है। परिचालन के एक संकेत के रूप में, एक एलईडी स्प्रे को प्रकाशित करती है।



इस यूनिट का निर्माण मेसर्स रियोट लैब्ज प्राइवेट लिमिटेड, नोएडा

की सहायता से किया गया था और और एक यूनिट डीआरडीओ भवन में संस्थापित की गई है। यूनिट का उपयोग अस्पतालों, मॉल्स, कार्यालय भवनों, आवासीय भवनों, हवाई अड्डों, मेट्रो स्टेशनों, रेलवे स्टेशनों, बस स्टेशनों एवं महत्वपूर्ण प्रतिष्ठानों के प्रवेश एवं निकास पर हाथों के सैनिटाइजेशन के लिए किया जा सकता है। इस उत्पाद के आइसोलेशन एवं क्वारांटाइन केंद्रों के प्रवेश एवं निकास पर भी काफी उपयोगी होने की उम्मीद है।

### यूवी सैनिटाइजेश<mark>न बॉक्</mark>स एवं हैंड-हेल्ड यूवी

डिवाइसडिफेंस इंस्टीच्यूट ऑफ फिजियोलॉजी एंड एलॉयड साईंसेज (डीआईपीएएस) एवं इंस्टीच्यूट ऑफ न्यूक्लियर मेडिसिन एंड एलाऑयड साईंसेज (आईएनएमएएस), दिल्ली में डीआरडीओ प्रयोगशालाओं ने अल्ट्रा-वॉयलेट सी लाइट आधारित सैनिटाइजेशन बॉक्स एवं हैंड-हेल्ड यूवी-सी (वेवलेंथ 254 नैनोमीटर के साथ अल्ट्रा-वॉयलेट लाइट) डिवाइस की डिजाइन एवं विकास किया है। यूवी-सी एक छोटा, लाइट के अधिक इनर्जेटिक वेवलेंथ से बना होता है। यह विशेष रूप से कोविड-19 में जेनेटिक मैटेरियल को नष्ट करने में अच्छा होता है। रैडियेशन स्ट्रक्चर आरएनए को बिगाइ देता है जो वायरल पार्टिकल्स को अपनी और अधिक प्रतियां बनाने से रोकता है। यूवी-सी माइक्रोब्स को तेजी से मार डालता है। यूवी-सी लाइट तैनात करने के द्वारा मदों का सैनिटाइजेशन कीटाणुशोधन के लिए प्रयुक्त रसायनों के हानिकारक प्रभावों से रोकता है। यह पर्यावरण के अनुकूल होता है और संपर्करहित प्रभावी सैनिटाइजेशन प्रणाली है।



यूवी-सी बॉक्स की डिजाइन मोबाइल फोन, टैबलेट, पर्स, करेंसी, आफिस फाइल के कवर आदि जैसे व्यक्तिगत सामानों के कीटाणुशोधन के लिए तैयार की गई है। कोविड-19 वायरस 100 एमजे/सीएम पावर 2 के यूवी डोज के साथ एक बाॅक्स में एक मिनट के लिए समान दूरी पर रखे गए यूवीसी लैम्पों के उपयोग के द्वारा डिएक्टीवेट किए जाएंगे। सैनिटाइजेशन बॉक्स में प्रयुक्त यूवी लैम्प 185 एनएम भी उत्सर्जित करते हैं जो ओजोन का निर्माण करते हैं और बॉक्स में रखे गए वस्तुओं की सतहों पर अनपेक्षित क्षेत्र की देखभाल करने में सक्षम हैं।

आठ वाट यूवी सी लैम्प वाले हाथ में रखे जाने वाले डिवाइस कुर्सियों, फाइलों, डाक से भेजी जाने वाली वस्तुओं एवं दो इंच से कम दूरी पर रखे गए 100 एमजे/सीएम पावर 2 इरैडिएंस पर 45 सेकेंड के एक्सपोजर के साथ फूड पैकेटों जैसे कार्यालय एवं घरेलू वस्तुओं का कीटाण्शोधन कर देते हैं।

यह उपाय कार्यालय एवं सार्वजनिक वातावरण, जिसकी सभी स्थितियों में कार्य करने की आवश्यकता होती है, में कोरोना वायरस के संचरण को कम कर सकता है।

एएम/एसकेजे (Release ID: 1615413) https://pib.gov.in/PressReleseDetailm.aspx?PRID=1615413

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# కోవిడ్ 19 వ్యాధికి సంబంధించి క్రిమిసంహారక ప్రక్రియకు

రక్షణ మంత్రిత్వ శాఖ

### ఏలుగా రెండు కొత్త ఉత్పత్తులను ప్రవేశపెట్టిన డిఆర్**డి**ఒ

డిఫెన్స్ రిసెర్చ్ ,డవలప్ మెంట్ ఆర్గనైజేషన్ (డిఆర్డిఒ) కోవిడ్ -19పై పోరాటంలో భాగంగా నూతన ఆవిష్కరణలను అందించడంలో తన వంతు పాత్రగా, ప్రస్తుతం తన వద్దగల సాంకేతిక పరిజ్ఞానం, అనుభవాల అమ్ముల పొదినుంచి పలు పరిష్కారాలను అభివృద్ధి చేసి అందిస్తూ వస్తోంది. ప్రస్తుత అవసరాలకు అనుగుణంగా కొత్త ఉత్పత్తులను తయారు చేయడం, నూతన ఆవిష్కరణలు ఇందులో ఉన్నాయి. డిఆర్డిఒ ఈరోజు ఇందుకు సంబంధించి రెండు కొత్త ఉత్పత్తులను పరిచయం చేసింది. ఇవి కరోనా మహమ్మారి కాలంలో బహిరంగ ప్రదేశాలలో కార్యకలాపాల స్థాయిని పెంచడానికి ఉపయోగపడతాయి.

#### శానిటైజర్ పెదజల్లే ఆటోపేుటిక్ యూనిట్

ఢిల్లీలోని సెంటర్ ఫర్ ఫైర్ ఎక్స్ఫ్లోజిప్స్,ఎన్విరాన్ మెంట్ సేప్టీ (CFEES) సంస్థ, మంటలను ఆర్పేందుకు పొగమంచు సాంకేతిక పరిజ్ఞానం ఉపయోగించడంలో తనకున్న సైపుణ్యాన్ని ఉపయోగించి, ఆటోమేటిక్ పొగమంచు ఆధారిత శానిటైజర్ పెదజల్లే యూనిట్ను అభివృద్ధి చేసింది. ఇది చేతులతో తాకనవసరం లేని శానిటైజర్ పెదజల్లే పరికరం, ఇది భవనాలు , కార్యాలయ సముదాయాలలోకి ప్రవేశించేటప్పుడు వారి చేతులను పరిశుభ్రం చేసి పైరస్ రహితం చేయడంకోసం ఆల్కహాల్ టేస్డ్ హ్యాండ్ రబ్ శానిటైజర్ ద్రావణాన్ని పిచికారీ చేస్తుంది. ఇది నీటి పొగమంచు ఎరేటర్ టెక్నాలజీపై ఆధారపడి పనిచేస్తుంది. నీటిని పొదుపు చేసేందుకు దీనిని రూపొందించారు.

ఈ యూనిట్ ను తాకనవసరం లేకుండా పనిచేస్తుంది అల్ట్రాసోనిక్ సెన్సార్ ద్వారా దీనిని పనిచేయించవచ్చు . చేతులను కడిగేందుకు అవసరమైన శానిటైజర్ను పెదజల్లడానికి , ఎరేటెడ్ పొగమంచును ఉత్పత్తి చేయడానికి తక్కువ ప్రవాహ రేటు కలిగిన ఒకే ద్రవ నాజిల్ ను అది ఉపయోగించుకుంటుంది. ఇది కనీస నీటి వృధాతో చేతులను శుభ్రపరుచుకోవడానికి ఉపయోగపడుతుంది. వాతావరణాన్ని ఉపయోగించి, ఒక సారి కేవలం 5-6 మి.లీ శానిటైజర్ 12 సెకన్ల పాటు విడుదల అవుతుంది ఇది రెండు అరచేతులపై పూర్తి స్ప్రీ చేస్తుంది. తద్వారా చేతులు క్రిమిసంహారకంతో పరిశుభ్రమౌతాయి.

ఇది చాలా చక్కటి పరికరం. ఎక్కువ మొత్తం నింపడానికి ఇది అనువుగా ఉండడంవల్ల ఆర్ధికంగా పొదుపుతో కూడుకున్నది. దీర్ఘకాలిక మన్నిక కలిగినదిగా చెప్పుకోవచ్చు.. దీనిని గోడకు లేదా ఏదైనా ప్లాట్ఫాంపై అమర్చడం సులభం.. ఇందులో స్పే పనిచేస్తున్నందుకు సూచనగా ఒక ఎల్.ఇ.డి బల్బు పెలుగుతూ కనిపిస్తుంది.

నోయిడా లోని మెస్సర్స్ రియోట్ లాట్జ్ ప్రైవేట్ రీమిటెడ్ సహాయంతో ఈ యూనిట్ ను తయారు చేశారు. డిఆర్డి భవన్ వద్ద ఒక యూనిట్ ను ఏర్పాటు చేశారు. ఆసుపత్రులు, మాల్స్, కార్యాలయ భవనాలు, నివాస భవనాలు, విమానాశ్రయాలు, మెట్రో స్టేషన్లు, రైల్వే స్టేషన్లు, బస్ స్టేషన్లు , కీలక సంస్థల ప్రవేశం నిష్రమణ ద్వారాలవద్ద చేతుల శానిటైజేషన్ కోసం దీనిని ఉపయోగించవచ్చు. ఐసోలేషన్ , క్వారంటైన్ కేంద్రాల ప్రవేశం,నిష్కమణ ద్వారాల వద్ద కూడా ఇది చాలా ఉపయోగకరంగా ఉంటుందని భావిస్తున్నారు.

యువి శాని<mark>టైజేషస్ బాక్స్,</mark> చేతిలో ఇమిడ<mark>ే యువి</mark> పరికరం:

ధిల్లీలోని డిఫెన్స్ ఇన్బిట్యూట్ ఆఫ్ ఫిజియాలజీ ,అలైడ్ సైన్సెస్ (డిఐపిఎఎస్) , ఇన్బిట్యూట్ ఆఫ్ న్యూక్లియర్ మెడిసిన్ , అలైడ్ సైన్సెస్ (INMAS), డిఆర్ డి ఒ ప్రయోగశాలలు అతినీలలోహిత సి లైట్ ఆధారిత శానిటైజేషన్ టాక్స్ , చేతిలో ఇమిడే UV-C పరికరాలను( అతినీలలోహిత కాంతి, 254 నానోమీటర్ల తరంగ దైర్ఘ్యంతో) రూపకల్పన చేసి అభివృద్ధి చేశాయి.

యువి-సి తక్కువ కాంతి , శక్తివంతమైన తరంగదైర్ఘ్యాన్ని కరిగి ఉంటుంది. కోవిడ్ -19 లోని జన్యు పదార్థాన్ని నాశనం చేయడంలో ఇది చాలా బాగా ఉపయోగపడుతుంది. పైరస్ ఆర్.ఎస్.ఎ నిర్మాణాన్ని రేడియేషన్చిత్తు చేస్తుంది, పైరల్ కణాలు తమకు తాము ఎక్కువ నకళ్లు రూపొందించుకోకుండా ఇది నిరోధిస్తుంది. యువి-సి,సూక్మజీవులను త్వరగా చంపుతుంది. యవి-సి కాంతిని ఉపయోగించడం వల్ల వస్తువుల శానిటైజేషన్ కోసం రసాయనాలు ఉపయోగించార్సిన అవసరం ఉండదు. అందువల్ల రసాయనాల హానికరమైన దుష్ప్రభావాలు పడవు. ఇది పర్యావరణ అనుకూలమైనది . చేతితో తాకనవసరంలేని శానిటైజేషన్ పద్దతి.

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మొబైల్ ఫోన్, టాబ్లెట్లు, పర్స్, కరెన్సీ, ఆఫీసు పైళ్ళ కవర్ వంటి వ్యక్తిగత వస్తువులను క్రిమిరహితం చేయడానికి యువి-సి బాక్స్ రూపొందించారు..బాక్స్లో యువి-సి దీపాన్ని ఉపయోగించి ఒక నిమిషంలో కోవిడ్ -19 పైరస్ను నిర్వీర్యం చేయవచ్చు., ఇది ఓజోన్ను ఉత్పత్తి చేస్తుంది . పెట్టెలో ఉంచిన వస్తువుల ఉపరితలాలను పరిరక్షించగలదు.

ఎనిమిది వాట్ల యువి-సి దీపం కలిగిన, చేతిలో ఇమిడే ఈ పరికరం రెండు అంగుళాల కన్నా తక్కువ దూరంలో ఉంచిన 100 ఎంజె,సిఎం2 ఇరాడియన్స్ వద్ద 45 సెకన్ల పాటు కుర్చీలు, పైళ్ళు, పోస్టల్ డెలివరీ చేసిన వస్తువులు , ఆహార ప్యాకెట్ల వంటి వాటిపై కాంతిని ప్రసరింపచేస్తే ఆ వస్తువులు క్రిమిరపాతం అవుతాయి . ఆఫీసులు, పబ్లిక్పుదేశాలు, పని ప్రదేశాలలో కరోనా పైరస్ వ్యాప్తిని అరికట్టడానికి ఇది ఎంతగానో ఉపయోగపడుతుంది.

(Release ID: 1615402) https://pib.gov.in/PressReleseDetailm.aspx?PRID=1615402



Sat, 18 APR 2020

### Wallet, Mobile ಹಾಗೂ Currency Noteಗಳನ್ನು

# Coronavirus <mark>ಮುಕ್ತವಾ</mark>ಗಿಸಲು ಬಂತು ಮಶೀನ್

ಮೈಕ್ರೋವೇವ್ ಓವನ್ ರೀತಿ ಕಾಣಿಸುವ ಈ ವಿಶೇಷ ಡಿಸ್ ಇನ್ಫೆಕ್ವೆಂಟ್ ಬಾಕ್ಸ್ 'ಅಲ್ಕ್ರವೈಲೆಟ್-ಸಿ' ತಂತ್ರಜ್ಞಾನದ ಆಧಾದ ಮೇಲೆ ಕಾರ್ಯನಿರ್ವಹಿಸುತ್ತದೆ. ಈ ಬಾಕ್ಸ್ ನಲ್ಲಿ ನಿಮ್ಮ ಮೊಬೈಲ್ ಅನ್ನು ಒಂದು ನಿಮಿಷ ಇಟ್ಟರೆ ನಿಮ್ಮ ಮೊಬೈಲ್ ಕ್ರಿಮಿ ಮುಕ್ತವಾಗುತ್ತದೆ. ಇನ್ನೊಂದೆಡೆ ಕುರ್ಚಿ, ಮೇಜು, ಫೈಲ್, ಆಹಾರದ ಪೊಟ್ಟಣಗಳನ್ನೂ ಕೊರೊನಾ ಮುಕ್ತವಾಗಿಸಲು ಯುವಿ-ಲ್ಯಾಂಪ್ ವೊಂದನ್ನು ಕೊಡ ಸಿದ್ಧಪಡಿಸಲಾಗಿದೆ.

ನವದೆಹಲಿ: ಕೊರೊನಾ ವೈರಸ್ ನಿಂದ ಪಾರಾಗಲು ಸ್ಯಾನಿ ಟೈಸರ್ ಅನ್ನು ಬಳಸಿ ಪಾರಾಗಬಹುದು, ಆದರೆ, ನಮಗೆ ಅತ್ಯಂತ ವೈಯಕ್ತಿಕವಾಗಿರುವ ವಸ್ತುಗಳಾದ ಪರ್ಸ್, ಮೊಬೈಲ್ ಹಾಗೂ ಕರೆನ್ಸಿ ನೋಟುಗಳಿಗೆ ಕೊರೊನಾ ವೈರಸ್ ಅಪಾಯ ಹೆಚ್ಚಾಗಿರುತ್ತದೆ. ಇಂತಹುದರಲ್ಲಿ ಈ ವಸ್ತುಗಳನ್ನು ನಾವೆಲ್ ಕೊರೊನಾ ವೈರಸ್ ನಿಂದ ಮುಕ್ತವಾಗಿಸಲು DRDO ಒಂದು ವಿಶೇಷ ಅಲ್ಕ್ರಾ ವೈಲೆಟ್ ಬಾಕ್ಸ್ ವೊಂದನ್ನು ತಯಾರಿಸಿದೆ. ಈ ಬಾಕ್ಸ್ ನಲ್ಲಿ ಕೇವಲ ಒಂದು ನಿಮಿಷದವರೆಗೆ ವಸ್ತುಗಳನ್ನು ಇಟ್ಟರೆ ಅವು ಸೋಂಕುಮುಕ್ತವಾಗುತ್ತವೆ ಎನ್ನಲಾಗಿದೆ.

UV-C ರೇಡಿಯೇಶನ್ ತಂತ್ರಜ್ಞಾನದ ಮೇಲೆ ಇದು ಕಾರ್ಯನಿರಹಿಸುತ್ತದೆ.

