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DRDO develops Ultra Swachh for disinfection of PPEs and other materials

Defence Research and Development Organisation (DRDO) has developed a disinfection unit named Ultra Swachh to disinfect a wide range of materials, including Personal Protective Equipment (PPEs), electronics items, fabrics, etc.

Institute of Nuclear Medicine & Allied Sciences (INMAS), the Delhi based laboratory of DRDO has developed this product with industry partner M/s Gel Craft Healthcare Private Ltd, Ghaziabad.

The system uses an advanced oxidative process comprising of multiple barrier disruption approach using Ozonated Space Technology for disinfection.

The system is double layered with specialised Ozone sealant technology assuring trapping of ozone for the necessary disinfection cycle. It also has catalytic converter to ensure environment friendly exhaust *i.e.* only oxygen and water.

The system is in compliance with International Standards of Industrial, Occupational, Personal and Environmental Safety. The Ultra Swachh comes in two variants namely Ozonated Space and Trinetra Technology. Trinetra technology is the combination of Ozonated space and radical dispenser. Treatment is optimised with automation for quick disinfection cycle.

The system operates on 15 Ampere, 220 Volts, 50 Hertz power supply. The system has been provided with various safety features such as emergency shutdown, door interlocks, dual door, delay cycle, and leak monitors, etc to ensure safe operations for longer duration. Dimensions of the Industrial Cabinet are 7'x4'x3.25' to disinfect large quantity at a time. Cabinets of different sizes will be available for the industry.

ABB/SS/Nampi/KA/DK/Savvy/ADA

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डीआरडीओ ने पीपीई और अन्य सामग्रियों को कीटाणुरहित करने के लिए अल्ट्रा स्वच्छ यूनिट विकसित किया

रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) ने व्यक्तिगत सुरक्षा उपकरण (पीपीई), इलेक्ट्रॉनिक्स सामानों, कपड़े सहित विभिन्न प्रकार की सामग्रियों को कीटाणुरहित करने के लिए अल्ट्रा स्वच्छ नामक एक कीटाणुशोधन यूनिट विकसित किया है।

इस उत्पाद को इंस्टीट्यूट ऑफ न्यूक्लियर मेडिसिन एंड एलाइड साइंसेज (आईएनएमएस), डीआरडीओ की दिल्ली स्थित प्रयोगशाला, ने अपने औद्योगिक पार्टनर, मेसर्स जेल क्राफ्ट हेल्थकेयर प्राइवेट लिमिटेड, गाजियाबाद के साथ मिलकर विकसित किया है।

इस प्रणाली में एक उन्नत ऑक्सीडेटिव प्रक्रिया का उपयोग किया जाता है, जिसमें कीटाणुशोधन के लिए कई अवरोध विघटन पद्धतियों को शामिल करके ओजोनेटेड स्पेस टेक्नोलॉजी का उपयोग किया जाता है।

यह प्रणाली विशेष ओजोन सीलेंट तकनीक के साथ द्वि-स्तरीय है, जो आवश्यक कीटाणुशोधन चक्र के लिए ओजोन का ट्रेपिंग सुनिश्चित करती है। इसमें पर्यावरण के अनुकूल निकासी के लिए उत्प्रेरक कनवर्टर भी लगे हुए हैं यानि केवल ऑक्सीजन और पानी की निकासी।

यह प्रणाली औद्योगिक, व्यावसायिक, व्यक्तिगत और पर्यावरण सुरक्षा के दृष्टिकोण से अंतर्राष्ट्रीय मानकों के अनुरूप है। अल्ट्रा स्वच्छ दो रूपों में आता है जिनके नाम ओजोनेटेड स्पेस और त्रिनेत्र टेक्नोलॉजी है। त्रिनेत्र टेक्नोलॉजी ओजोनेटेड स्पेस और रेडिकल डिस्पेंसर का संयोजन है। त्वरित कीटाणुशोधन चक्र के लिए संक्रमण स्वचालन के साथ प्रतिपादन को अनुकूलित किया जाता है।