ಡಿಆರ್ಡಿಒ ಪ್ರಕಾರ, ಈ ನಿರ್ದಿಷ್ಟ ಸೋಂಕುನಿವಾರಕ-ಪೆಟ್ಟಿಗೆಯು ಅಲ್ಕ್ರಾ ವೈಲೆಟ್-ಸಿ ಅಂದರೆ ಯುವಿಸಿ ವಿಕಿರಣ ತಂತ್ರಜ್ಞಾನದೊಂದಿಗೆ ಕಾರ್ಯನಿರ್ವಹಿಸುತ್ತದೆ, ಇದನ್ನು ದೆಹಲಿ ಮೂಲದ ಡಿಫೆನ್ಸ್ ಇನ್ಸ್ಟಿಟ್ಯೂಟ್ ಆಫ್ ಫಿಸಿಯಾಲಜಿ ಅಂಡ್ ಅಲೈಟ್ ಸೈನ್ಸಸ್ ಮತ್ತು ಇನ್ಸ್ಟಿಟ್ಯೂಟ್ ಆಫ್ ನ್ಯೂಕ್ಲಿಯರ್ ಮೆಡಿಸಿನ್ ಮತ್ತು ಅಲೈಡ್ ಸೈನ್ಸಸ್ ಅಭಿವೃದ್ಧಿಪಡಿಸಿವೆ. ಯುವಿಸಿ ಕೋವಿಡ್ -19 ರ ಆನುವಂಶಿಕ-ವಸ್ತುವನ್ನು ತೆಗೆದುಹಾಕಲು ತುಂಬಾ ಸಹಾಯಕವಾಗಿದೆ. ಇದರ ವಿಕಿರಣವು ಆರ್ಎನ್ಎಯನ್ನು ನಾಶಪಡಿಸುತ್ತದೆ. ಇದರಿಂದ ವೈರಸ್ ಕಣಗಳಿಗೆ ತಮ್ಮ ಪ್ರತಿರೂಪಗಳನ್ನು ಉತ್ಪತ್ತಿಸಲು ಸಾಧ್ಯವಾಗುವುದಿಲ್ಲ. ರಾಸಾಯನಿಕಕ್ಕಿಂತ ಇದು ಉತ್ತಮ ತಂತ್ರವಾಗಿದೆ, ಏಕೆಂದರೆ ರಾಸಾಯನಿಕವನ್ನು ಬಳಸುವುದು ಹಾನಿಕಾರಕವಾಗಿದ್ದರೆ, UV-C ಪರಿಸರ ಸ್ನೇಹಿಯಾಗಿದೆ.

ಮೈಕ್ರೋವೇವ್ ಓವನ್ ರೀತಿ ಕಾಣಿಸುವ ಈ ವಿಶೇಷ ಡಿಸ್ ಇನ್ಸೆಕ್ಟೆಂಟ್ ಬಾಕ್ಸ್ 'ಅಲ್ಕವೈಲೆಟ್-సి' ತಂತ್ರಜ್ಞಾನದ ಆಧಾದ ಮೇಲೆ ಕಾರ್ಯನಿರ್ವಹಿಸುತ್ತದೆ. ಈ ಬಾಕ್ಸ್ ನಲ್ಲಿ ನಿಮ್ಮ ಮೊಬೈಲ್ ಅನ್ನು ಒಂದು ನಿಮಿಷ ಇಬ್ಬರೆ ನಿಮ್ಮ ಮೊಬೈಲ್ ಕ್ರಿಮಿ ಮುಕ್ತವಾಗುತ್ತದೆ. ಇನ್ನೊಂದೆಡೆ ಕುರ್ಚೆ, ಮೇಜು, ಫೈಲ್, ಆಹಾರದ ಕೊರೊನಾ ಮುಕ್ತವಾಗಿಸಲು ಪೊಟ್ಟಣಗಳನ್ನೂ ವೊಂದನ್ನು ಕೂಡ ಯುವಿ-ಲ್ಯಾಂಪ್



ಸಿದ್ಧಪಡಿಸಲಾಗಿದೆ. DRDO ನೀಡಿರುವ ಮಾಹಿತಿ ಪ್ರಕಾರ ಇದರಲ್ಲಿರುವ ಲೆನ್ಸ್ ಗಳಿಂದ 185nm UV-C ಹೊರಸೂಸುತ್ತವೆ ಮತ್ತು ಇವು ಓಜೋನ್ ತಯಾರಿಸುತ್ತವೆ. ಇದರಿಂದ ನೇರವಾಗಿ ಪರಿಣಾಮ ಬೀರದ ನಿಮ್ಮ ಸಾಮಾನುಗಳ ಭಾಗ ಕೂಡ ಸೋಂಕು ಮುಕ್ತವಾಗುತ್ತದೆ.

ಇದೇ ರೀತಿ ಡಿಆರ್ಡಿಒ ಯುವಿಸಿ ದೀಪವೊಂದನ್ನು ಸಹ ಸಹ ವಿನ್ಯಾಸಗೊಳಿಸಿದ್ದು, ಇದು ಕುರ್ಚಿ, ಟೇಬಲ್, ಫೈಲ್, ಪೋಸ್ಟ್-ಬಾಕ್ಸ್, ಕೊರಿಯರ್ ಮತ್ತು ಕಾಲು ಪ್ಯಾಕೆಟ್ಗಳನ್ನು ಸೊಂಕುರಹಿತ ಮಾಡುತ್ತದೆ. ಇದಕ್ಕಾಗಿ, ಈ ಬಿಡಿಭಾಗಗಳ ಎರಡು ಇಂಚುಗಳ ಒಳಗೆ ಈ ದೀಪವನ್ನು ತರಬೇಕು ಮತ್ತು ಅದನ್ನು ಸುಮಾರು 45 ಸೆಕೆಂಡುಗಳವರೆ<mark>ಗೆ ಉರಿಸಬೇಕು</mark>.

ಡಿಆರ್ಡಿ ಪ್ರಕಾರ, ಈ ಎರಡೂ ಉತ್ಪನ್ನಗಳನ್ನು ಗೃಹ, ಕಚೇರಿ ಇತ್ಯಾದಿಗಳಲ್ಲಿ ಬಳಸುವುದರಿಂದ ಕರೋನಾ ವೈರಸ್ ಹರಡುವ ಅಪಾಯವನ್ನು ಗಮನಾರ್ಹವಾಗಿ ಕಡಿಮೆ ಮಾಡಬಹುದು. ಜೊತೆಗೆ ಡಿಆರ್ಡಿಒ ಸಂವೇದಕಗಳಲ್ಲಿ ಚಾಲನೆಯಲ್ಲಿರುವ ಸ್ವಯಂಚಾಲಿತ ಸ್ಯಾನಿಟೈಜರ್ ವಿತರಣಾ ಘಟಕವನ್ನೂ ಸಹ ಸಿದ್ಧಪಡಿಸಿದೆ. ಈ ಘಟಕವನ್ನು ಮುಟ್ಟದೆಯೇ ನೀವು ನಿಮ್ಮ ಕೈ ಮತ್ತು ಅಂಗೈಗಳನ್ನು ಯಾವುದೇ ರೀತಿಯ ಸೂಕ್ಷ್ಮಾಣುಗಳಿಂದ ಮುಕ್ತವಾಗಿಸಬಹುದು.

https://zeenews.india.com/kannada/india/drdo-developed-special-uvc-box-to-make-your-wallet-currencynotes-and-mobile-phone-free-of-coronavirus-26033



Sat, 18 April 2020

# DRDO introduces two new products to enable coronavirus Covid-19 disinfection process

The DRDO has been developing several solutions from its existing arsenal of technologies and experience. These consist of innovations and quickly configuring the products for present requirements

By Ananya Das

The Defence Research and Development Organisation (DRDO), in a bid to fight against coronavirus COVID-19, on Friday introduced two products to enable the disinfection process and

enhance the operations at public places during the pandemic. The two products are--automatic mist based sanitiser dispensing unit and UV sanitisation box and hand-held UV device.

The DRDO has been developing several solutions from its existing arsenal of technologies and experience. These consist of innovations and quickly configuring the products for present requirements.



Automatic Mist Based Sanitiser Dispensing Unit

Centre for Fire Explosive & Environment Safety (CFEES), Delhi along with HPO 1, using its expertise in mist technology for fire suppression, has developed automatic mist based sanitiser dispensing unit. It is a contactless sanitiser dispenser which sprays alcohol-based hand rub sanitiser solution for sanitisation of hands while entering the buildings/office complexes, etc. It is based on water mist aerator technology, which was developed for water conservation.

The unit operates without contact and is activated through an ultrasonic sensor. A single fluid nozzle with a low flow rate is used to generate aerated mist to dispense the hand rub sanitiser. This sanitises the hands with minimum wastage. Using an atomiser, only 5-6 ml sanitiser is released for 12 seconds in one operation and it gives the full cone spray over both palms so that disinfection operation of hands is complete.

It is a very compact unit and bulk fill option makes it an economical and long-lasting product. It is easy to install a system as wall-mountable or on a platform. As an indication of operation, an LED illuminates the spray.

The unit was manufactured with the help of M/s Riot Labz Pvt Ltd, Noida, and one unit has been installed at DRDO Bhawan. The unit can be used for sanitisation of hands at entry and exit to hospitals, malls, office buildings, residential buildings, airports, metro stations, railway stations, bus stations and critical installations. The product is also expected to be very useful for entry/ exit of isolation and quarantine centres.

#### UV Sanitisation Box and Hand-held UV Device

Defence Institute of Physiology & Allied Sciences (DIPAS) and Institute of Nuclear Medicine & Allied Sciences (INMAS), DRDO laboratories in Delhi have designed & developed Ultraviolet C Light-based sanitisation box and handheld UV-C (ultraviolet light with wavelength 254 nanometres) device. The UV-C consists of a shorter, more energetic wavelength of light. It is particularly good at destroying genetic material in COVID-19. The radiation warps the structure RNA which prevents the viral particles from making more copies of themselves. The UV-C kills microbes quickly. Sanitisation of the items by employing UV-C light avoids the harmful effects of the chemicals used for the disinfection. This is environment friendly and is a contact-free effective sanitisation method.

The UV-C box is designed for disinfecting personal belongings like mobile phone, tablets, purse, currency, the cover of office files, etc. COVID-19 virus will be deactivated by using UVC lamps in one minute placed equidistantly in a box with a UV dose of 100 mJ/cm2. The UV lamps used in the sanitisation box also emits 185 nm which produces ozone and is able to take care of the unexposed area on the surfaces of the objects placed in the box.

The handheld device having eight watts UV-C lamp disinfects office and household objects like chairs, files, postal delivered items and food packets with an exposure of 45 seconds at a 100 mJ/cm2 irradiance placed at a distance of fewer than two inches. This measure can reduce the transmission of Coronavirus in office and public environment which is required to work in all conditions.

<u>https://zeenews.india.com/india/drdo-introduces-two-new-products-to-enable-coronavirus-covid-19-disinfection-process-2277153.html</u>



Sat, 18 April 2020

### **Coronavirus: Defence research body develops 2 more products to combat Covid-19**

DRDO has now introduced two other products which can enhance operations to control spread of the infection at public places during the pandemic

New Delhi: Boosting India's capabilities in combating the coronavirus pandemic, the DRDO has developed two more products including an automatic mist-based sanitiser dispensing unit, officials said on Friday.

The other product is a UV sanitisation box, they said.

"The Defence Research and Development Organisation (DRDO) in its continuous quest to contribute towards the COVID-19. fight against has been developing several solutions from its existing arsenal of technologies and experience," the DRDO said in a statement.

These consist of innovations and quickly configuring the products for present requirements. DRDO has now introduced two other products which can enhance



The products include an automatic mist-based sanitiser dispensing unit and UV sanitisation box

operations to control spread of the infection at public places during the pandemic, it said.

"Centre for Fire Explosive & Environment Safety (CFEES), Delhi, using its expertise in mist technology for fire suppression, has developed automatic mist-based sanitiser dispensing unit," it said.

It is a contactless sanitiser dispenser which sprays alcohol-based hand rub sanitiser solution for sanitisation of hands while entering the buildings or office complexes, among other places. It is based on water mist aerator technology, which was developed for water conservation, the DRDO said.

The unit operates without contact and is activated through an ultrasonic sensor.

It is a very compact unit and its bulk fill option makes it economical and long-lasting product. It is easy to install as a wall-mountable system or on a platform. As an indication of operation an LED illuminates the spray, it added.

The unit was manufactured with the help of Riot Labz Pvt Ltd, Noida, and one unit has been installed at DRDO Bhawan.

The unit can be used for sanitisation of hands at entry and exit to hospitals, malls, office buildings, residential buildings, airports, metro stations, railway stations, bus stations and critical installations.

The product is also expected to be very useful at points of entry and exit at isolation and quarantine centres, the DRDO said.

Besides, the Defence Institute of Physiology & Allied Sciences (DIPAS) and Institute of Nuclear Medicine & Allied Sciences (INMAS), DRDO laboratories in Delhi have designed and developed ultraviolet C light-based sanitisation box and hand-held UV-C (ultraviolet light with wavelength 254 nanometres) device, it said.

The UV-C consists of a shorter, more energetic wavelength of light. It is particularly good at destroying genetic material in COVID-19, the statement said.

The UV-C box is designed for disinfecting personal belongings like mobile phone, tablets, purse, currency, cover of office files, etc.

Meanwhile, a webinar was organised by Society of Indian Defence Manufacturers (SIDM) in collaboration with the DRDO on Friday, led by Secretary Department of Defence Research (DD R&D) and Chairman Defence Research and Development Organisation (DRDO) Dr G Satheesh Reddy and other stakeholders.

Mr Reddy addressed the plenary session and lauded the efforts of industry in coming forward to produce COVID-19 related medical equipment for supporting the national cause of combating the pandemic, the statement said.

He briefed on the new DRDO design for PPEs and assured that complete know-how will be shared with industries seeking it, it said.

Reddy also said R&D efforts are being undertaken on reusability of the PPE fabrics. A serious effort is being put for indigenisation of critical components for ventilators, oxygen cylinders, goggles, test kits, swabs and Viral Transport Mediums (VTMs), the statement added.

https://www.ndtv.com/india-news/coronavirus-defence-research-body-drdo-develops-2-moreproducts-to-combat-covid-19-2213810



Sat, 18 April 2020

## DRDO introduces products which can enhance ops at public places during pandemic

Defence Research and Development Organisation, DRDO in its continuous quest to contribute towards fight against COVID-19, has been developing several solutions from its existing arsenal of technologies and experience.

Today, DRDO has introduced two products which can enhance the operations at public places during the pandemic. One is Automatic Mist based Sanitiser Dispensing Unit and UV Sanitisation Box and Hand-held UV device.

Centre for Fire Explosive and Environment Safety, CFEES, Delhi, using its expertise in mist technology for fire suppression, has developed Automatic Mist based sanitiser dispensing unit. It is a contactless sanitiser dispenser which sprays alcohol based hand rub sanitiser solution for sanitisation of hands while entering the buildings or office complexes. It is based on water mist aerator technology, which was developed for water conservation.

The unit operates without contact and is activated through an ultrasonic sensor. A single fluid

nozzle with low flow rate is used to generate aerated mist to dispense the hand rub sanitiser. This sanitises the hands with minimum wastage. The unit can be used for sanitisation of hands at entry and exit to hospitals, malls, office buildings, residential buildings, airports, metro stations, railway stations, bus stations and critical installations. The product is also expected to be very useful for entry or exit of isolation and quarantine centres.



Defence Institute of Physiology and Allied

Sciences, DIPAS and Institute of Nuclear Medicine and Allied Sciences, INMAS, DRDO laboratories in Delhi have designed and developed Ultraviolet C Light based sanitisation box and hand held UV-C (ultraviolet light with wavelength 254 nanometres) device.

The UV-C consists of a shorter, more energetic wavelength of light. It is particularly good at destroying genetic material in COVID-19. The radiation warps the structure RNA which prevents the viral particles from making more copies of themselves. The UV-C kills microbes quickly. Sanitisation of the items by employing UV-C light avoids the harmful effects of the chemicals used for the disinfection. This is environment friendly and is a contact free effective sanitisation method.

The UV-C box is designed for disinfecting personal belongings like mobile phone, tablets, purse, currency and cover of office files. COVID-19 virus will be deactivated by using UVC lamps in one minute placed equi-distantly in a box with UV dose of 100 mJ/cm2. The UV lamps used in the sanitisation box also emits 185 nm which produces ozone and is able to take care of the unexposed area on the surfaces of the objects placed in the box.

The hand held device having eight watt UV-C lamp disinfects office and house hold objects like chairs, files, postal delivered items and food packets with an exposure of 45 second. This measure can reduce the transmission of Coronavirus in office and public environment which is required to work in all conditions.

http://www.newsonair.com/News?title=DRDO-introduces-products-which-can-enhance-ops-at-publicplaces-during-pandemic&id=385866

ज्ञान प्रसार एवम् विस्तार

Sat, 18 April 2020

# DRDO develops two more products to combat Covid-19

FULLY LOADED MAGAZINE

New Delhi: Boosting India's capabilities in combating the coronavirus pandemic, the DRDO has developed two more products including an automatic mist-based sanitiser dispensing unit, officials said on Friday.

The other product is a UV sanitisation box, they said.

"The Defence Research and Development Organisation (DRDO) in its continuous quest to contribute towards the fight against COVID-19, has been developing several solutions from its existing arsenal of technologies and experience," the DRDO said in a statement.

These consist of innovations and quickly configuring the products for present requirements. DRDO has now introduced two other products which can enhance operations to control spread of the infection at public places during the pandemic, it said.

"Centre for Fire Explosive & Environment Safety (CFEES), Delhi, using its expertise in mist technology for fire suppression, has developed automatic mist-based sanitiser dispensing unit," it said.

It is a contactless sanitiser dispenser which sprays alcohol-based hand rub sanitiser solution for sanitisation of hands while entering the buildings or office complexes, among other places. It is based on water mist aerator technology, which was developed for water conservation, the DRDO said.

The unit operates without contact and is activated through an ultrasonic sensor.

It is a very compact unit and its bulk fill option makes it economical and long-lasting product. It is easy to install as a wall-mountable system or on a platform. As an indication of operation an LED illuminates the spray, it added.

The unit was manufactured with the help of Riot Labz Pvt Ltd, Noida, and one unit has been installed at DRDO Bhawan.

The unit can be used for sanitisation of hands at entry and exit to hospitals, malls, office buildings, residential buildings, airports, metro stations, railway stations, bus stations and critical installations.

The product is also expected to be very useful at points of entry and exit at isolation and quarantine centres, the DRDO said.

Besides, the Defence Institute of Physiology & Allied Sciences (DIPAS) and Institute of Nuclear Medicine & Allied Sciences (INMAS), DRDO laboratories in Delhi have designed and developed ultraviolet C light-based sanitisation box and hand held UV-C (ultraviolet light with wavelength 254 nanometres) device, it said.

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He briefed on the new DRDO design for PPEs and assured that complete know-how will be shared with industries seeking it, it said.

Reddy also said R&D efforts are being undertaken on reusability of the PPE fabrics. A serious effort is being put for indigenisation of critical components for ventilators, oxygen cylinders, goggles, test kits, swabs and Viral Transport Mediums (VTMs), the statement added.

(Disclaimer: This story has not been edited by Outlook staff and is auto-generated from news agency feeds. Source: PTI)

https://www.outlookindia.com/newsscroll/drdo-develops-two-more-products-to-combat-covid19/1806160

# THE ECONOMIC TIMES

# **DRDO** innovates automatic sanitiser and ultraviolet devices to fight coronoavirus

The ultraviolet device, which is hand held, can disinfect office and house objects like chairs, files and food packets, the defence ministry said. It also comes as a box, which has been designed to disinfect personal belongings such as mobile phones, files and wallet By Shaurya Karanbir Gurung

New Delhi: From an automatic mist-based sanitiser for use while entering offices to ultraviolet devices that can destroy the genetic material of COVID-19, the Defence Research and Development Organisation introduced these two new technologies on Friday that are aimed at preventing the spread of the coronavirus.

The ultraviolet device, which is hand held, can disinfect office and house objects like chairs, files and food packets, the defence ministry said. It also comes as a box, which has been designed to disinfect personal belongings such as mobile phones, files and wallet.

The DRDO's Centre for Fire Explosive & Environment Safety (CFEES), Delhi, has developed an automatic mist based sanitiser dispensing unit, the defence ministry said. It is a contactless sanitiser dispenser, which sprays alcohol based hand sanitiser, for use at the entry of buildings and office complexes.

The unit was manufactured with the help of Riot Labz Private Limited, Noida, and one unit has been installed at the DRDO Bhawan in Delhi. "The unit can be used for sanitisation of hands at entry and exit to hospitals, malls, office buildings, residential buildings, airports, metro stations, railway stations, bus stations and critical installations. The product is also expected to be very useful for entry and exit of isolation and quarantine centres," the ministry said.

The sanitiser operates without contact and is activated through an ultrasonic sensor. A single fluid nozzle is used to generate aerated mist to dispense the hand rub sanitiser. It sanitises the hands with minimum wastage. "It is easy to install the system as wall-mountable or on a platform. As an indication of operation an LED illuminates the spray," the ministry said.

Meanwhile, the Defence Institute of Physiology & Allied Sciences (DIPAS) and Institute of Nuclear Medicine & Allied Sciences (INMAS), both DRDO laboratories in Delhi, have designed and developed Ultraviolet C Light based sanitisation box and a hand held UV-C (ultraviolet light with wavelength 254 nanometres) device. The UV-C consists of a shorter, more energetic wavelength of light.

"It is particularly good at destroying genetic material in COVID-19. The radiation warps the structure RNA, which prevents the viral particles from making more copies of themselves. The UV-C kills microbes quickly. The hand held device disinfects office and household objects like chairs, files, postal delivered items and food packets This measure can reduce the transmission of coronavirus," the ministry said.



The automatic mist based sanitiser dispensing unit is a contactless sanitiser dispenser, which sprays alcohol based hand sanitiser, for use at the entry of buildings and office complexes.

"The UV-C box is designed for disinfecting personal belongings like mobile phone, tablets, purse, currency and the cover of office files. COVID-19 virus will be deactivated by using UVC lamps in one minute when placed equidistantly in the box," the ministry said.

<u>https://economictimes.indiatimes.com/news/defence/drdo-innovates-automatic-sanitiser-and-ultraviolet-device-to-fight-coronoavirus/articleshow/75208924.cms?from=mdr</u>



Sat, 18 April 2020

# DRDO comes up with two more products to fight virus

### Automatic Mist based Sanitiser Dispensing Unit

The Defence Research and Development Organisation (DRDO), which has been relentlessly developing and offering solutions from its existing arsenal of technologies and experience to fight coronavirus, has released two more products.

The Centre for Fire Explosive and Environment Safety (CFEES) in Delhi along with HPO 1 has developed an automatic mist based sanitiser dispensing unit. It is a no-contact dispenser that sprays alcohol-based hand rub sanitiser solution while one is entering buildings or office complexes. It is based on water mist aerator technology, developed for water conservation.

The unit is activated through an ultrasonic sensor. A single fluid nozzle with low flow rate is used to generate aerated mist to dispense the sanitiser.

Only five-six ml of the sanitiser is released for 12 seconds in one operation and it gives the full cone spray over both palms for complete disinfection.

It is a very compact unit and bulk fill option makes it economical and a long lasting product. It is also an easy to install system as wall-mountable or on a platform. The unit was manufactured with the help of M/s Riot Labz Pvt. Ltd. at Noida, and one unit has been installed at DRDO Bhawan.

#### **UV-C Sanitisation Box**

The Defence Institute of Physiology & Allied Sciences (DIPAS) and Institute of Nuclear Medicine & Allied Sciences (INMAS), DRDO laboratories in Delhi, have designed and developed an Ultraviolet C Light-based sanitisation box and hand held UV-C (ultraviolet light with wavelength 254 nanometres) device.

The UV-C consists of a shorter and more energetic wavelength of light. It is particularly good at destroying genetic material in COVID-19. Sanitisation of the items by employing UV-C light avoids the harmful effects of chemicals used for disinfection. It has been designed for disinfecting personal belongings like mobile phone, tablets, purse, currency, and cover of office files. COVID-19 virus will be deactivated by using UVC lamps in one minute placed equidistantly in a box with UV dose of 100 mJ/cm2.

The hand-held device having eight watt UV-C lamp disinfects office and household objects like chairs, files, postal delivered items and food packets with an exposure of 45 second at a 100 mJ/cm2 irradiance placed at a distance of less than two inches. This measure can reduce the spread of coronavirus in offices and other public places.

<u>https://www.thehindu.com/news/cities/Hyderabad/drdo-comes-up-with-two-more-products-to-fight-virus/article31370321.ece</u>

# THE TIMES OF INDIA

Sat, 18 April 2020

### DRDO develops contactless sanitiser dispenser, UV light-based disinfection box to fight COVID-19

After developing bio suits, COVID-19 sample collection kiosks and other products to help healthcare workers to fight the coronavirus disease, the Defence Research and Development Organisation (DRDO) has now developed two new products to enable COVID-19 disinfection process.

Centre for Fire Explosive & Environment Safety (CFEES), Delhi, using its expertise in mist technology for fire suppression, has developed automatic mist based sanitiser dispensing unit. It is a contactless sanitiser dispenser which sprays alcohol based hand rub sanitiser solution for sanitisation of hands while entering the buildings/office complexes, etc.

The unit operates without contact and is activated through an ultrasonic sensor. A single fluid nozzle with low flow rate is used to generate aerated mist to dispense the hand rub sanitiser. This sanitises the hands with minimum wastage. Using atomiser, only 5-6 ml sanitiser is released for 12 seconds in one operation and it gives the full cone spray over both palms so that disinfection operation of hands is complete.

Meanwhile, Defence Institute of Physiology & Allied Sciences (DIPAS) and Institute of Nuclear Medicine & Allied Sciences (INMAS), DRDO laboratories in Delhi have designed and developed Ultraviolet C Light based sanitisation box and hand held UV-C (ultraviolet light with wavelength 254 nanometres) device. The UV-C consists of a shorter, more energetic wavelength of light. It is particularly good at destroying genetic material in COVID-19.

The UV-C box is designed for disinfecting personal belongings like mobile phone, tablets, purse, currency, cover of office files, etc. COVID-19 virus will be deactivated by using UVC lamps in one minute placed equi-distantly in a box with UV dose of 100 mJ/cm2. The UV lamps used in the sanitisation box also emits 185 nm which produces ozone and is able to take care of the unexposed area on the surfaces of the objects placed in the box.

https://timesofindia.indiatimes.com/gadgets-news/drdo-develops-contactless-sanitiser-dispenser-uv-lightbased-disinfection-box-to-fight-covid-19/articleshow/75203330.cms

ज्ञान प्रसार एवम् विस्तार

### REPUBLICWORLD.COM 🕯

Sat, 18 April 2020

# **Covid-19: DRDO develops contact-less automatic mist based sanitiser dispensing unit**

DRDO has indigenously developed an automatic mist based sanitiser dispensing unit to help disinfect an individual's hands without any contact

Mumbai: In the fight against the Coronavirus pandemic, the Defence Research and Development Organisation (DRDO) has indigenously developed an automatic mist based sanitiser dispensing unit to help disinfect an individual's hands without any contact. It is a contactless sanitiser dispenser which sprays alcohol-based hand rub sanitiser solution for sanitisation of hands while entering the buildings/office complexes, etc. It is based on water mist aerator technology, which was developed for water conservation.

Elaborating on the functioning of the sanitiser, DRDO stated that the unit operates without contact and is activated through an ultrasonic sensor. "A single fluid nozzle with a low flow rate is used to generate aerated mist to dispense the hand rub sanitiser. This sanitises the hands with minimum wastage. Using an atomiser, only 5-6 ml sanitiser is released for 12 seconds in one

operation and it gives the full cone spray over both palms so that disinfection operation of hands is complete," a press release by the DRDO read.

"It is a very compact unit and bulk fill option makes it an economical and long-lasting product. It is easy to install the system as wall-mountable or on a platform. As an indication of operation an LED illuminates the spray," it added.

#### DRDO develops 'Covsack'

Earlier, the DRDO in Hyderabad had developed a first-of-its-kind machinery for COVID-19 sample



collection which eliminates the use of PPEs with no physical contact between patients and doctors and the risk of doctors getting infected. The device is known as 'Covsack'. Taking a cue from the machinery used for titanium wielding of missiles, the DRDO developed the state-of-art device within three days of time.

It takes only 10 to 15 minutes to test a patient and the machine sanitises automatically using chemical sprays and water pipelines after the patient exits. Within 60 to 70 seconds, the device is ready for the next test, he added.

The DRDO is set to conduct a demonstration, following which, it will begin the manufacturing process in full swing. Currently, the Organisation based in Hyderabad holds the manufacturing capacity of 10 devices per day and they are trying to ramp up the capacity to deliver more products to hospitals.

50 years

https://www.republicworld.com/india-news/general-news/covid-19-drdo-devlops-contact-lessautomatic-mist-based-sanitiser.html

Sat, 18 April 2020

# पर्स, मोबाइल फोन, और <mark>करेंसी नोट्स को कोरोना</mark> वायरस फ्री बनाने के लिए DRDO ने तैयार किया खास यूवीसी बॉक्स

### नीरज राजपूत

- माइक्रोवेव की तरह दिखने वाला ये खास डिसइंफेक्टेंट बॉक्स 'अल्ट्रा वायलेट-सी' रेडिशन तकनीक से चलता है।एक मिनट के लिए मोबाइल को बॉक्स में रखने से मोबाइल कीटाणु-रहित हो जाता है। वहीं कुर्सी, मेज, फाइल, फूट-पैकेट्स को कोरोना वायरस से मुक्त रखने के लिए यूवीसी-लैंप तैयार किया है।
- डीआरडीओ के बनाए इन दोनों प्रोडेक्टेस से ऑफिस में कोरोना वायरस को फैलने से रोकने में मदद मिलेगी।
   नई दिल्ली: कोरोना वायरस से बचने के लिए सैनेटाइजर से हाथ साफ कर तो बचा जा सकता है लेकिन अपनी सबसे पर्सनल-चीजें जैसे पर्स, मोबाइल और करेंसी नोट्स पर कोविड-19 के कीटाणु का खतरा हमेशा बना रहता है। ऐसे में इन चीजों से नोवल कोविड-19 वायरस को खत्म करने के लिए डीआरडीओ ने एक खास अल्ट्रा-वायलेट बॉक्स तैयार किया है। इस बॉक्स में एक मिनट के लिए सामान रखते ही डिसइंफेक्टेंट हो जाता है।

### यूवीसी रेडिएशन तकनीक से काम करता है डिसइंफेक्टेंट-बॉक्स

डीआरडीओ के मुताबिक, ये खास डिसइंफेक्टेंट-बॉक्स अल्ट्रा वायलेट-सी यानि यूवीसी रेडिएशन तकनीक से काम करता है, जिसे दिल्ली स्थित डिफेंस इंस्टीट्यूट ऑफ फिजयोलॉजी एंड एलाइट साईंसेज़ ने इंस्टीट्यूट ऑफ न्युक्लिर मेडिसन एंड एलाइड साईंसेज़ के साथ मिलकर तैयार किया है। ये यूवीसी कोविड-19 के जैनेटिक-मेटेरियल को खत्म करने में काफी सहायक होता है। इसकी रेडिएशन से आरएनए खत्म हो जाता है और वायरस के कण अपनी कॉपी नही बना पाते हैं। ये कैमिकल के इस्तेमाल के बजाए एक बेहतक तकनीक है, क्योंकि कैमिकल इस्तेमाल करना हानिकारक

होता है। जबकि यूवीसी पर्यावरण के अनुकुल है।

माइक्रोवेव ओवन की तरह दिखने वाला इस बॉक्स में यूवीसी लैंप की मदद से मोबाइल फोन, पर्स और करेंसी नोट्स आदि को आसानी से कीटाणु-मुक्त बनाया जा सकता है। इसके लिए इन सामान को सिर्फ एक मिनट के लिए बॉक्स के अंदर रखना होता है। डीआरडीओ के मुताबिक, इन यूवीसी लैंप्स से 185एनएम निकलती है जो ऑजोन बनाती है जिससे सामान का वो हिस्सा जो सीधे लाइट के सामने नहीं पड़ता है वो भी डिसइंफेक्टेंट हो जाता है।



इसी तरह से डीआरडीओ ने एक यूवीसी-लैंप भी तैयार किया है जिसके एक्सपोजर से कुर्सी, मेज, फाइल, पोस्टल-बॉक्स, कुरियर और फूट-पैकेट्स को कोरोना वायरस से असंक्रमित किया जा सकता है। इसके लिए इस लैंप को इन सामान के दो इंच की दायरे में लाकर करीब 45 सेकेंड तक दिखाना है।

### कोरोना वायरस फैलने का खतरा काफी कम हो सकता है

डीआरडीओ के मुताबिक, इन दोनों प्रोडेक्ट्स के ऑफिस इत्यादि में इस्तेमाल से कोरोना वायरस फैलने का खतरा काफी कम हो सकता है। इसी तरह से सेंसर से चलने वाला एक ऑटोमैटिक सैनेटाइजर डिस्पेंसिंग-यूनिट भी डीआरडीओ ने तैयार किया है। इस यूनिट को बिना छूए ही हाथ और हथेलियां किसी भी कीटाणु से साफ हो जाती है।

<u>https://www.abplive.com/news/india/drdo-has-prepared-a-special-uvc-box-to-make-purse-mobile-phones-and-currency-notes-free-of-coronavirus-ann-1354885</u>

# नवभारत टाइम्स वम् विस्तार

Sat, 18 April 2020

# कोविड-19 महामारी से लड़ने के लिए डीआरडीओ ने बनाए दो और उत्पाद

नयी दिल्ली: कोरोना वायरस महामारी के संकट से निपटने के लिए भारत की क्षमता में वृद्धि करते हुए रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) ने दो और उपकरणों का निर्माण किया है जिसमें एक आटोमेटिक सेनिटाइजर मशीन शामिल है। अधिकारियों ने शुक्रवार को यह जानकारी दी। उन्होंने बताया कि अन्य उपकरण एक पराबैंगनी सेनिटाइजेशन बॉक्स है। डीआरडीओ ने एक वक्तव्य में कहा कि कोविड-19 महामारी से लड़ने की दिशा में डीआरडीओ ने अपनी तकनीकी दक्षता और अनुभव से कई उपकरणों का निर्माण किया है और इसी क्रम में सार्वजनिक स्थलों पर संक्रमण को फैलने से रोकने के लिए दो और उत्पाद बनाए गए हैं। संगठन ने कहा कि दिल्ली स्थित डीआरडीओ के विस्फोटक एवं पर्यावरण सुरक्षा केंद्र (सीएफईईएस) ने एक ऑटोमेटिक झाग आधारित सेनिटाइजर मशीन बनाई है जिसे छूने की आवश्यकता नहीं होगी। मशीन से अपने आप अल्कोहल आधारित सेनिटाइजर जिसे हाथ पर लगाया जा सकेगा। इस मशीन का इस्तेमाल कार्यालय परिसरों और इमारतों में प्रवेश करने से पहले किया जा सकेगा। डीआरडीओ की दो अन्य प्रयोगशालाओं के सहयोग से पराबैंगनी प्रकाश से सेनिटाईज करने वाला उपकरण बनाया गया है। इस बक्से के प्रयोग से मोबाइल फोन, टैबलेट, बट्आ, मुद्रा, फाइल के कवर इत्यादि जैसी छोटे सामान को सेनिटाईज किया जा सकेगा।