यह प्रणाली 15 एम्पीयर, 220 वोल्ट और 50 हर्ट्ज बिजली की आपूर्ति पर काम करती है। इस प्रणाली में सुरक्षा की विभिन्न विशेषताएं मौजूद हैं जैसे आपातकालीन शटडाउन, डोर इंटरलॉक, ड्यूटी डोर, डिसे साइकिल, और लीक मॉनिटर आदि जिससे लंबी अवधि के लिए सुरक्षित संचालन को सुनिश्चित किया जा सके। एक समय में बड़ी मात्रा में कीटाणुशोधन करने के लिए इंडस्ट्रियल कैबिनेट का आयाम 7'x4'x3.25' है। उद्योग के लिए विभिन्न आकार के कैबिनेट उपलब्ध होंगे।

एसजी/एएम/एके/एसके

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పీపీఈ కిట్లు, ఇతర సామగ్రిని క్రిమిరహితం చేసే "అల్ట్రా స్వచ్ఛ్"కు

రూపకల్పన కొత్త వ్యవస్థను రూపొందించిన డీఆర్డీవో

పారిశ్రామిక అవసరాల కోసం విభిన్న పరిమాణాల్లో క్యాబినెట్లు

సూక్ష్మక్రిములను నాశనం చేసే సరికొత్త వ్యవస్థను "రక్షణ రంగ పరిశోధన, అభివృద్ధి సంస్థ" (డీఆర్డీవో) రూపొందించింది. దానికి "అల్ట్రా స్వచ్ఛ్" అని పేరు పెట్టింది. దీని ద్వారా పీపీఈ కిట్లు, ఎలక్ట్రానిక్ వస్తువులు, దుస్తులు, భారీ స్థాయిలో ఇతర సామగ్రిని క్రిమిరహితం చేయవచ్చు. డీఆర్డీవోకు చెందిన, దిల్లీలోని "ఇన్స్టిట్యూట్ ఆఫ్ న్యూక్లియర్ మెడిసిన్&అలైడ్ సైన్సెస్" ఈ వ్యవస్థను రూపొందించింది. ఘజియాబాద్కు చెందిన పారిశ్రామిక భాగస్వామి "జెల్ క్రాఫ్ట్ హెల్త్కేర్ ప్రైవేట్ లిమిటెడ్"తో కలిసి వృద్ధి చేసింది. 'ఓజోనేటెడ్ స్పేస్ టెక్నాలజీ'ని ఉపయోగించిన 'మల్టీపుల్ బ్యూరియర్ డిస్పజ్ట్' విధానంలో, అధునాతన ఆక్సీకరణ ప్రక్రియ ద్వారా వస్తువులను క్రిమిరహితం చేస్తారు. ఇందుకోసం ప్రత్యేక ఓజోన్ లేపన పరిజ్ఞానంతో "అల్ట్రా స్వచ్ఛ్"ను రెండు పొరలుగా రూపొందించారు.

పారిశ్రామిక, వృత్తిగత, వ్యక్తిగత, పర్యావరణ రక్షణకు సంబంధించిన అంతర్జాతీయ ప్రమాణాలకు అనుగుణంగా అభివృద్ధి చేశారు. అల్ట్రా స్వచ్ఛ్ను రెండు వేరియంట్లలో తీసుకురానున్నారు. వాటి పేర్లు 'ఓజోనేటెడ్ స్పేస్', 'త్రినేత్ర టెక్నాలజీ'. ఓజోనేటెడ్ టెక్నాలజీ, రాడికల్ డిస్పెన్సర్ కలయికగా త్రినేత్ర టెక్నాలజీని రూపొందిస్తారు.