दैंनिक जागरण

Coronavirus: वायरस को रोकने के लिए DRDO

(यह आर्टिकल एजेंसी फीड से ऑटो-अपलोड हुआ है। इसे नवभारतटाइम्स कॉम की टीम ने एडिट नहीं किया है।) https://navbharattimes.indiatimes.com/india/drdo-makes-two-more-products-to-fight-kovid-19epidemic/articleshow/75210555.cms



रक्षा अनूसंधान और विकास संगठन (डीआरडीओ) ने एक संपर्क रहित सैनिटाइज़र डिस्पेंसर विकसित किया है जो संक्रमण के प्रसार को रोकने में मदद करता है।

नई दिल्ली: देश में बढ़ते कोरोना वायरस के मामलों को देखते हुए जहां सरकार ने देश में लागू लॉकडाउन की अवधी को 3 मई तक के लिए बढ़ा दिया हैं। वहीं, सीओवीआईडी -19 के खिलाफ लड़ाई में योगदान देने की अपनी निरंतर खोज में, रक्षा अन्संधान औ<mark>र विकास संगठन (डीआरडीओ) ने एक संपर्क रहित सैनिटाइज़र</mark> डिस्पेंसर विकसित किया है जो

संक्रमण के प्रसार को रोकने में मदद करता है।

डीआरडीओ के अध्यक्ष के प्रौदयोगिकी सलाहकार एस जोशी ने कहा कि डीआरडीओ ने एक संपर्क रहित डिस्पेंसर विकसित किया है और इसे अपने मुख्यालय में तैनात किया है। मशीन किसी भी स्पर्श के बिना सैनिटाइज़र को 20 सेकंड <mark>तक फैला</mark>ती है और इमारतों में प्रवेश करने वाले लोगों को कीटाण्र हित करने में मदद करती है। इस तरह की मशीनें अन्य एजेंसियों को भी प्रदान की जा सकती हैं।

रक्षा मंत्रालय ने एक बयान में कहा कि इकाई संपर्क के बिना रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) ने एक काम करती है और एक अल्ट्रासोनिक सेंसर के माध्यम से सक्रिय होती है। कम प्रवाह दर के साथ एक एकल द्रव नोजल का

उपयोग हाथ रगड़ने वाले सैनिटिसर को फैलाने के लिए वातित ध्ंध उत्पन्न करने के लिए किया जाता है। यह न्यूनतम अपव्यय के साथ हाथों को साफ करता है।

एटमाइज़र का उपयोग करते हुए, केवल 5-6 मिलीलीटर सैनिटाइज़र को एक ऑपरेशन में 12 सेकंड के लिए जारी किया जाता है और यह दोनों हथेलियों पर पूरा शंक् स्प्रे देता है ताकि हाथों की कीटाण्शोधन पूरी हो जाए। जानकारी के लिए बता दें कि देश में लगातार कोरोना वायरस के मामलों में बढ़ोतरी हो रही हैं। देश में फिलहाल कोरोना वायरस संक्रमितों की संख्या 13 हजार के पार पहुंच गई हैं। वहीं, केंद्र सरकार ने देश में लागू लॉकडाउन की अवधि को बढ़ाते हुए 3 मई तक लोगों से घरों में रहने की अपील की हैं। बता दें कि फिलहाल कोरोना वायरस के कारण पूरी दुनिया में संक्रमितों की संख्या 28 लाख से ज्यादा हो गई है।



संपर्क रहित सैनिटाइज़र डिस्पेंसर विकसित किया है जो

संक्रमण के प्रसार को रोकने में मदद करता है।

Sat, 18 April 2020

https://www.jagran.com/news/national-coronavirus-drdo-develops-contactless-sanitiser-dispenser-toprevent-spread-of-covid19-20199730.html



Sat, 18 April 2020

# DRDO वैज्ञानिकों ने बनाया बिना केमिकल इस्तेमाल वाला सैनिटाइजर कैबिनेट

- कोरोना वायरस के खिलाफ DRDO RCI के वैज्ञानिकों का अहम प्रयास
- RCI वैज्ञानिकों ने बनाया UVC सैनिटाइजर कैबिनेट
- बिना केमिकल इस्तेमाल के सैनिटाइज करना संभव

हैदराबादः डीआरडीओ हैदराबाद के डिफेंस लेबोरेटरी, रिसर्च सेंटर इमारत (RCI) ने UVC सैनिटाइजर कैबिनेट विकसित किया है। खास बात ये कि अल्ट्रा वॉयलेट किरणों की तकनीक से लैस ये कैबिनेट आपके इस्तेमाल किए हुए N-95 मास्क, मोबाइल फोन्स, आईपैड, लैपटॉप, करेंसी नोट, चेक बुक के पन्ने और कई अहम चीजों को बिना केमिकल के इस्तेमाल के सैनिटाइज करता है।

कोविड-19 के खिलाफ जंग में शरीक मेडिकल स्टाफ सहित बाकी जरूरी सेवाओं में रत स्टाफ के लिए जरूरी है कि वे बार बार इस्तेमाल की जीचों को सैनिटाइज करते रहें। जिसमें डीआरडीओ आरसीआई की तरफ से विकसित यूवीसी सैनिटाइजर कैबिनेट काफी कारगर साबित हो सकता है। खासकर N-95 मास्क को इस कैबिनेट में डालकर बार बार इस्तेमाल में लिया जा सकता है। मेडिकल एमरजेंसी की स्थिति में मास्क की बाजार में



DRDO RCI वैज्ञानिक एस गोपीनाथ और सौरभ कुमार

कमी है। ऐसे में UVC सैनिटाइजर कैबिनेट मु<mark>फीद साबित हो सकता है।</mark>

UVC सैनिटाइजर कैबिनेट बैंकिंग सेवा में कार्यरत लोगों के लिए भी काफी उपयोगी बताई जा रही है। WHO गाइडलाइन के मुताबिक कोरोना वायरस कुछ घंटों तक नोट या फिर कागजों पर टिका रह सकता है। ऐसे में बैंककर्मी बिना झिझक के ग्राहकों के लिए नोट कैबिनेट के जरिए सैनिटाइज कर पाएंगे। इसके बाद इसे फिर से ग्राहकों के लिए जारी किया जा सकता है।

UVC सैनिटाइजर कैबिनेट विकसित करने में साइंटिस्ट सौरभ कुमार (Sc: 'D') और एस गोपीनाथ, आउट्सटैंडिंग साइंटिस्ट व निदेशक (SINT) की अहम भूमिका रही। जिसमें आरसीआई के निदेशक BHSV मूर्ति का सक्रिय दिशा-निर्देश शामिल रहा।

खास बात ये कि देशभर में जारी लॉकडाउन और इस दौरान घोषित अवकाश के बावजूद वैज्ञानिकों ने अपने जज्बे का प्रदर्शन करते हुए सैनिटाइजर कैबिनेट विकसित किया। वैज्ञानिक सौरभ कुमार ने बातचीत में बताया कि एक हफ्ते के रिकॉर्ड कम समय में इस परियोजना को पूरा किया गया। इस दौरान इन्होंने लैब में अवकाश के बावजूद काम करने के लिए अपने वरीय अधिकारीयों से इजाजत ली। फिर तीन से चार दिनों के लगातार और अथक परीश्रम के बाद इन्हें UVC सैनिटाइजर कैबिनेट को आकार देने में सफलता हासिल हुई। वैज्ञानिकों ने बताया कि कैबिनेट में इस्तेमाल किए गए यूवीसी किरणों में वायरस और सूक्ष्म परजीवियों को मारने की क्षमता होती है। ये किरणें सीधे तौर पर वायरस के डीएनए पर हमला करती है, और इनके प्रसार या प्रजनन को तत्काल रोक देती है। कुल मिलाकर कहें तो ये किरणे घातक से घातक वायरस, जिसमें कोरोना वायरस भी शामिल है, को निष्क्रिय करने की क्षमता रखती है।

UVC किरणें न सिर्फ वायरस बल्कि इंसानों और जीवों के लिए भी घातक है। लिहाजा विकसित कैबिनेट में तमाम सहूलियतों का ध्यान रखा गया है। ताकि इंसान का कोई अंग सीधे तौर पर किरणों के संपर्क में न आ जाय।

https://hindi.sakshi.com/news/news/drdo-rci-hyderabad-scientists-configured-uvc-santizer-cabinet-78359



Sat, 18 April 2020

# कोरोना: DRDO का फैसला, अब INMAS में होगी टेस्टिंग

रक्षा अनुसंधान विकास संगठन (DRDO) ने पर्सनल प्रोटेक्टिव इक्विपमेंट (पीपीई) और मास्क की डिलीवरी में देरी को देखते हुए टेस्टिंग सुविधा को रक्षा अनुसंधान विकास प्रतिष्ठान (DRDE), ग्वालियर से इंस्टीट्यूट ऑफ न्यूक्लियर मेडिसिन एंड एलाइड साइंसेज (INMAS) में स्थानांतरित कर दिया है।

मंजीत सिंह नेगी

50 years

- PPE, माक्स की डिलिवरी में देरी पर DRDO का फैसला
- INMAS, DRDO की एक प्रमुख जीवन विज्ञान प्रयोगशाला

रक्षा अनुसंधान विकास संगठन (DRDO) ने पर्सनल प्रोटेक्टिव इक्विपमेंट (पीपीई) और मास्क की डिलीवरी में देरी को देखते हुए टेस्टिंग सुविधा को रक्षा अनुसंधान विकास प्रतिष्ठान (DRDE), ग्वालियर से इंस्टीट्यूट ऑफ न्यूक्लियर मेडिसिन एंड एलाइड साइंसेज (INMAS) में स्थानांतरित कर दिया है।

इंस्टीट्यूट ऑफ न्यूक्लियर मेडिसिन एंड एलाइड साइंसेज (INMAS), DRDO की एक अन्य प्रमुख जीवन विज्ञान प्रयोगशाला है। दिल्ली स्थित INMAS में टेस्टिंग के अलावा बॉडी सूट और मास्क के मूल्यांकन की भी सुविधा है और पूरी तरह से चालू है। इन चीजों के 10 से अधिक बैचों का पहले ही प्रयोगशाला में परीक्षण किया जा चुका है।

रक्षा अनुसंधान विकास प्रतिष्ठान (DRDE), ग्वालियर जो खतरनाक कोरोना (कोविड 19) वायरस से



कोरोना संक्रमण को रोकने के लिए जांच में लाई जा रही तेजी (फाइल फोटो- पीटीआई)

लड़ने में अग्रणी रहा है। अब एचएलएल लाइफकेयर लिमिटेड को विदेश से आने वाले मास्क और बॉडी सूट के लेबल दावों की पुष्टि करने का काम सौंपा गया है। एचएलएल लाइफकेयर लिमिटेड की ओर से पुष्टि किए जाने के बाद ही इसे अन्य एजेंसियों को वितरित किया जाएगा।

दूसरी ओर, चीन के गोंगझाउ एयरपोर्ट से गुरुवार सुबह कोरोना वायरस के इलाज में इस्तेमाल होने वाली किट्स की खेप भारत के लिए रवाना कर दी गई है। इस खेप में 6,50,000 टेस्टिंग किट्स शामिल हैं। इसके अलावा चीन से भारत के लिए रवाना इस खेप में रैपिड एंटी बॉडी टेस्ट और आरएनए एक्सट्रैक्शन किट्स भी शामिल है। हालांकि इस बीच दुनिया भर के कई देशों ने चीन से मंगाए जाने वाले सामान पर घटिया क्वालिटी के हाने का आरोप लगाया है।

भारत की तरफ से ऐसी कोई शिकायत सामने नहीं आई है, लेकिन यूरोप के कई देशों ने इस पर चिंता जताई है। भारत चीन ही नहीं बल्कि दक्षिण कोरिया से भी टेस्टिंग किट्स मंगवाने के लिए संपर्क कर रहा है। इसके अलावा इंग्लैंड, मलेशिया, फ्रांस और कनाडा समते कई अन्य देशों से जांच किट को लेकर कोटेशन लिए गए हैं।

https://aajtak.intoday.in/story/corona-virus-drdo-shifted-testing-facility-drde-gwalior-to-inmas-delhi-covid-19-1-1181737.html

# **DRDO Technology**



Sat, 18 April 2020

# HAL to start LCA-Tejas, ALH Dhruv Production facility from 20<sup>th</sup>

### By Raunak Kunde

Defense PSU Hindustan Aeronautics Limited (HAL), which had closed down all its production facility from 24th March will be reopening from 20th April and will resume manufacturing of LCA-Tejas and ALH Dhruv which had become standstill due to pandemic on orders of the Central Government.

HAL offices had open with reduced staff from 31st March but production facility and testing of the aircraft manufactured had not resumed, which will now resume from 20th April said industrial sources close to idrw.org.

Closing off the production facility will lead to some delays in the manufacturing of the aircraft under order but a limited number of the workforce will likely mean



that space of rate of manufacturing will be slow due to social distancing measures being imposed. (Note: Article cannot be reproduced without written permission of idrw.org in any form even for YouTube Videos to avoid Copy right strikes)

https://idrw.org/hal-to-start-lca-tejas-alh-dhruv-production-facility-from-20th/#more-225437

Sat, 18 April 2020



# Ditch the SARAS go for more planes from Do 228 family

By Joydeep Ghosh

Its high time that India ditches the SARAS, a white elephant which is the NAL built SARAS plane, whose Mk1 isa 14-seater with numerous defects and an under powered engine, and has been under development since the past nearly 3 decades. Most importantly it being developed and manufactured by NAL research lab with no expertise in manufacturing planes nor any capacity series produce planes. If ever Saras goes into series production, which is highly unlikely it will have to be done by HAL only.

Now it has come to light that a SARAS Mk2 being developed with a better performance engine and 19-seater capacity, Does that number ring a bell? yes it is the same capacity as Dornier 228 being built by HAL under full TOT from Dornier/RUAG/Fairchild. Now question is,



- 1. Why will HAL build 2 different 19-seater planes. (SARAS mk2 and Do 228)
- 2. How many years before SARAS mk2 gets flight certification?
- 3. Why will HAL allow duplication of resources
- 4. As a natural progress from Do 228 is it not a better idea to go for Do 328/428/528/728/928

#### Case for Do 328JET/428JET/528/728/928 jets

Reliance is building the Dornier328 turboprop, so HJAL can very well strike a deal with Fairchild Dornier to get full TOT about the Do 328 JET and 428 JET. The former has passenger capacity of 33, same as the turboprop and latter has a passenger capacity 44. Note the incremental natural progress in passenger carrying capacity.

HAL can start building the Do328JETand with TOT can start building the Do 428JET which was never able to compete against the costlier but popular Bombardier CRJ/Embraer ERJ/Embraer E-Jets. In the same way HAL either on its own or in association with Mahindra or Reliance can try grabbing the full ToT related to 528/728/928 jets from Fairchild Dornier. None of the 3 were ever fully built, so mostly remained a concept with design being completed and only the fuselage being constructed. Below are the specifications of these 3 jets: –

Note the incremental growth in passenger carrying capacity above from 63 to 110. This means these jets if made by HAL can practically solve the regional jet problem of India where India has been lagging behind severely and being forced to make do with Airbus/Boeing jets and other foreign design jets. Also note the fact India needs atleast 200-250 regional jets to connect every major city with far flung areas and tier II/III cities and towns. Currently HAL/NAL/ADA/ADE or anybody has not come even close to develop a concept of regional jet, only paper models have been shown in images, but this won't help solve India's need for low cost air travel.

So, it is a much better idea to go for already exiting design with ToT being available, only HAL has to make the right kind of offer. Also don't forget the requirement for 200-250 regional jets will mean 1000-1500 engine requirement mostly from General Electric and some from Pratt & Whitney. This will certainly help HAL develop expertise to provide MRO for civilian engines either on its own or it can allow other private companies join hands to do it.

This will eventually result in HAL developing civilian jet engine MRO and at later stage may

help in engine manufacturing subject to availability of rare earth minerals and human resources.All this creates huge potential for employment and aircraft related educational facilities/studies. Also, since other jets like Do 228/328 already have flight certification, so getting civilian flight certification for these new jets like jets like 428JET/528/728/928shouldn't be that difficult since these are just enlarged derivatives of the original design. Also, since these jets cost much less than the popular regional jets like Bombardier or Embraer, thus creating huge opportunity for setting up several low cost airlines company as across India and generating more employment.

Case for Merging NAL with HAL

As known HAL is an aircraft maker with its own research and development unit then what is the need for keeping NAL as a separate research laboratory and duplicate resources and effort. it is a far better idea to merge

	528	728	928
Wingspan	26.26 m (86 ft 2 in)	27.12 m (87 ft 4 in)	28.81 m (94 ft 6 in)
Wing sweep		23.5 degrees	23.7 degrees
Length	23.10 m (76 ft 8 in)	27.40 m (89 ft 9 in)	31.01 m (101 ft 8 in)
Height	9.05 m (29 ft 8 in)		9.97 m (32 ft 8 in)
Cabin width			
Typical cruise speed		Mach 0.81	Mach 0.8
Maximum cruise speed		Mach 0.82	
Operating range	2,963 km 1,600 nm	3,300 km 1,781 nm	3,565 km 1,925 nm
Empty Weight		20,435 kg (44,957 lb)	28,530 kg (62,766 lb)
Service Ceiling	11,280 m 37,000 ft		
Engine Options (2x)	General Electric CF34	General Electric CF34-8D1 (55.6 kN)	General Electric CF34 (75.6 kN)
Passengers (max)	63	80	110
Cockpit Crew	2		

NAL with HAL as then the research lab can complement HAL well with its research activities.