15 ఆఫియర్, 220 ఓట్లులు, 50 హెడ్జ్ వద్ద అల్ట్రా స్వచ్ఛ్ పని చేస్తుంది. అత్యవసర షట్డాన్, డోర్లు లోపలి నుంచే మూసుకుపోవడం, రెండు ద్వారాలు, లీకల పర్యవేక్షణ వంటి ఏర్పాట్లు కూడా ఈ వ్యవస్థలో ఉన్నాయి. ఒకేసారి పెద్ద మొత్తంలో సామగ్రిని క్రిమిరహితం చేయడానికి పారిశ్రామిక క్యాబినెట్కు కావలసిన కొలతలు 7'x4'x3.25'. పారిశ్రామిక అవసరాల కోసం విభిన్న పరిమాణాల్లో క్యాబినెట్లు అందుబాటులోకి తెస్తున్నారు.

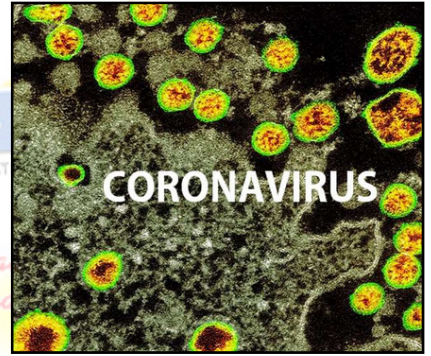
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DRDO ने बनाई कोरोना वायरस की दवा, लखनऊ, कानपुर और वाराणसी में होगा क्लीनिकल ट्रायल

सीसीएमबी हैदराबाद और राष्ट्रीय विषाणु संस्थान पुणे में लैब
टेस्टिंग में कोरोना वायरस को खत्म करने में दवा कारगर साबित हुई है।

ऋषि दीक्षित

कानपुर: Coronavirus Disease Medicine: कोरोना वायरस से लड़ने के लिए अचूक हथियार मिलने की खुशखबरी जल्द सामने आ सकती है। रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) ने कोरोना की दवा तैयार कर ली है, जिसे ड्रग कंट्रोलर जनरल ऑफ इंडिया ने मरीजों पर परीक्षण (डी-कोडिंग स्टडी) की अनुमति दे दी है। डीआरडीओ ने उत्तर प्रदेश सरकार से किंग जार्ज मेडिकल कॉलेज (केजीएमयू) लखनऊ, गणेश शंकर विद्यार्थी स्मारक मेडिकल कॉलेज (जीएसवीएम) कानपुर और बनारस हिंदू विश्वविद्यालय वाराणसी के चिकित्सा विज्ञान संस्थान में दवा के क्लीनिकल ट्रायल के लिए अनुमति मांगी थी।



Coronavirus Disease Medicine
सीसीएमबी हैदराबाद और राष्ट्रीय विषाणु
संस्थान पुणे में लैब टेस्टिंग में कोरोना
वायरस को खत्म करने में दवा कारगर साबित
हुई है।

शासन ने केजीएमयू और जीएसवीएम में परीक्षण की अनुमति दे दी है। प्रदेश सरकार को भेजे पत्र में डीआरडीओ ने कहा है कि सेंटर फॉर सेल्युलर एंड मॉलीक्युलर बायोलॉजी हैदराबाद व राष्ट्रीय विषाणु संस्थान पुणे में सार्स-कोव-2 विषाणु में इस दवा का लैब परीक्षण किया गया है। यह दवा वायरस को खत्म करने में बहुत कारगर साबित हुई है।

चिकित्सा शिक्षा मंत्री सुरेश खन्ना ने केजीएमयू और जीएसवीएम मेडिकल कॉलेज को क्लीनिकल ट्रायल की अनुमति का पत्र भेजा है। मेडिकल कॉलेज की एथिकल कमेटी से अब अनुमति मिलते ही मरीजों पर दवा का परीक्षण शुरू कर दिया जाएगा। दवा के परीक्षण का मरीजों पर प्रभाव का अध्ययन करने वाली टीम के मुख्य गाइड ने कॉलेज की एथिकल कमेटी को प्रस्ताव भेजा है।

एनस्थीसिया के विशेषज्ञ करेंगे अध्ययन

कोविड-19 आइसीयू में भर्ती कोरोना के गंभीर मरीजों का इलाज एनस्थीसिया विभागाध्यक्ष की देखरेख में चल रहा है। इसलिए दवा के ट्रायल की जिम्मेदारी उन्हें सौंपी गई है। दवा का मरीज पर परीक्षण से लेकर उसके प्रभाव का अध्ययन उन्हें ही करना है।

डॉ. रेड्डीज लैब हैदराबाद को दवा बनाने की जिम्मेदारी

डीआरडीओ ने दवा निर्माण की जिम्मेदारी डॉ. रेड्डीज लैब हैदराबाद को दी है। चिकित्सकीय परीक्षण की जिम्मा नवीटास लाइफ साइंसेज को दिया गया है जो केजीएमयू और जीएसवीएम से संपर्क करेगी।

जार्न-क्या कहना है इनका

डीआरडीओ ने कोरोना मरीजों के इलाज के लिए दवा खोज ली है। उसकी डी-कोडिंग स्टडी के लिए शासन से अनुमति मिल गई है। मरीजों पर ट्रायल से पहले कॉलेज की एथिकल कमेटी से अप्रूवल मांगा गया है। -प्रो. अपूर्व अग्रवाल, विभागाध्यक्ष, एनस्थीसिया, जीएसवीएम मेडिकल कॉलेज।

<https://www.jagran.com/uttar-pradesh/kanpur-city-coronavirus-medicine-drdo-made-medicine-of-coronavirus-and-now-clinical-trial-is-permitted-jagran-special-20336458.html>

DRDO ने बनाई कोरोना की दवा, क्लिनिकल ट्रायल की मिली अनुमति

देश में कोरोना ड्रग तैयार करने के लिए कई स्तर पर काम चल रहा है।
अब डीआरडीओ द्वारा बनाई दवा का क्लिनिकल परीक्षण होगा।

ऋषि दीक्षित

कानपुर : कोरोना वायरस से लड़ने के लिए भारत में ड्रग तैयार होने की खुशखबरी जल्द सामने आ सकती है। रक्षा अनुसंधान एवं विकास संगठन (DRDO) ने कोरोना की दवा तैयार कर ली है, जिसे ड्रग कंट्रोलर जनरल ऑफ इंडिया ने मरीजों पर परीक्षण (DeCoding Study) की अनुमति दे दी है। डीआरडीओ (DRDO) ने यूपी सरकार से किंग जार्ज मेडिकल कॉलेज (KGMU) लखनऊ, गणेश शंकर विद्यार्थी स्मारक मेडिकल कॉलेज (GSVM) कानपुर और बनारस हिंदू विश्वविद्यालय वाराणसी के चिकित्सा विज्ञान संस्थान में बनाई दवा के क्लिनिकल ट्रायल के लिए अनुमति मांगी थी। शासन ने केजीएमयू और जीएसवीएम में परीक्षण की अनुमति दे दी है।



प्रदेश सरकार को भेजे पत्र में DRDO ने कहा है कि सेंटर फॉर सेल्युलर एंड मॉलीक्युलर बायोलॉजी हैदराबाद और राष्ट्रीय विषाणु संस्थान पुणे में सार्स-कोव-2 विषाणु में इस दवा का लैब परीक्षण किया गया है। यह दवा वायरस को खत्म करने में बहुत कारगर साबित हुई है।

देश में कोरोना ड्रग तैयार करने के लिए कई स्तर पर काम चल रहा है। अब डीआरडीओ द्वारा बनाई दवा का क्लिनिकल परीक्षण होगा।