Let us hope better sense prevails in decision makers and they give these ideas a shot which is worth a lot in the long run in terms of providing employment, developing design expertise and above all provide low cost air travel opportunity to Indian populace, still a dream for many.

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https://idrw.org/ditch-the-saras-go-for-more-planes-from-do-228-family/#more-225443

### **COVID-19: Defence Forces Contribution**



Sat, 18 April 2020

# रक्षा मंत्री राजनाथ सिंह ने भारतीय सेना की मेडिकल फोर्सेस को दिए निर्देश, हर तरह की स्थिति से निपटने को रहें तैयार

देश के अंदर और देश के बाहर कोरोना वायरस से लड़ने में भारतीय सेना का आर्मड फोर्सेस मेडिकल सविसेस (एएफएमएस) महत्पूर्ण जिम्मेदारी निभा रहा है। रक्षामंत्री राजनाथ सिंह ने शुक्रवार को कोविड-19 से लड़ने में अब तक आर्मड फोर्सेस मेडिकल सविसेस के योगदान को लेकर समीक्षा बैठक की।

देश के अंदर और देश के बाहर कोरोना वायरस से लड़ने में भारतीय सेना का आर्मड फोर्सेस मेडिकल सविसेस (एएफएमएस) महत्पूर्ण जिम्मेदारी निभा रहा है। रक्षामंत्री राजनाथ सिंह ने शुक्रवार को कोविड-19 से लड़ने में अब तक

आर्मड फोर्सेस मेडिकल सविसेस के योगदान को लेकर समीक्षा बैठक की।

देशभर में जहां सिविल अथॉरिटीज को जरूरत पड़ रही है वहां एएफएमएस के विशेष जों की टीम पहुंच कर फौरीतौर पर सभी सहायता उपलबध करा रही है। इतना ही नहीं 15 चिकित्सकों का एक दल कुवैत सरकार के निवेदन पर भेजा गया। कोरोना मरीजों के इलाज के लिए एएफएमएस के डॉक्टरों के साथ पीसीआर मशीन और डॉयग्नोस्टिक-किट भी



भेजे गए। रक्षामंत्री ने उच्चस्तरीय समीक्षा बैठक में तारीफ करते हुए हिदायत दिया कि देश के अंदर भी हर तरह की स्थिति से निपटने के लिए टीम को तैयार रहना चाहिए। बैठक में उपस्थित रक्षा सचिव डा. अजय कुमार, एएफएमएस के निदेशक ले.जे. अनुप बनर्जी, महानिदेशक (आर्गेनाइजेशन एंड पर्सनल) ले.जे. एक हूडा, नेवी मेडिकल सर्विसे के डीजी सर्जन, वाइस एडमिरल एमवी सिंह और डीजी मेडिकल सर्विसेस (एयर) एयरमार्शल एमएस भुटोला ने बारी-बारी से विस्तृत जानकारी रक्षामंत्री को मुहैया कराई।

रक्षामंत्री के साथ हुई बैठक में जानकारी दी गई कि देश के अंदर कोरोना से छिड़ी जंग में हर तरह की मदद संबंधित विभागों से तुरंत किया जा रहा है। चाहे वो क्वारेंटाइन करने के लिए उचित जगह की जरूरत हो या फिर विभिन्न अस्पतालों में चिकित्सा व्यवस्था में विशेषज्ञता के लिहाज से दुरुस्त करने की बात हो। अधिकारियों के दल ने रक्षामंत्री को जानकारी दी कि केंद्रीय स्वास्थ्य मंत्रालय के अनुरोध पर इटली, चीन, मलेशिया और जापान से भारत आए सिविलियन्स के क्वारेंटाइन की सहूलियत मांगी गई थी जिसका बंदोबस्त छह स्टेशनों पर प्राथमिकता के आधार पर किया गया। विगत 1 फरवरी से अब तक 1 हजार 738 लोगों को क्वारंटीन की सहूलियतें प्रदान की गईं।

आधा दर्जन टेस्टिंग लैब शुरू एएफएमएस के अंतर्गत आने वाले अस्पतालों में आईसीएमआर के सहयोग से आधा दर्जन टेस्टिंग लैब्स शुरू किए गए। ले.जे. अनुप बनर्जी और डीजी एएफएमएस ने रक्षामंत्री को बताया कि महामारी से निपटने के लिए रक्षामंत्री द्वारा इमरजेंसी फाइनेंसियल पॉवर देने के कारण कोरोना से लड़ने के लिए अस्पतालों में सभी तरह के इंतजाम करने में बेहद आसानी हुई। चाहे पीपीई किट खरीदने का मामला हो या फिर सेनेटाइजर्स, मास्क या अन्य जरूरी चिकित्यकीय उपकरण जैसे वेंटीलेटर- सभी समय पर जरूरत के अनुसार खरीद कर समय पर व्यवस्था चाकचौबंद कर दी गई।

रक्षामंत्री को अधिकारियों को बताया कि दिल्ली के नरेला क्वारेंटाइन कैंप में छह मेडिकल ऑफिसर और 18 पारा-मेडिकल ऑफिसर दिनरात मरीजों की सेवा में जुटे हैं। एएफएमएस के अंतर्गत आने वाले 50 अस्पतालों को कोविड-19 अस्पताल घोषित कर दिया गया है जिसमें सिविलयन मरीजों के लिए 9 हजार 38 बेड की व्यवस्था है। लखनऊ और पुणे के एएफएमसी में प्रशिक्षण प्राप्त कर रहे 650 मेडिकल ऑफिसर की अतिरिक्त तैनाती इन खास अस्तपालों में कर दी गई है, जब कि 100 मेडिकल ऑफिसर्स पहले से तैनाती हैं।

<u>https://www.haribhoomi.com/news/india/defense-minister-gives-instructions-to-the-indian-army-medical-forces-to-be-prepared-to-deal-with-the-coronavirus-325279?infinitescroll=1</u>



Sat, 18 April 2020

# कोरो<mark>नावायरस / आर्मी चीफ नरवणे बोले- महामा</mark>री के दौर <mark>में भारत दुनिया को दवाइयां निर्यात</mark> कर रहा है,

# पाकिस्तान अब भी टेरर एक्सपोर्ट में व्यस्त

आर्मी चीफ जनरल नरवणे के मुताबिक, भारत दुनिया को दवाईयां निर्यात कर रहा है और पाकिस्तान अब भी टेरर एक्सपोर्ट में व्यस्त है।

- आर्मी चीफ के मु<mark>ताबिक, भा</mark>रत और दुनिया महामारी से लड़ रहे हैं, पाकिस्तान इस दौर में भी आतंकी साजिशों से बाज नहीं आ रहा
- भारतीय सेना ने पिछले दिनों पीओके के दुंधियाल में आतंकियों के लॉन्च पैड्स नेस्तनाबूद कर दिए थे
- शुक्रवार दोपहर पाकिस्तान ने फिर पुंछ में फायरिंग के साथ मोर्टार दागे 50 वर्ष

**कुपवाड़ा**: आर्मी चीफ जनरल एमएम नरवणे के मुताबिक, कोरोना महामारी के दौर में भी पाकिस्तान आतंकी साजिशों से बाज नहीं आ रहा। नरवणे ने शुक्रवार को कहा कि भारत दुनिया को कोरोना से निपटने के लिए दवाइयां निर्यात कर रहा है। लेकिन, पाकिस्तान अब भी आतंकवाद के एक्सपोर्ट में व्यस्त है। आर्मी चीफ शुक्रवार को जम्मू-कश्मीर पहुंचे। यहां एलओसी पर हालात की समीक्षा की। इसके बाद मीडिया से बातचीत की। यहां उनकी प्रेस कॉन्फ्रेंस में पूछे गए सवाल और जवाब...

Q : पद संभालने के बाद आप तीसरी बार जम्मू-कश्मीर आए हैं। पिछले कुछ दिनों में संघर्ष विराम उल्लंघन बढ़ा है। आम नागरिकों को भी काफी नुकसान हुआ है। आप इसे कैसे देखते हैं।

A : जैसा कि आप जानते हैं पिछले हफ्ते खराब मौसम का फायदा उठाकर घुसपैठ की कोशिश करने वाले पांच आतंकियों को हमने मार गिराया। बदकिस्मती से हमारे पांच बहादुर जवान भी शहीद हुए। मैं खुद यहां के हालात का जायजा लेने आया हूं कि किस तरह हमारे जवान हालात का मुकाबला कर रहे हैं। बर्फ का फायदा उठाकर पाकिस्तान आर्मी घुसपैठ की साजिशें रच रही है। खुफिया रिपोर्ट्स के मुताबिक, एलओसी के उस पार आतंकियों के सभी लॉन्च पैड्स एक्टिव हैं। उनकी फायरिंग में आठ साल का बच्चा भी मारा गया। निर्दोष कश्मीरी भी मारे गए हैं। दुनिया को इस पर ध्यान देना चाहिए। पाकिस्तान कश्मीरियों के दोस्त होने का दावा करता है। मैं पूछना चाहता हूं कि ये किस तरह की दोस्ती है। वो लोगों को मार रहा है और आतंकवाद फैला रहा है। मैं यहां अपने लोगों से मिलने आया हूं। हम यहां अमन और खुशहाली लाने की कोशिश कर रहे हैं। यहां मैं ये साफ कर देना चाहता हूं कि भारतीय सेना दुश्मन की हर हरकत का माकूल जवाब दे रही है।

### Q: अनुच्छेद 370 हटाए जाने के बाद जो हालात हैं, उनके बारे में आपका क्या आंकलन है। इस पर आगे क्या रणनीति है?

A: यहां हालात सुधरे हैं और उनमें स्थिरता आई है। इसमें सरकार और सुरक्षा बलों का योगदान है। ज्यादातर पाबंदियां हटाई जा चुकी हैं। रोजमर्रा की चीजें सही चल रही हैं। कोविड-19 की वजह से कुछ जरूरी कदम उठाए गए हैं। दुनिया कोरोनावायरस से लड़ रही है। लेकिन, पाकिस्तान अब भी आतंकियों को भेजकर आम लोगों को निशाना बना रहा है। तीन दिन पहले ही कश्मीर के एक रिटायर्ड सैनिक पर हमला हुआ। हम सतर्कता में जरा भी ढील नहीं दे सकते। लोगों को इस वक्त पाकिस्तान का दोहरा चरित्र और झूठ देखना चाहिए। मैं यहां के लोगों से अपील करता हूं कि वो पाकिस्तानी प्रोपेगंडा के झांसे में न आएं। घाटी में अमन और विकास में हमारा साथ दें।

### Q: भारतीय सेना स्थानीय प्रशासन की महामारी से निपटने के मामले में कैसे सहायता कर रही है?

A: हम एक कई मोर्चों पर काम कर रहे हैं। देश की सीमाओं पर बाहरी खतरों से निपट रहे हैं। इसके अलावा घाटी में कोविड-19 संक्रमण को रोकने में स्थानीय प्रशासन की मदद कर रहे हैं। सैनिकों को संक्रमण से बचाने के लिए जरूरी प्रोटोकॉल का भी पालन किया जा रहा है। घुसपैठ पर पैनी नजर रखी जा रही है। चीफ सेक्रेटरी के कहने पर हमने अपना कमांड हॉस्पिटल आम लोगों के लिए खोल दिया है। देश के बाकी हिस्सों में भी सेना ने अपनी फैसेलिटीज को क्वैरेंटाइन सेंटर्स के लिए उपयोग के तौर पर दिया है। हमारी मेडिकल टीम मालदीव और कुवैत में तैनात हैं। वहां की सरकारों ने मदद मांगी थी। सार्क देशों की मदद के लिए सेना की यूनिट स्टेंडबाय मोड पर हैं। मुझे गर्व है कि हमारे जवान महामारी का भी मुकाबला कर रहे हैं और पाकिस्तान प्रायोजित आतंकवाद का भी। हमारा मंत्र है- डरने की नहीं, सावधान रहने की जरूरत है।

### Q: कोविड-19 के दौर में सेना के ऑपरेशन्स पर क्या असर हुआ।

A: हमने कई ऐहतियाती कदम उठाए हैं। सैनिकों के लिए गाइडलाइंस जारी की गई हैं। ज्यादा आवाजाही पर रोक है। कॉन्फ्रेंस और सेमिनार रद्द कर दिए गए हैं। फिलहाल, हमारा फोकस इस महामारी से निपटना है। भविष्य को लेकर भी हम कई सावधानियां बरत रहे हैं। अगर किसी सैनिक को दिक्कत है तो उसे करीबी मिलिट्री स्टेशन पर रिपोर्ट करने को कहा गया है। जरूरत पड़ने पर 14 दिन क्वैरैंटाइन किया जा रहा है। इसके लिए स्पेशल ट्रेन और एयरक्राफ्ट हैं। वापसी में ये ट्रेनें छुट्टी पर जाने वाले जवानों को लाती हैं। दक्षिण भारत से दो स्पेशल ट्रेन जम्मू और गुवाहाटी के लिए चलाने की तैयारी है। आज एक ट्रेन शुरू भी हो गई है। ये बेंगलुरु से बेलगाम, सिकंदराबाद और अंबाला होते हुए जम्मू जाएगी।

### Q: गर्मियां शुरू हो गई हैं। एलओसी पर आपकी क्या रणनीति होगी? इस बार कोई नयी चुनौती है क्या?

A: इस बारे में लोकल कमांडर्स ही तय करते हैं कि क्या रणनीति होगी। कई चीजों पर विचार करना होता है। राष्ट्रीय हित में हम हमेशा देश के किसी भी हिस्से में ऑपरेशन्स को अंजाम देने के लिए तैयार रहते हैं। हम दुश्मन को जवाब देना जानते हैं। प्रायोजित आतंकवाद के खिलाफ भी सेना रणनीति के हिसाब से जवाब देती है। ये साफ है कि आतंकवाद सहन नहीं किया जाएगा। घुसपैठ रोकने पर जोर दिया जाता रहेगा। कोविड-19 के खिलाफ प्रोटोकाल्स का पालन करते हुए भी हम आतंकवादियों पर दबाव बनाए रखेंगे।

<u>https://www.bhaskar.com/national/news/haryana-coronavirus-update-bjp-leader-babita-phogat-latest-</u> <u>reaction-tablighi-jamaat-members-127188293.html?art=next</u>



# **Coronavirus | Armed Forces Medical Services** pitches in to combat COVID-19

Procurement of face masks, sanitisers, PPEs and ventilators was on smoothly at a fast pace: Defence Ministry

The Armed Forces Medical Services (AFMS) has stepped up efforts to assist the civil administration in fighting COVID-19. As part of this, orders have been issued notifying 50 AFMS hospitals as dedicated COVID hospitals and mixed COVID hospitals for isolation and treatment, the Defence Ministry said on Friday after a review meeting on the Ministry's efforts by Defence Minister Rajnath Singh.

"These hospitals have a combined bed capacity of 9,038 patients. Civilian COVID-19 cases would also be admitted in these hospitals as a surge capacity to augment the state healthcare facilities," the Ministry said in a statement.

Lt. Gen. Anup Banerjee, Director General of AFMS, informed Mr. Singh that following emergency

and further down the hierarchy, of essential procurement health equipment such as face masks,



financial powers granted to DGs MS Defence Minister Rajnath Singh, wearing a face mask, holds a meeting to review the functioning of Armed Forces Medical Services (AFMS) and their assistance to civilian authorities in containing spread of COVID-19 pandemic, in New Delhi on Friday. | Photo

sanitisers, Personal Protective Equipment (PPEs) and ventilators was on smoothly at a fast pace, the Ministry stated.

In addition, training activities have been suspended at the Army Medical Corps (AMC) Centre and College, Lucknow, and Armed Forces Medical College (AFMC), Pune, and approximately 650 medical officers undergoing post-graduate training at the AFMC would be reverted to units for providing medical cover depending on the situation. "In addition, 100 medical officers from recruiting organisations are being detailed to work in hospitals where COVID wards are being established," the statement said.

A list of retired AMC officers and paramedical staff had been readied and they may be requested to volunteer for working in AFMS hospitals at their current home stations if the need arose. Forty-three officers and 990 paramedics have volunteered till date, it stated. Six viral testing labs had been established with the help of the Indian Council of Medical Research (ICMR) at various AFMS hospitals.

#### **DRDO's New Products**

The Defence Research and Development Organisation (DRDO) said in a statement that it had introduced new products to aid in the fight against COVID-19 — an automatic mist based sanitiser dispensing unit developed by the Centre for Fire Explosive and Environment Safety (CFEES), Delhi, and an Ultraviolet-C Light based sanitisation box and hand-held UV-C device designed and developed by the Defence Institute of Physiology and Allied Sciences (DIPAS) and the Institute of Nuclear Medicine & Allied Sciences (INMAS), both based in Delhi.

https://www.thehindu.com/news/national/armed-forces-medical-services-pitches-in-to-combat-covid-19/article31367366.ece



Sat, 18 April 2020

# Indian Army takes 'covid terrorism' very seriously; issues guidelines on handling militant bodies

Amid reports of Pakistan sending coronavirus infected militants into Kashmir, the Indian Army has issued guidelines on handling & disposing bodies of terrorists. The soldiers deployed in the forward post have been asked to wear protective gear and maintain no direct contact with the dead bodies.