चिकित्सा शिक्षा मंत्री सुरेश खन्ना ने केजीएमयू और जीएसवीएम मेडिकल कॉलेज को Clinical Trial की अनुमति का पत्र भेजा है। मेडिकल कॉलेज की एथिकल कमेटी से अब अनुमति मिलते ही मरीजों पर इस दवा का परीक्षण शुरू कर दिया जाएगा। दवा के परीक्षण का मरीजों पर प्रभाव की स्टडी करने वाली टीम के मुख्य गाइड ने कॉलेज की एथिकल कमेटी को प्रस्ताव भेजा है।

एनस्थीसिया एक्सपर्ट करेंगे स्टडी

कोविड-19 ICU में भर्ती कोरोना के गंभीर मरीजों का इलाज एनस्थीसिया विभागाध्यक्ष की देखरेख में चल रहा है। इसलिए दवा के ट्रायल की जिम्मेदारी उन्हें ही सौंपी गई है। दवा का मरीज पर परीक्षण से लेकर उसके प्रभाव की स्टडी उन्हें ही करना है।

जीएसवीएम मेडिकल कॉलेज के एनेस्थीसिया विभाग के हेड प्रो. अपूर्व अग्रवाल ने बताया कि डीआरडीओ ने कोरोना मरीजों के इलाज के लिए दवा खोज ली है। उसकी डी-कोडिंग स्टडी के लिए शासन से अनुमति मिल गई है। ट्रायल से पहले कॉलेज की एथिकल कमेटी से अप्रूवल मांगा गया है।

डॉ. रेड्डीज लैब को दवा निर्माण की जिम्मेदारी

DRDO ने दवा निर्माण की जिम्मेदारी हैदराबाद स्थित डॉ. रेड्डीज लैब को दी है। चिकित्सकीय परीक्षण का जिम्मा नवीटास लाइफ साइंसेज को दिया गया है जो केजीएमयू और जीएसवीएम से संपर्क करेगी।

<https://www.naidunia.com/national-drdo-made-the-corona-drug-government-gave-the-permission-for-clinical-trial-5595087>

कोरोनावायरस: PPE किट और कपड़ों को संक्रमण से बचाएगा DRDO का 'अल्ट्रा स्वच्छ'

'अल्ट्रा स्वच्छ' (Ultra Swachh) चीजों से संक्रमण हटाने के लिए एडवांस ओज़ोन स्पेस टेक्नोलॉजी का इस्तेमाल करता है। यह एक डबल लेयर ओज़ोन सील सिस्टम है।

सुमित चौधरी

कोरोनावायरस (Coronavirus) का कहर थमने का नाम ही नहीं ले रहा है। ऐसे में सबसे ज्यादा ज़रूरी है उन जगहों और चीजों को इन्फेक्शन फ्री रखना, जिनका हम सबसे ज्यादा इस्तेमाल करते हैं। ऐसे में जल्दी और केमिकल फ्री सैनिटाइजेशन के लिए डिफेन्स रिसर्च एंड डेवलपमेंट आर्गनाइजेशन (DRDO) ने 'अल्ट्रा स्वच्छ' बनाया है, जिससे इलेक्ट्रॉनिक उपकरण, कपड़े और PPE किट तक आसानी से सैनिटाइज किए जा सकते हैं।

DRDO के दिल्ली स्थित इंस्टिट्यूट ऑफ न्यूक्लियर मेडिसिन एंड अलाइड साइंसेज (INMAS) ने गाज़ियाबाद की इंडस्ट्री पार्टनर गेल क्राफ्ट हेल्थकेयर प्राइवेट लिमिटेड के साथ मिलकर यह डिसइन्फेक्टिंग डिवाइस बनायी है। 'अल्ट्रा स्वच्छ' चीजों से संक्रमण हटाने के लिए एडवांस ओज़ोन स्पेस टेक्नोलॉजी का इस्तेमाल करता है। यह एक डबल लेयर ओज़ोन सील सिस्टम है। इस डिवाइस में कैटेलिटिक कनवर्टर भी लगा हुआ है जोकि डिसइन्फेक्शन प्रोसेस के दौरान निकलने वाली ज़हरीली गैसों और प्रदूषकों को कम करता है।

अल्ट्रा स्वच्छ का डिज़ाइन

अल्ट्रा स्वच्छ व्यक्तिगत और वातावरण की सुरक्षा के सभी मानकों को पूरा करता है। यह दो प्रकार में आता है; ओज़ोनेटेड स्पेस (Ozonated Space) और ट्रिनेट्रा टेक्नोलॉजी (Trinetra Technology)। ट्रिनेट्रा टेक्नोलॉजी एक ऑटोमेटेड टेक्नोलॉजी है जो चीजों को जल्दी संक्रमणमुक्त करने के लिए इस्तेमाल होती है। यह ओज़ोनेटेड स्पेस और रेडिकल डिस्पेंसर का मेल होती है।

अल्ट्रा स्वच्छ 15 एम्पीयर करंट, 220 वोल्ट और 50 हर्ट्ज़ की पावर सप्लाय पर काम करता है। सुरक्षा को ध्यान में रखते हुए इसमें इमरजेंसी शटडाउन, डोर इंटरलॉक, डबल डोर, लीक मॉनिटर जैसे फीचर दिए गए हैं। ताकि यह लंबे समय तक सुरक्षित तरीके से काम कर सके। अल्ट्रा स्वच्छ के कैबिनेट का सामान्य साइज़ 7x4x3।25 है। सुविधा के लिए यह अलग-अलग कैबिनेट साइज़ में भी उपलब्ध है।

<https://www.tv9bharatvarsh.com/tech-trends/drdo-develops-ultra-swachh-for-disinfection-of-ppes-and-other-materials-225739.html>



DRDO develops 'Ultra Swachh' booth for disinfection of PPEs, gadgets, fabrics

DRDO has developed a disinfection unit named 'Ultra Swachh' to disinfect a wide range of materials, including PPEs, electronics items, fabrics, etc

By Shubhayan Bhattacharya

The Defence Research and Development Organisation (DRDO) has developed a disinfection unit named 'Ultra Swachh' to disinfect a wide range of materials, including Personal Protective Equipment (PPEs), electronics items, fabrics, etc. The disinfection booth is developed by the Institute of Nuclear Medicine & Allied Sciences (INMAS), the Delhi based laboratory of DRDO, in partnership with Ghaziabad-based M/s Gel Craft Healthcare.

According to the Defence Ministry, the system uses an advanced oxidative process comprising of multiple barrier disruption approach using Ozonated Space Technology for disinfection. The system is double layered with specialised Ozone sealant technology assuring trapping of ozone for the necessary disinfection cycle. It also has a catalytic converter to ensure environment-friendly exhaust i.e. only oxygen and water.



Two variants

The system is in compliance with the International Standards of Industrial, Occupational, Personal and Environmental Safety. The Ultra Swachh comes in two variants namely Ozonated Space and Trinetra Technology. Trinetra technology is a combination of ozonated space and radical dispenser. The treatment is optimised with automation for a quick disinfection cycle.

The system operates on 15 Ampere, 220 Volts, 50 Hertz power supply and has been provided with various safety features such as emergency shutdown, door interlocks, dual door, delay cycle, and leak monitors, etc to ensure safe operations for a longer duration. The dimensions of the Industrial Cabinet are 7'x4'x3.25' to disinfect large quantity at a time while cabinets of different sizes will be available for the industry.

Other DRDO innovations

The coronavirus pandemic has injected a fresh demand for innovations as institutions scramble to comply with social distancing norms and public and personal hygiene.