The new guidelines were made when the intelligence agencies discovered that Pakistan was planning to send COVID-19 infected people across the border to spread the infection among the Indian Army soldiers.

Going forward, the Indian Army soldiers are to follow a specific standard operating procedure (SOP) while disposing of bodies of terrorists killed in encounters as they could be infected with COVID-19. "The



contact must be minimum while burying the bodies. Instructions have been passed on to all field locations in forward areas to take necessary precautions and wear protective gear while handling bodies," said an Army official.

The influx of infiltrators into Jammu and Kashmir comes after reports emerged in the Indian media that Pakistan was aggressively shifting militants into Kashmir to grab international attention.

Sources in Pakistan-controlled-Kashmir reveal that special quarantine centers have been set-up in Mirpur and other major cities in the regions to cleanse the Punjab province of COVID-19 patients as the army top brass has ordered that no positive patient should be anywhere near where Army facilities and Army family housing.

Paying no heed to the coronavirus scare, the ceasefire violations and hostilities at the Line of Control have increased. 1,200 cases this year have been reported and they keep increasing with time. According to India Today, in January, there were 367 ceasefire violations, while in February the number was at 366. And as the pandemic hit India and Pakistan in March, the numbers swelled up to 411. This month, the tally has already crossed 60.

Officials claim that this is one of the many attempts of the Pakistan Army to divert the Indian soldiers who are busy tending to the coronavirus relief measures in the country. Reports claim that Pakistan has a large number of COVID-19 patients who are being moved in locked transport carriers to Mirpur city and other parts of Pak-administered-Kashmir and Gilgit Baltistan.

Earlier, as EurAsian Times cited ANI, Sardar Shaukat Ali Kashmiri, exiled chairman of the United Kashmir People's National Party (UKPNP), had blasted Imran Khan government and stated that Pakistan is deliberately infecting Pakistan-controlled-Kashmir with coronavirus.

Shaukat Ali told ANI: "Islamabad must end intentionally spreading coronavirus in PoK to get international aid. Imran Khan PTI government is intentionally spreading the coronavirus to get international aid and is also trying to use the territory of Kashmir to house their sick, which is a diabolical move."

He added: "It's is good to note that the people of Mirpur are conscious about this move and opposing. Pakistani security personnel forced locals to evacuate their properties (plazas) and Mohi-

Ud-Din teaching hospital to convert them into quarantine centres. Pakistani agencies are requesting and forcing locals to stop resisting and cooperate, otherwise be ready to face the consequences". <u>https://www.defencenews.in/article/Indian-Army-Takes-%e2%80%98Covid-Terrorism%e2%80%99-Very-</u> Seriously;-Issues-Guidelines-On-Handling-Militant-Bodies-830228



Sat, 18 April 2020

### Armed Forces: Running the Corona gauntlet By Col R Hariharan

The Covid-19 virus pandemic took four months to affect one million people worldwide; but in just 12 days it has doubled the figure. It is clear the world is in for a long haul in its fight to bring it under control. As on April 16, India's share is only 12,380 confirmed cases and a death toll 413 so far, less than one fifth of 2,228 deaths in a single day in the US. Rather than patting our backs, we should worry about the second phase when the virus spreads exponentially.

The Union health ministry has identified and brought 170 "hotspot" districts including the metropolitan cities of Delhi, Mumbai and Chennai, under active lockdown. In this period it is proposes to carry out house to house survey and case detection as part of active containment strategy to break the chain of virus transmission. In the first phase, the country has managed to create 220 testing labs, earmark over one lakh beds and over 600 dedicated hospitals exclusively for fighting the virus pandemic. However, if we go by global projection, it is in the second phase the nation's preparedness will be fully tested.

Prime Minister Narendra Modi has extended the national lock down till May 3. He has warned that it would be more stringent, but promised to implement with a human face to reduce its adverse impact on the poor. The nation despite its diversity of caste, creed and political differences seems to have risen to the occasion to unitedly fight the virus threat. The Centre and states are on the same page; every organ of government, corporate houses, civil society and people in all walks of life are lending their support to the overall effort.

However, in the second phase when people come under increased stress, social cohesion of the country is likely to be tested more often. Already, the economy has taken a nose dive. Industry, trade and commerce have ground to a halt rendering lakhs of people unemployed. Although, governments have taken palliative measures to provide them essential supplies and some money, curbing of free flow of normal life is likely to further increase the general feeling of insecurity. Sectarian elements are already cashing on this among vulnerable population, spreading mischievous and fake news to churn up their emotions.

Already in a few places, police patrols enforcing the lockdown and medical teams carrying out the testing have been attacked. Thousands of migrant workers from Bihar and Bengal gathering near Bandra railway station in Mumbai demanding trains to go home, after the PM announced the extension of lock down, is a recent example of such behaviour. Civil administration is likely to face more such challenges during the strict lockdown phase.

The administrative organs and law enforcing agencies are already fully stretched in enforcing the lockdown and testing. Under such compulsions, services of armed forces are likely to be sought more frequently in the coming days. This will be in addition to the support the armed forces particularly, the army and the air force, are providing round the clock to the civil administration in many remote and not easily accessible areas in North Eastern states, Ladakh and J and K to reach out to the people.

Unlike some organs of the government, armed forces are professionally structured to handle emergencies and crisis situations. Troops are regularly trained and tested to undertake missions at short notice and operate under adverse conditions. They have well-defined command and control structure with self-contained logistics to maximise their effectiveness. In handling pandemics, military is probably best equipped because its units maintain high hygiene standards and regularly monitor, prevent and treat infections among troops lest the unit's operational effectiveness is compromised. This makes them especially useful in achieving public health goals during national epidemics.

Armed forces are already geared up to fight the COVID-19 to assist the civil administration in many parts of the country. The Army has dedicated its 13 hospitals located across the country, exclusively for the treatment of COVID-19 patients. The collective capacity of these facilities is 3000 beds with about 370 intensive care and high dependency units. In J and K, army is carrying out virus awareness programmes in many places.

The IAF transport aircraft have flown hundreds of sorties to airlift 380 tonnes of critical medical supplies and stores and evacuate hundreds of Indians stranded overseas. In Operation Sanjeevani, IAF airlifted medical supplies to Male, Maldives on April 2. It has been involved in such operations since February. On February 26, it flew medical supplies to China and evacuated 112 Indians and foreigners from Hubei province in China. In March, IAF evacuated 58 Indians from Iran. Last month, an IAF aircraft evacuated 58 Indians from Iran and also carried 529 samples for investigation.

The IAF is providing medical care to Indian citizens evacuated from Iran and Malaysia at air bases at Hindon and Tambaram respectively. It has set up nine quarantine facilities of 200-300 personnel capacity each. The IAF has established 24×7 crisis management cells at Air Headquarters and various Command Headquarters.

However, it should not be forgotten that army is actively committed in J and K and in parts of Northeast. Even as the nation is fighting COVID-19 virus, infiltration across the LoC in J and K has continued. In the anti-infiltration operation in Keran sector of North Kashmir, troops braving inclement weather and hostile terrain have so far eliminated five terrorists attempting to infiltrate across the LoC in the first week of April. With five more terrorists killed elsewhere in the valley, in 24 hours ten of them were eliminated. As the passes open we can expect more infiltration bids.

Armed forces nightmares are made of epidemic strike than enemy attack. This is based on the historical experience of many epidemics militaries had faced the world over. According to the US War Department's most conservative estimate during the World War I, influenza struck 26 per cent of the million strong US expeditionary forces and killed almost 30,000 before they even reached France. The Navy recorded 5,027 deaths and more than 106,000 hospital admissions for influenza and pneumonia out of 600,000 men,

One of the memories of 1965 war etched in my mind is lining up with the crew of our artillery battery to receive two shots each – one for tetanus and the other for typhoid- from the medical officer. Our neighbouring infantry battalion, which did not follow standing orders for war, paid a heavy price during operations; one of its company was declared unfit for war after typhoid struck most of the men. Our neighbouring infantry battalion which did not follow standing orders for war in earnest paid a heavy price during operations; one company of troops were struck by typhoid and rendered not fit for war.

Army does not take kindly to failure in preventive health issues and quickly demoted the errant commanding officer to the rank of Major for his dereliction. That is why every soldier remembers the mosquito net drill and the "malaria parade" followed every week when troops are lined up and made to swallow the bitter anti-Malaria pill.

(The writer is a military intelligence specialist on South Asia, associated with the Chennai Centre for China Studies and the International Law and Strategic Studies Institute)

https://www.indialegallive.com/special/armed-forces-running-the-corona-gauntlet-96327



Sat, 18 April 2020

# कोरोना से जंग के लिए सेना ने पोस्टग्रेजुएट पढ़ाई कर रहे अपने 650 डाक्टरों को बुलाया

कोरोना से लड़ाई में सेना ने पोस्ट ग्रेजुएट कोर्स कर रहे 650 मेडिकल आफिसर (डाक्टरों) को तात्कालिक तौर पर अध्ययन से बुलाकर तैनात करने का फैसला किया है।

**नई दिल्ली**: कोरोना से लड़ाई की जंग में सेना ने पोस्ट ग्रेजुएट कोर्स कर रहे 650 मेडिकल आफिसर (डाक्टरों) को तात्कालिक तौर पर अध्ययन से बुलाकर महामारी से मुकाबले के लिए तैनात करने का फैसला किया है। आर्मी मेडिकल सेंटर एंड कॉलेज लखनऊ और आमर्ड फोर्सेस मेडिकल कॉलेज पुणे में पोस्ट ग्रेजुएट कोर्स कर रहे इन मेडिकल आफिसर्स को अपनी-अपनी यूनिट में लौटने के लिए कह दिया गया है। वहीं दर्जनों पूर्व सैन्य चिकित्सकों समेत एक हजार से अधिक सेना के रिटायर पैरामेडिकल स्टाफ ने भी कोरोना से जंग के लिए फिर से मैदान में उतरने की पेशकश कर दी है।

### मेडिकल आफिसर्स <mark>क</mark>वर के रूप में इनकी होगी तैनाती

रक्षामंत्री राजनाथ सिंह की सेना के शीर्ष चिकित्सा अधिकारियों के साथ कोरोना से जंग में सेना के प्रयासों की समीक्षा बैठक में लखनऊ और पुणे में अध्ययनरत मेडिकल आफिसर्स को उनके यूनिट में भेजने की जानकारी दी गई। कोरोना के इलाज में जुटे चिकित्साकर्मियों के भी कोरोना पॉजिटिव होने के खतरों को भांपते हुए ये सभी मेडिकल आफिसर्स कवर के रूप में अपने



यूनिट में रहेंगे और हालात के अनुरूप इनकी तैनाती होगी। रिक्रूटमेंट एजेंसियों के जरिए 100 मेडिकल आफिसर्स को केवल कोविद से जुड़े सैन्य अस्पतालों में इलाज के लिए तैनात किया गया है।

### 43 डाक्टरों समेत 990 सेवानिवृत्त पैरामेडिकल कर्मी सेवाएं देने को तैयार

रक्षा मंत्रालय के अनुसार कोरोना की चुनौती को देखते हुए सेना के रिटायर 43 डाक्टरों समेत 990 सेवानिवृत्त पैरामेडिकल कर्मी अपनी सेवाएं देने को तैयार है। इन सभी ने अपने अपने शहर वाले स्टेशनों के निकट के अस्पतालों में काम करने की लिखित पेशकश भेज दी है जिन्हें सेना आवश्यकता के अनुसार सेवाएं देने के लिए कह सकती है।

### 50 अस्पतालों को कोविड अस्पताल बनाया गया

कोरोना के इलाज के लिए आमर्ड फोर्सेस मेडिकल सर्विसेज के 50 अस्पतालों को कोविड अस्पताल बनाया गया है। इन कोविड अस्पतालों में 9038 मरीजों के लिए बेड का इंतजाम है। रक्षा मंत्री के साथ कोरोना के खिलाफ जंग की तैयारियों पर हुई इस समीक्षा बैठक में रक्षा सचिव डा अजय कुमार, एएफएमएस के महानिदेशक लेफ्टिनेंट जनरल अनुप बनर्जी के अलावा सेना, नौसेना और वायुसेना मेडिकल कोर के शीर्ष चिकित्सा अधिकारी भी मौजूद थे। रक्षा मंत्री ने सैन्य बलों के कोरोना जंग में भूमिका की तारीफ करते हुए इस संकट के दौरान आम नागरिकों को भी चिकित्सा सहायता उपलब्ध कराने को कहा।

<u>https://www.jagran.com/news/national-indian-army-called-650-of-its-post-graduate-doctors-to-battle-corona-20199853.html</u>

### **Defence Strategic: National/International**



Sat, 18 April 2020

# Remain prepared to give befitting reply to any misadventure from across: Army Chief

Army Chief General MM Naravane on Friday impressed upon the commanders to maintain strict vigil along the Line of Control and remain prepared to give a befitting reply to any misadventure from across. On the second day of his two-day visit to the Kashmir Valley, General Naravane, the Chief of Army Staff (COAS), visited the forward areas and reviewed the security situation along the LoC, which has seen an escalation of tension recently after a deadly gunfight in Keran sector of Kupwara.

The COAS accompanied by Northern Army Commander Lt Gen YK Joshi and Chinar Corps Commander Lt Gen BS Raju visited the formations and units, wherein the local commanders briefed the COAS on the existing security situation and the measures instituted so that infiltration bids by terrorists are foiled.

"The Chief of Army Staff was briefed by the local commanders on the situation on the Line of Control, ceasefire violations, our retaliations, counter-infiltration

operations and operational preparedness being maintained," the Srinagar-based defence spokesman said.

During his interaction with the soldiers on snow-clad heights, he was appreciative of the sharp vigil and alertness along the Line of Control and high morale of the troops.

The COAS also impressed upon the commanders to maintain strict vigil along the Line of Control and remain prepared to give a befitting reply to any misadventure from across and exhorted the soldiers to remain alert for any eventuality.

There has been an escalation of tension along the LoC after a recent fierce encounter in Keran Kupwara, in which five elite Para commandos and as many militants were killed.

Days later the Indian Army targeted militant launch pads and gun positions in Keran sector following a ceasefire violation by Pakistan.

Three civilians, including a seven-year-old child, were killed in cross-border shelling in Kupwra some days ago.

https://idrw.org/remain-prepared-to-give-befitting-reply-to-any-misadventure-from-across-army-chief/



# The**Print**

### Sat, 18 April 2020

# Pakistan busy exporting terror while India fights Covid-19 globally: Army Chief Naravane

On a visit to J&K, Gen. M.M. Naravane says Pakistan's recent ceasefire violations and infiltration attempt 'doesn't augur well' at a time like this

Kupwara: Army Chief General MM Naravane on Friday slammed Pakistan for "exporting terror" at a time when India and the world were fighting the coronavirus pandemic.

"While we are busy not only helping our own citizens but the rest of the world too by sending medical teams and exporting medicines. On the other hand, Pakistan is only exporting terror. This doesn't auger well," the Army Chief told ANI here. The Army Chief, who is on a visit to Jammu and Kashmir, to review LoC operations, said, "It is very unfortunate that at a time when the whole world and India is fighting the pandemic, our neighbour continues to foment trouble for us."



Army chief Gen. M.M. Naravane | Photo: ANI

The LoC in recent days has seen several ceasefire violations by Pakistan.

Recently, the Indian Army carried out precision strikes against terrorist launchpads in the Dudhniyal area in Pakistan-occupied Kashmir.

The operation was undertaken by the force after a series of ceasefire violations and infiltration attempts by the Pakistan Army in the Keran sector.

The Indian Army also killed five terrorists who had infiltrated from the Keran sector on April 1.

The terrorists had used the same launch pad which was targeted and destroyed by the Army later on in Dudhniyal.

https://theprint.in/defence/pakistan-busy-exporting-terror-while-india-fights-covid-19-globallyarmy-chief-naravane/403868/



Sat, 18 April 2020

# Army arranges special train to ferry personnel to formations along Pakistan, China borders

The Army personnel are returning to field formations after completing professional courses at Army training establishments at Bengaluru, Belgaum and Secundrabad

New Delhi: Around 950 Army personnel on Friday left for Jammu from Bengaluru on a special train for their deployment in various field formations along the border with Pakistan, military officials said.

Another train is set to operate from Bengaluru on Saturday to take another group of Army personnel to the North Eastern region for their deployment in forward posts along the border with China, they said.
The trains were arranged following approval from the Union Home Ministry and the Railways to facilitate deployment of the personnel at various frontline field formations along the borders with the two countries, official sources said.

The Railways has suspended all its passenger trains till May 3 in sync with the nationwide lockdown to fight the coronavirus pandemic.

The Army personnel are returning to field formations after completing professional courses at Army training establishments at Bengaluru, Belgaum and Secundrabad, the sources said.

The sources said all personnel have undergone mandatory quarantine period and are medically fit, adding the train is scheduled to reach Jammu on April 20.

All laid down measures recommended by competent authorities to insulate the personnel were taken including sanitising the bogies of the train, the sources said.

The second train to ferry army personnel to units deployed in the Northeastern region will go to Guwahati via New Jalpaiguri.

The Indian Army has taken a series of measures to insulate its 13 lakh personnel from the coronavirus pandemic.

India went under a total shutdown of 21 days from March 25 to April 14 to fight the coronavirus pandemic.

On Tuesday, Prime Minister Narendra Modi announced extending the lockdown till May 3.

The Indian Army on Thursday directed all its military establishments, cantonments, formation headquarters and field units to totally restrict movement of forces till April 19 in view of the government's fresh lockdown related guidelines.

The order also mentioned that offices in Army headquarters, command headquarters and formation headquarters would start functioning with 50 per cent manpower from April 19 to May 3.