Earlier, a DRDO lab in Hyderabad had developed a Contactless Sanitisation Cabinet called Defence Research Ultraviolet Sanitizer (DRUVS) designed to sanitize mobile phones, tablets, laptops, currency notes, challans or other electronic gadgets which could be the carriers of the virus.

A Chandigarh-based laboratory of DRDO has also developed an automatic, high-pressure- mist-based, contact-less sanitizer dispenser. The aim of this sanitizer dispenser is to make people avail hand sanitization facility without touching it.

<https://www.republicworld.com/india-news/general-news/drdo-develops-ultra-swachh-booth-for-disinfection-of-ppes-gadgets.html>

Defence research body develops "Ultra Swachh" for ppe disinfection

DRDO said that the system uses an advanced oxidative process comprising of multiple barrier disruption approach using Ozonated Space Technology for disinfection

New Delhi: The Defence Research and Development Organisation (DRDO) on Monday said that it has developed a disinfection unit named "Ultra Swachh" to disinfect a wide range of materials, including Personal Protective Equipment (PPEs), electronics items and fabrics.

In a press release, DRDO said that the system uses an advanced oxidative process comprising of multiple barrier disruption approach using Ozonated Space Technology for disinfection.

"The system is double layered with specialised ozone sealant technology assuring trapping of ozone for the necessary disinfection cycle. It also has a catalytic converter to ensure environment-friendly exhaust -- only oxygen and water," the release said.

"The system is in compliance with international standards of industrial, occupational, personal and environmental safety. The Ultra Swachh comes in two variants namely Ozonated Space and Trinetra Technology. Trinetra technology is a combination of ozonated space and radical dispenser. Treatment is optimised with automation for quick disinfection cycle," it added.

According to DRDO, the system operates on 15 Ampere, 220 Volts and 50 Hertz power supply. The system has been provided with various safety features such as emergency shutdown, door interlocks, dual door, delay cycle, and leak monitors to ensure safe operations for longer duration.

Dimensions of the Industrial Cabinet are 7"x4"x3.25" to disinfect large quantities at a time. Cabinets of different sizes will be available for the industry, DRDO said.

Institute of Nuclear Medicine and Allied Sciences (INMAS), the Delhi based laboratory of DRDO has developed the product with industry partner Gel Craft Healthcare Private Ltd, Ghaziabad.

According to the Health Ministry, India on Monday witnessed the highest-ever spike of 8,392 COVID-19 cases, while 230 more deaths were reported in the last 24 hours.

The total number of coronavirus cases in the country now stands at 1,90,535 including 93,322 active cases, 91,819 cured/discharged/migrated and 5,394 deaths.

<https://www.ndtv.com/india-news/coronavirus-india-defence-research-body-drdo-develops-ultra-swachh-for-ppe-disinfection-2239027>



Defence Research Body Develops "Ultra Swachh" For PPE Disinfection. (Representational)

Another disinfection unit from DRDO

Ultra Swachh can disinfect wide range of materials such as PPE, electronics items

Hyderabad: Defence Research and Development Organisation (DRDO) has developed a disinfection unit named 'Ultra Swachh' to disinfect a wide range of materials, including personal protective equipment, electronics items, fabrics, etc. The Institute of Nuclear Medicine and Allied Sciences, the Delhi-based laboratory of DRDO, has developed this product with industry partner Gel Craft Healthcare, Ghaziabad.

The system uses an advanced oxidative process comprising of multiple barrier disruption approach using 'Ozonated Space Technology' for disinfection. The system is double layered with specialised ozone sealant technology assuring trapping of ozone for the necessary disinfection cycle. It also has catalytic converter to ensure environment friendly exhaust — only oxygen and water.

The system is in compliance with international standards of industrial, occupational, personal and environmental safety. Ultra Swachh comes in two variants — Ozonated Space and Trinetra Technology. Trinetra technology is the combination of ozonated space and radical dispenser. Treatment is optimised with automation for quick disinfection cycle.