It said all training activities and temporary duties will remain suspended till May 3, adding directions on actions to be taken post the lockdown period will be issued on receipt of fresh orders from the government.

Last month, Army Chief Gen Manoj Mukund Naravane issued instructions to insulate the 13 lakh strong Army from the coronavirus pandemic.

Gen Naravane also conveyed to the families of the soldiers guarding India's borders with Pakistan and China that the Army is taking care of its personnel serving the country in this difficult time.

https://www.newindianexpress.com/nation/2020/apr/17/army-arranges-special-train-to-ferry-personnel-to-formations-along-pakistan-china-borders-2131534.html

THE ECONOMIC TIMES

Sat, 18 April 2020

### US sale of missiles to India disturbing, would destablise region: Pakistan

US State Department this week notified Congress of its determination to sell Harpoon airlaunched anti-ship missiles and Mark 54 lightweight torpedoes worth \$155 million to India to enhance its deterrent capabilities against "regional threats" and to bolster its homeland defence.

Islamabad: Pakistan on Friday said the sale of anti-ship missiles by the US to India was "disturbing" and would "destabilise" the region.

The US State Department this week notified Congress of its determination to sell Harpoon airlaunched anti-ship missiles and Mark 54 lightweight torpedoes worth \$155 million to India to enhance its deterrent capabilities against "regional threats" and to bolster its homeland defence.

Addressing a media briefing here, Pakistan Foreign Office spokesperson Aisha Farooqui said the sale of the missiles by the US to India was disturbing.

"The sale of such missile systems, along with technical assistance and logistic support at the time when there is a global effort to fight the pandemic is particularly disturbing...This will destabilise the already volatile situation in South Asia," she said.

Farooqui again contended that there was a high possibility of India conducting a "false flag operation" while global efforts are directed towards combating the coronavirus pandemic.

She said Pakistan had articulated its concerns regarding the sale of sophisticated weapons to India which would further destabilise the region.

Replying to a question about the restoration of diplomatic relations up to High Commissioners level between Pakistan and India, Farooqi said Pakistan always wanted good relations with all neighbouring countries.

"India needs to create an enabling environment for a meaningful engagement that could lead to resolution of the Kashmir dispute in accordance with the wishes of the Kashmiri people and the United Nations Security Council (UNSC) Resolutions," she said.

The relations between the two nations strained following the Balakot strike when the Indian Air Force jets bombed a Jaish-e-Mohammed training camp in Pakistan on February 26 last year to avenge the killing of 40 Central Reserve Police Force personnel in the Pulwama terror attack on February 14.

Pakistan retaliated on February 27 by attempting to target Indian military installations.

The ties further nose-dived after the Indian government abrogated Article 370 that granted special status to Jammu and Kashmir in August last. Pakistan downgraded diplomatic relations with India and expelled Indian High Commissioner.

India has maintained that Jammu and Kashmir is an internal matter of India and does not want anyone's interference in it.

During the press conference, Farooqui said the statement issued by the US Commission on International Religious Freedom (USCIRF) on April 13 claiming denial of food aid to minorities in Pakistan was not based on facts and seems have relied on inaccurate sources.

"In response to the unprecedented challenge posed by COVID-19 pandemic, the Government of Pakistan is protecting all of its citizens without any discrimination," she said.

The United States Commission on International Religious Freedom (USCIRF) issued a statement expressing concern over the denial of food aid to Pakistani Hindus and Christians amid the COVID-19 lockdown in Pakistan.

<u>https://economictimes.indiatimes.com/news/defence/us-sale-of-missiles-to-india-disturbing-would-destablise-region-pakistan/articleshow/75207882.cms</u>

## hindustantimes

### US space force is arming to jam Russian, Chinese satellites

Since its formation last year as the sixth branch of the US military, attention has focused on the Space Force's defensive duty in safeguarding US satellites

The new US Space Force is building an arsenal of as many as 48 ground-based weapons over the next seven years designed to temporarily jam Russian or Chinese communications satellite signals in the opening hours of a conflict.

The first system, made by L3Harris Technologies Inc., was declared operational last month after years of development, and the Space Force has taken delivery of 16 of them. The service is also developing a new system, known as Meadowland, that's lighter-weight, capable of adding updated software and able to jam more frequencies.

Since its formation last year as the sixth branch of the US military, attention has focused on the Space Force's defensive duty in safeguarding US satellites and on organizational questions about its budget and its relationship with the Air Force. Less has been disclosed about its offensive role, which centers on Meadowland.

"Nothing else we're doing in Space Force is offensive in nature, where we are actually going after an adversary," said Lieutenant Colonel Stephen Brogan, a unit head in the combat systems branch of the Air Force Space and Missile Systems Center, which is managing development and procurement.

L3Harris, based in Melbourne, Florida, is already developing four Meadowland systems projected for delivery around October 2022. By this December, the Space Force plans to open a competition for 28 more, with funding starting in fiscal 2021 and systems projected for delivery from late 2023 to early 2027.

As of now, Brogan said in an interview, the jamming systems are designed to interfere with communications satellites and not those for data relay or taking photos.

US defense officials long spoke against turning space into a battlefield, much less fielding weapons that could demolish targets and add more hazardous space debris.

The Space Force said in a statement that "China and Russia have weaponized space with the intent to hold American space capabilities at risk," and the U.S. has the inherent right of self-defense.

Russia's test launch on Wednesday of an anti-satellite missile is "further proof of Russia's hypocritical advocacy of outer space arms control proposals designed to restrict the capabilities of the United States while clearly having no intention of halting their counterspace weapons programs," the Space Force said in a separate statement.

The new jamming system can be used early in a conflict and won't create "space junk" because it emits energy designed to cause temporary, "reversible" interference, Brogan said.

The Air Force said in a separate statement that the jamming can prevent an adversary's "ability to accomplish command and control, early warning and propaganda" across "multiple frequency bands."

Advocates of preserving space as a weapons-free domain say the new U.S. jamming system risks escalation, even if it's not designed to destroy satellites.

"There are going to be those -- let's call them 'U.S. competitors' -- who will find the development of any explicit counterspace system to be inflammatory and provocative, whether it is reversible or not," said Victoria Samson, the Washington director of the Secure World Foundation, which publishes an annual overview of military space activities.

"Competitors who have their space assets interfered with at times of crisis don't know if/when it will stop; it is possible that they will have to assume that it's irreversible and go from there," she said. "Are we signaling that we are OK with officially targeting space assets?"

#### China, Russia

According to the Pentagon's Defense Intelligence Agency, China and Russia rank behind the U.S. in the number of orbiting satellites. As of late 2016, Russia had about 40 communications satellites in orbit.

"Over the next several years, Russia will prioritize the modernization of its existing communications, navigation, and earth observation systems, while continuing to rebuild its electronic intelligence and early warning system constellations," according to the DIA.

China is pursuing parallel programs for military and commercial communications satellites and owns and operates about 30 of those for civil, commercial, and military satellite communications, the DIA said last year. Beijing also operates a small number of dedicated military communications satellites.

The new Meadowland system has two racks of equipment instead of the 14 on the one deployed last month, saving 10,000 square feet of storage space and making the systems more compact and easier to deploy, Brogan said.

Unlike the current model, Meadowland will use more open architecture software for updates that allow for a "additional capability to go after more satellites, using more techniques as they are developed," Brogan said.

<u>https://www.hindustantimes.com/world-news/walmart-to-hire-50-000-more-workers-in-coronavirus-driven-</u> <u>hiring-spree/story-xpJAap6jnMqFU2IVSBiDXO.html</u>

### Science & Technology

# emeronemino

Sat, 18 April 2020

### Along with Gaganyaan, tech for Indian space station will emerge: Dr Sivan

Gaganyaan Unplugged is an Onmanorama series that will get you all exciting happenings from India's manned mission. By Anantha Krishnan M

Bengaluru: The Human Spaceflight Programme (HSP) – Gaganyaan – will be a big ticket mission for Indian Space Research Organisation (ISRO), which got on to an action mode soon after Prime Minister Narendra Modi announced it in August 2018.

Since then, ISRO made gradual progress in the mission. A dedicated team was first formed in Bengaluru. Then, the Human Space Flight Centre (HSFC) was set up inside the Antariksh Bhavan campus in record time.

Gaganyaan will be a major mission ISRO will be collaborating with the Indian Air Force (IAF), whose pilots are now on a year-long astronaut training programme in Russia.

In this edition of 'Gaganyaan Unplugged,' ISRO chairman Kailasavadivoo Sivan tells Onmanorma that India's first manned mission is meant to inspire the youth, the future generation, the "Gaganyaan programme will bring the nation together, to achieve something much more than the programmatic goals," says Dr Sivan.

#### **Youngsters Excited**

Ever since PM announced about the programme, it got national and global attention. The people in India, the Indian diaspora at large as well as other space-faring agencies are following this programme with great interest.

Gaganyaan is meant to bring together premier academic institutions, labs, industry as well as start-ups on a common platform to solve India specic problems.



ISRO Chairman K Sivan.

Lot of young people wanted to contribute in Gaganyaan programme. Some of them wanted to be the first to y in the crew module. We have a good mechanism to handle the public response.

A message we wanted to convey to the young people is that working in the eld of research and development is all about hard work and passion. ISRO is one of the best employers and the low attrition rate is a pointer to it.

#### **Complexities and Targets**

Gaganyaan programme has two major components. First part is engineering systems comprising of launch vehicle, orbital module, ground facilities, etc.

The second component is human-centric systems comprising selecting the astronauts, training the astronauts, life support system for space flight, launching the astronaut(s) safely and bringing them back.

Thereafter, the astronaut(s) has to be rehabilitated for life back on earth.

As far as engineering system goes, ISRO has more than ve decades of experience in these areas. However, our experience in the humancentric domain is limited.

The work on engineering systems is spread across ISRO centres and is being coordinated by the newly-created Human Spaceflight Centre (HSFC), presently co-located within ISRO HQ campus in Bangalore.

The human-centric systems are being designed and developed by HSFC. As our domain knowledge and experience is limited in the human centric systems, that gap is being addressed by collaborating with both national and international agencies in order to meet the schedule.

The industry throughput of space hardware has not only to meet the Gaganyaan requirements but also the ongoing launch vehicle and satellite activities.

There is a capacity crunch as the hardware requirement for both tests and flight is quite large. We are addressing the capacity crunch by adding new vendors to our pool.

However, adding a new vendor is a complex process as the manufacturing capability required is state-of-the-art with very high level of on-line and off-line quality control and assurance protocols.

#### **Astronaut Training**

The four selected candidates are undergoing training at Yuri A Gagarin State Scientic Researchand-Testing Cosmonaut Training Centre (GCTC) at Star City in Russia. The astronauts are undergoing nearly a year's training in General Space Flight, Survival Training as well as training on Soyuz systems.

After their return to India, they will get trained on Gaganyaan systems. This will include training on various types of simulators including virtual simulator as well as familiarisation with launch pad systems and crew recovery operations.

In addition, the astronauts will be trained to use various emergency kits and emergency protocols on-board Gaganyaan crew module. In nominal scenario, the entire flight and on-board activities are done using onboard autonomous systems.

The astronauts are only expected to do certain house-keeping activities and science experiments. However, the astronauts are trained for unexpected scenarios when things do not go as per plan.

Majority of the training is designed to equip the astronauts to handle the unexpected situations.

Gaganyaan platform, by design, has additional margins and redundancy than our unmanned flight systems. Large number of tests are planned to demonstrate these margins on ground.

Moreover, there is a provision of crew escape system, which provides continuous mission abort capability through the atmospheric phase of the flight.

The whole mission design philosophy is crew safety-centric unlike our unmanned missions, which are primarily performance centric.

#### **Space Station**

Human spaceflight is an expensive domain and the returns are in the form of science and research. Meaningful research is generally carried over a long time period. However, the Gaganyaan module is only meant for seven days' space flight. Hence, it is imperative that in the long run, a space station is a must. However, a space station is a technology jump from a short spaceflight in a crew module.

To sustain life in space for long duration, we need much more systems than the facilities in Gaganyaan crew module. The space station will also require extra vehicular activity which needs a special spacesuit as well as special training for the astronauts in neutral buoyancy facility.

Science experiments prioritisation and selection for Indian space station will have to be carried out in a more systemic fashion to ensure that cutting edge science finds a place in the whole scheme of things given the cost involved. HSFC is tasked with developing technologies for the space station in future.

#### HSFC Campus

HSFC is temporarily functioning from ISRO HQ campus. Land has been identied for a permanent site, just 2-3 hours from Bengaluru.

The master plan, which includes ofces, labs, integration facilities, test facilities as well as housing and other civic amenities, has been drawn. In the long run, a strong workforce of nearly a 1,000 will be working from this centre.

#### National Collaborators

#### ज्ञान प्रसार एवम् विस्तार

Since its inception, ISRO has focused on space technology and will continue to do that. In all other areas, ISRO plans to harness and utilise the expertise developed by Services, DRDO labs, CSIR labs and other premier academic and research organisations.

These collaborations in Gaganyaan are not aimed for a short term period, but will be for a long time. ISRO will continue to depend on these special expertises which these institutions have developed over the years.

(The writer is an independent aerospace and defence journalist, who blogs at Tarmak007 and tweets @writetake.)

https://english.manoramaonline.com/news/nation/2020/04/17/gaganyaan-unplugged-isro-manned-spacemission-india-part2-k-sivan.html

# theguardian

Sat, 18 April 2020

### **Coronavirus: world's biggest trial of drug** to treat Covid-19 begins in UK

*Scientists involved in Recovery trial, with over 5,000 test subjects, hope for answers within weeks* The world's biggest trial of drugs to treat Covid-19 patients has been set up in the UK at unprecedented speed, and hopes to have some answers within weeks.

The Recovery trial has recruited over 5,000 patients in 165 NHS hospitals around the UK in a month, ahead of similar trials in the US and Europe, which have a few hundred.

"This is by far the largest trial in the world," said Peter Horby, professor of emerging infectious diseases and global health at Oxford University, who is leading it. He has previously led Ebola drug trials in west Africa and the Democratic Republic of the Congo (DRC).

The Recovery team expects to be the first to have definitive data. "We're guessing some time in June we may get the results," said Prof Horby. "If it is really clear that there are benefits, an answer will be available quicker." But he warned that in the case of Covid-19, there would be no "magic bullet".

The team is working against a backdrop of doctors globally using drugs that they believe could be a cure citing "compassionate use", without yet having good scientific evidence. Politicians are also wading in. Donald Trump has backed hydroxychloroquine, a less toxic form of the old antimalaria drug chloroquine.

Used together with azithromycin, an antibiotic, it could be "one of the biggest game-changers in the history of medicine", Trump tweeted. The French doctor Didier Raoult has claimed the combination is a cure, leading to public clamour for the drugs in France. President Macron visited Raoult's hospital in Marseille last week, giving him tentative support but suggesting that trials were needed.

Both hydroxychloroquine and azithromycin are being tested separately as part of the Recovery trial, and if there is any effect in patients given those drugs alone, compared with those given no drugs, they can be combined later.

For now, said Horby, the data flying around in emails from enthusiasts and posted on social media about patients who have recovered after taking hydroxychloroquine proves nothing. He says there is no real evidence to support its use yet.

"I would say no," said Horby. "There is in-vitro evidence that it is inhibitory against the virus [in the lab]. But I haven't seen any sound clinical data.

"We're seeing a large number of publications. It's hard to keep up with them. Most of them are very disappointing. There was a paper that said it was a breakthrough – chloroquine works. But there was zero data in it. It seems to follow in that vein. They show a certain percentage of patients recovering, which would happen anyway."

The hype and pressure cause problems for serious researchers. "There is pushback from clinicians saying we should just use this because it clearly works and shouldn't use that because it clearly doesn't work. They are both wrong because neither of them know."

The number of patients being enrolled on the Recovery trial across the UK tells a story of doctors who have faith in scientific evidence over hope alone. Ten per cent of Covid-19 patients in

the UK are now taking part in the trial, and the researchers say the more people join, the sooner they will have answers.

Also in the trial now are a combination of two antiretroviral drugs used in HIV treatment, lopinavir-ritonavir, known by the brand name Kaletra, and low-dose dexamethasone, a type of steroid used in a range of conditions, typically to reduce inflammation.

The next one to be included, said Horby, is an interleukin 6 antagonist, one of the immunomodulator drugs used in rheumatoid arthritis and to treat cytokine storm – something that happens when the immune system goes into overdrive, as can happen in Covid-19. They are looking at tocilizumab.

They are also in discussions about introducing convalescent plasma – blood from people who have recovered that contains antibodies against the virus. They want to trial remdesivir, but have not been able to obtain the stocks they need, because it is being tested in China and the US and because doctors are already prescribing it on compassionate use grounds.

Repurposed drugs are first because they already have a proven safety record. But as experimental drugs come along, Recovery will include those. Patients are randomly allocated one of the drugs (or a placebo). There are already 500 to 900 patients on each of the drugs being tested and 2,000 in the control groups.

The UK trial was set up with unprecedented speed. The team went to see the chief medical officer, Chris Whitty, to gain his support and enrolled the first patient nine days later. The NHS and National Institute for Health Research are on board. They recruited 1,000 patients within the first two weeks.

Martin Landray, professor of medicine and epidemiology at the Nuffield Department of Population Health, who co-leads the trial with Horby, says it's extraordinary and may change the landscape once the pandemic is over.

"One of the things it tells you is what can happen when everybody is incentivised to make stuff happen as opposed to dither, delay or feelings that they will get into trouble if they say no," said Prof Landray, who has worked for 20 years on cardiovascular drug trials coordinated from Oxford. After this, he thinks, it will be hard to return to the snail's pace that has been the norm for setting up clinical trials in the UK, which can sometimes take years.

The second extraordinary thing is that the clinical care of the patients and the scientific rigour involved in trialling the drugs are hand in hand in a way that doesn't normally happen, where the research might be going on in one corner of the hospital. "Frontline clinicians don't know which treatments are best for patients apart from supportive care or ventilation," he said. That gives them massive motivation to get involved in the trial, which is central to the care of the patient.

Horby says it's unlikely they will come up with a quick cure. "We haven't got anything like a magic bullet," he said. "I think we have to temper people's expectations about these drugs. It's possible some might have an effect, but it's likely to be modest. I think what we'll be looking at in terms of making a significant impact will be moving on to combinations once we know of things that work. If we combine antiviral and anti-inflammatory drugs, they might have a bigger impact."

He holds out more hope for monoclonal antibodies, which worked in Ebola. "If you are saying this is an acute, serious viral infection, that's really difficult to treat, you can counter that with ... well, look at Ebola. That's much nastier," he said. "Very surprisingly, the monoclonal antibodies that were trialled in eastern DRC did work. Those are the ones we will be waiting for with a bit of bated breath to put into the trial when they become available."

https://www.theguardian.com/world/2020/apr/17/world-biggest-drug-trial-covid-19-uk



Sat, 18 April 2020

### **RIT researchers build micro-device** to detect bacteria, viruses

New process improves lab-on-chip devices to isolate drug-resistant strains of bacterial infection, viruses

Engineering researchers developed a next-generation miniature lab device that uses magnetic nano-beads to isolate minute bacterial particles that cause diseases. Using this new technology improves how clinicians isolate drug-resistant strains of bacterial infections and difficult-to-detect micro-particles such as those making up Ebola and coronaviruses.

Ke Du and Blanca Lapizco-Encinas, both faculty-researchers in Rochester Institute of Technology's Kate Gleason College of Engineering, worked with an international team to collaborate on the design of the new system--a microfluidic device, essentially a lab-on-a-chip.

Drug-resistant bacterial infections are causing hundreds of thousands of deaths around the world every year, and this number is continuously increasing. Based on a report from the United Nations, the deaths caused by antibiotics resistance could reach to 10 million annually by 2050, Du explained.

"It is urgent for us to better detect, understand, and treat these diseases. To provide rapid and accurate detection, the sample purification and preparation is critical and essential, that is what we are trying to contribute. We are proposing to use this novel device for virus isolation and detection such as the coronavirus and Ebola," said Du, an assistant professor of mechanical engineering whose background is in development of novel biosensors and gene editing technology.

The lab team is interested in the detection of bacterial infection, especially in bodily fluids. One of the major problems for detection is how to better isolate higher concentrations of pathogens.

The device is a sophisticated lab environment that can be used in field hospitals or clinics and should be much faster at collecting and analyzing specimens than the commercially available membrane filters. Its wide, shallow channels trap small bacteria molecules that are attracted to packed, magnetic microparticles.

This combination of the deeper channels on the nano-device, increased flow rate of fluids where bacteria are suspended, and the inclusion of magnetic beads along the device channels improves upon the process of capturing/isolating bacterial samples. Researchers were able to successfully isolate bacteria from various fluids with a microparticle-based matrix filter. The filter trapped particles in small voids in the device, providing a larger concentration of bacteria for analysis. An added advantage of a smaller device such as this allows for multiple samples to be tested at the same time.

"We can bring this portable device to a lake which has been contaminated by E. coli. We will be able to take a few milliliters of the water sample and run it through our device so the bacteria can be trapped and concentrated. We can either quickly detect these bacteria in the device or release them into certain chemicals to analyze them," said Du, whose earlier work focused on devices that use the CRISPR gene-editing technology and the fundamental understanding of fluidic dynamics.

Teaming up with Lapizco-Encinas, a biomedical engineer with expertise in dielectrophoresis--a process that uses electrical current to separate biomolecules--their collaboration provided the increased capability toward better pathogen detection, specifically for bacteria and microalgae isolation and concentration.

"Our goal is not only isolating and detecting bacteria in water and human plasma, but also working with whole blood samples to understand and detect blood infection such as sepsis. We already have a concrete plan for that. The idea is to use a pair of the nano-sieve devices for sequential isolation," said Lapizco-Encinas, an associate professor in RIT's biomedical engineering department.

Du and Lapizco-Encinas were part of a team that consisted of mechanical and biomedical engineers from Rutgers, University of Alabama, SUNY Binghamton, and Tsinghua-Berkeley Shenzhen Institute in China to address the global challenges of disease pandemics. The new data is published in the article "Rapid Escherichia coli trapping and retrieval for bodily fluids via a threedimensional bead-stacked nano-device," in the journal ACS Applied Materials and Interfaces.

The research team is RIT engineering doctoral and graduate students Xinye Chen, Abbi Miller and Qian He; University of Alabama assistant professor of electrical and computer engineering Yu Gan and undergraduate student Shengting Cao; Ruo-Qian Wang, assistant professor of civil and environmental engineering from Rutgers University; Xin Yong, assistant professor of mechanical engineering from SUNY Binghamton; Peiwu Qin from the Center of Precision Medicine and Healthcare, Tsinghua-Berkeley Shenzhen Institute, China; and Jie Zhang, Carollo Engineers Inc. in Seattle.

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https://www.eurekalert.org/pub\_releases/2020-04/riot-rrb041720.php

# Los Angeles Times

Sat, 18 April 2020

### Malaria drugs fail to help coronavirus patients in controlled studies

**By Melissa Healy** 

The malaria drugs touted by President Trump as potentially "the biggest game changers in the history of medicine" have received a decidedly more sober assessment of their coronavirusfighting potential from researchers in China, France and Brazil.

Both chloroquine and its close relative hydroxychloroquine offered signs that they may ease some of the hallmark symptoms of coronavirus infection in patients who were hospitalized with COVID-19. But the drugs largely failed to deliver improvements on other key measures when evaluated in rigorous research studies.

In research done France. in hydroxychloroquine reduced neither deaths nor admissions to intensive care units among patients who received it. In a study conducted in China and another in Brazil, the two drugs failed to help patients clear the coronavirus faster.

And in Brazil, two deaths and a rash of heart troubles among patients who got a high dose of chloroquine prompted a hasty alteration of



Hydroxychloroquine, one of the malaria drugs President Trump hailed as a coronavirus killer, had no beneficial effect for COVID-19 patients when tested in controlled trials. (John Locher / Associated Press)

the trial there after just 13 days. Concluding that "enough red flags" had been raised, the researchers halted testing of the drug in its extra-strength form.

"My own impression so far is that these medications are a colossal 'Maybe," said Dr. Michael H. Pillinger, a professor of medicine at New York University and chief of rheumatology at the Veterans Affairs' New York Harbor Healthcare System.

"Is there enough possible benefit that we could use these on a wing and prayer until something better comes along? I'm underwhelmed" by the evidence for that, Pillinger said.

In the Brazil study, two of the 37 patients who were getting high doses of chloroquine developed ventricular tachycardia, a dangerous heart arrhythmia that led to their deaths. Five other patients in this arm of the trial developed QT interval prolongation, a condition that makes the heart's electrical system slower to recharge between beats. It can cause the heart to beat erratically, also raising the risk of sudden death.

The death toll among patients who were randomly assigned to receive high-dose chloroquine did not rise above that in a comparison group of patients who did not get the drug. But researchers had set out to establish that high-dose chloroquine would save lives. When it failed to do so, they concluded the risks of cardiac side effects could not be justified.

"Preliminary findings suggest that the higher chloroquine dosage should not be recommended for COVID-19 treatment because of its potential safety hazards," the study authors wrote in a report posted Thursday to MedRxiv, a clearinghouse for preliminary research results.

After the two deaths, the remaining 39 patients were switched to a lower dose of chloroquine, which was already being tested in 40 other patients. All would be tracked for an additional 13 days, with results still to come.

Brazilian President Jair Bolsonaro has allied himself closely with President Trump and has echoed his extravagant claims about chloroquine and hydroxychloroquine. He has ordered the Brazilian army to ramp up its orders of chloroquine and told the public that the malaria drugs "could go down in history as having saved thousands of lives in Brazil."

The authors of the Brazil study, which was conducted in the Amazonian city of Manaus, suggested that Bolsonaro's support complicated their efforts to test the drugs as rigorously as they would have liked.

Normally, they would have conducted a head-to-head comparison by randomly assigning some people to get the drugs while others received a dummy pill, or placebo. But since the drugs have been "recommended at the national level," the researchers were unable to assign anyone to a group that would not get chloroquine. Instead, they used "historical data from the literature to infer comparisons."

The French study of hydroxychloroquine, posted Tuesday to MedRxiv, followed a more conventional design. Researchers there enrolled 181 COVID-19 patients who were admitted to four French hospitals over the last two weeks of March, then compared the outcomes of 84 people who quickly received hydroxychloroquine to 91 patients who never received the drug. (Patients in both groups got a range of other treatments, including antiviral medications, corticosteroids and breathing support.)

The researchers found that treatment with hydroxychloroquine did not reduce the likelihood that a COVID-19 patient would die or be admitted to the intensive care unit within a week of hospital admission. Nor did it drive down a patient's likelihood of developing serious breathing problems.

Hydroxychloroquine did, however, raise some risks. Eight of the 84 patients who got hydroxychloroquine experienced changes in heart rhythm that required discontinuation of the drug, and another patient developed a related heart-rhythm disorder.

"The negative clinical results of this study argue against the widespread use of hydroxychloroquine in patients with COVID-19 pneumonia," the French researchers concluded.

Chinese researchers were just a bit more encouraging.

Their study, also posted to MedRxiv on Tuesday, found that COVID-19 patients who got hydroxychloroquine were no better at clearing the coronavirus from their systems than patients

who didn't get the drug. And at the 28-day mark, patients in both groups had the same number of symptoms.

But two weeks after admission to the hospital, patients who got hydroxychloroquine reported they felt better than their counterparts who did not. And they appeared to have lower levels of inflammation — a symptom of COVID-19 that can escalate and lead to death if unchecked. (In fact, in doses much lower than those tested in the COVID-19 trials, hydroxychloroquine is used to treat autoimmune diseases such as lupus and rheumatoid arthritis because of its anti-inflammatory effects.)

Also, while 30% of the patients who got hydroxychloroquine reported a side effect, just 9% of patients in the comparison group did so. None of these side effects appeared to be heart-related.

The Chinese researchers referred to "shreds of evidence" that support the hope that hydroxychloroquine could help patients fend off bouts of inflammation that can damage the lungs and other organs.

But researchers in the United States cautioned that the small number of patients in the studies, their hurried execution and the difficulty of assessing any drug during a medical crisis made all of the findings far from definitive. And it doesn't help that the drugs have become political footballs, they added.

"We kind of have the red pill people and the blue pill people," said Dr. Michael J. Ackerman, a Mayo Clinic cardiologist who was among the first to warn that the malaria drugs can dangerously disturb heart rhythms. "I don't think either side now has the ammunition to say these drugs do or don't work," he added.

Yale University cardiologist Harlan Krumholz agreed. He noted that the studies, none of which has been vetted in a traditional peer-review process, "can't exclude large effects in either direction. They leave us a little bit where we started."

But there is a troubling signal in these and previous studies, and they create a challenge for those who would advocate use of the malaria drugs, he said.

When a drug that could be widely used poses potentially deadly dangers to the heart, "we will need a strong amount of evidence that they provide benefit," Krumholz said. "At the moment, there is no evidence" for that, he added.

https://www.latimes.com/science/story/2020-04-17/malaria-drugs-fails-to-help-coronavirus-patients-incontrolled-studies

hindustantimes

Sat, 18 April 2020

### FBI official says foreign hackers have targeted Covid-19 research

FBI said it had recently seen state-backed hackers poking around a series of healthcare and research institutions.

Washington: A senior cybersecurity official with the Federal Bureau of Investigation said on Thursday that foreign government hackers have broken into companies conducting research into treatments for COVID-19, the respiratory illness caused by the coronavirus.

FBI Deputy Assistant Director Tonya Ugoretz told participants in an online panel discussion hosted by the Aspen Institute that the bureau had recently seen state-backed hackers poking around a series of healthcare and research institutions.

"We certainly have seen reconnaissance activity, and some intrusions, into some of those institutions, especially those that have publicly identified themselves as working on COVID-related research," she said.

Ugoretz said it made sense for institutions working on promising treatments or a potential vaccine to tout their work publicly. However, she said, "The sad flipside is that it kind of makes them a mark for other nation-states that are interested in gleaning details about what exactly they're doing and maybe even stealing proprietary information that those institutions have."

Ugoretz said that state-backed hackers had often targeted biopharmaceutical industry but said "it's certainly heightened during this crisis." She did not name specific countries or identify targeted organizations.

"Medical research organizations and those who work for them should be vigilant against threat actors seeking to steal intellectual property or other sensitive data related to America's response to the COVID19 pandemic," said Bill Evanina, Director of the National Counterintelligence and Security Center. "Now is the time to protect the critical research you're conducting."

The FBI declined to comment. A spokeswoman for the Office of the Director of National Intelligence had no immediate comment.

<u>https://www.hindustantimes.com/tech/fbi-official-says-foreign-hackers-have-targeted-covid-19-research/story-Sqmij0ET3qaoeT2ywTtWSN.html</u>



Sat, 18 April 2020

### France Says No Evidence Covid-19 Linked to Wuhan Research Lab After Trump's Claim

US President Donald Trump said on Wednesday his government was trying to determine whether the coronavirus emanated from a lab in Wuhan, and Secretary of State Mike Pompeo said Beijing "needs to come clean" on what they know.

France said on Friday there was no evidence so far of a link between the new coronavirus and the work of the P4 research laboratory in the Chinese city of Wuhan, where the current pandemic started.

"We would like to make it clear that there is to this day no factual evidence corroborating the information recently circulating in the United States press that establishes a link between the origins of Covid-19 and the work of the P4 laboratory of Wuhan, China," an official at President Emmanuel Macron's office said.

The broad scientific consensus holds that SARS-CoV-2, the official name of the coronavirus, originated in bats.

In 2004, France signed an agreement with China to establish a research lab on infectious diseases of biosafety level 4, the highest level, in Wuhan, according to a French decree signed by then-foreign minister Michel Barnier.

US President Donald Trump said on Wednesday his government was trying to determine whether the coronavirus emanated from a lab in Wuhan, and Secretary of State Mike Pompeo said Beijing "needs to come clean" on what they know.

General Mark Milley, Chairman of the US Joint Chiefs of Staff, said on Tuesday that US intelligence indicates that the coronavirus likely occurred naturally, as opposed to being created in a laboratory in China, but there is no certainty either way.

The Washington Post said this week that national security officials in the Trump administration have long suspected research facilities in Wuhan to be the source of the novel coronavirus outbreak.

As far back as February, the Chinese state-backed Wuhan Institute of Virology dismissed rumours that the virus may have been artificially synthesized at one of its laboratories or perhaps escaped from such a facility.

https://www.news18.com/news/world/france-says-no-evidence-covid-19-linked-to-wuhan-research-lab-2582327.html



Sat, 18 April 2020

# Coronavirus: COVID-19 के खिलाफ बीसीजी के टीके का असर जानने के लिए होगी रिसर्च

Coronavirus: आईसीएमआर ने कहा कि जब तक कोई निश्चित परिणाम नहीं मिल जाता तब तक स्वास्थ्य कर्मियों के लिए भी इसकी सिफारिश नहीं की जाएगी

नई दिल्ली: Coronavirus: कोविड-19 के खिलाफ बीसीजी के टीके का प्रभाव पता करने के लिए आईसीएमआर अध्ययन करेगा और जब तक कोई निश्चित परिणाम नहीं मिल जाता तब तक स्वास्थ्य कर्मियों के लिए भी इसकी सिफारिश नहीं की जाएगी। बैसिलस कालमेट गुएरिन (बीसीजी) टीके का इस्तेमाल क्षयरोग (टीबी) से बचाव के लिए किया जाता है।

भारतीय आयुर्विज्ञान अनुसंधान परिषद (आईसीएमआर) के वैज्ञानिक डॉ रमन आर गंगाखेड़कर ने कहा कि संस्थान अगले सप्ताह कोरोना वायरस संक्रमण के खिलाफ टीके के प्रभाव का पता लगाने के लिए अध्ययन शुरू करेगा। उन्होंने शुक्रवार को एक प्रेस ब्रीफिंग में टीके के इस्तेमाल के संबंध में पूछे गये प्रश्न के जवाब में कहा, ''जब तक अध्ययन के नतीजे नहीं आ जाते और प्रमाण नहीं मिल जाते, तब तक हम स्वास्थ्य कर्मियों को भी टीके की सिफारिश नहीं करेंगे।"

उन्होंने कहा कि बच्चे के जन्म के तत्काल बाद बीसीजी का टीका दिया जाता है। गंगाखेड़कर ने कहा कि यह टीका किसी को टीबी के संक्रमण के जोखिम से पूरी तरह नहीं बचाता बल्कि आंशिक संरक्षण प्रदान करता है।

(हेडलाइन के अलावा, इस खबर को एनडीटीवी टीम ने संपादित नहीं किया है, यह सिंडीकेट फीड से सीधे प्रकाशित की गई है।)

https://khabar.ndtv.com/news/india/coronavirus-research-to-know-the-effect-of-bcg-vaccine-against-covid-19-2213850

ज्ञान प्रसार एवम् विस्तार के 50 वर्ष