The system operates on 15 ampere, 220 volts and 50 Hertz power supply. The system has been provided with various safety features such as emergency shutdown, door interlocks, dual door, delay cycle, and leak monitors, etc. to ensure safe operations for longer duration. Dimensions of the industrial cabinet are 7'x4'x3.25' to disinfect large quantity at a time. Cabinets of different sizes will be available for the industry, an official spokesman informed on Monday.

<https://www.thehindu.com/news/cities/Hyderabad/another-disinfection-unit-from-drdo/article31725140.ece>



Ultra Swachh can disinfect wide range of materials such as PPE, electronics items.

ज्ञान प्रसार एवम् विस्तार
के 50 वर्ष

Rafale or LCA: Where would a punter put his money on?

The Indian Air Force (IAF) now has two Squadron of the LCA, one in the Initial Operational Clearance (IOC) and one in the Final Operational Clearance (FOC) versions and would soon have two squadrons of Rafale on its strength

By Wing Commander Amit Ranjan Giri

As the Indian skies prepare for the reception of the Rafale, it already has had the taste of the Light Combat Aircraft (LCA) joining its fleet in the Final Operational Clearance (FOC) version. The Indian Air Force (IAF) now has two Squadron of the LCA, one in the Initial Operational Clearance (IOC) and one in the Final Operational Clearance (FOC) versions and would soon have two squadrons of Rafale on its strength. Aviation purist would flinch at this statement, naming both the aircraft in the same breath, and rightly so, the Rafale leaves the LCA far behind when compared for technological upgrades and combat capability, but where the smart man would bet his money is on the homegrown LCA.

The last indigenous fighter designed and built in India has been the HF Marut, an excellent piece of aerodynamics, let down by incompatible engines which were borrowed from the Gnat. The homegrown fighter has since, taken a step back, without adequate firm orders and a general feeling of inferiority by the military and the masses. Accentuated by the governments' apathy towards R&D in the field, the LCA project took its own sweet time to fructify.

The LCA first emerged in its IOC avatar and lacked the requisite trimmings of a combat-ready fighter, whereas almost simultaneously the first MMRCA deal was being negotiated, the home lad was always looked down upon and considered inferior to its foreign adversaries. The failure of the first Rafale deal to fructify, gave the industry a small glimmer of a window to showcase its wares, coupled with this came the government's policy of supporting the Indigenous military hardware to the maximum possible. The LCA now started being showcased, not only in India but also abroad, it was more to say that "I have arrived" rather than "Buy Me". People had just about started believing in the "Make in India" concept and were now ready to hold the hand of the fledgeling defence production industry.

What the IOC version lacked was made up to a large extent by the FOC version. The "g" limits have been increased to 8 g, the angle of attack limits have been enhanced to 24, new weapons have been integrated including the Beyond Visual Range ones, the Air to Air refuelling the capability has been added, the Pilot Vehicle Interfaces have been enhanced, to name a few, to finally give the LCA its teeth to hold its own in the fighter world.

Our defence production industries have started to emerge in the world market, albeit in a limited way, more and more crucial parts for major global production houses, are being supplied from India, a step which would have missed the eyes of many onlookers. An industry, which a couple of decades earlier had almost nothing to offer, now manufactures and exports equipment ranging from Laser optics to aircraft fuselage shells, from infrared trackers to software for situational awareness domain, the list is growing day by day. The main focus now would be to continue this steady



To get the present LCA to a comparable combat-capable platform would still need some work.

progress and attain self-sufficiency. Easier said than done, the path is long and arduous, the proverbial child born, has to be nurtured through infancy to ensure it grows to compete against the world.

To get the present LCA to a comparable combat-capable platform would still need some work. The FOC has enhanced the potency of the platform, the AAR capability has ensured the LCA can now loiter longer and reach further, the BVR means, it can shoot without seeing. Increased 'g' limits and enhanced AoA limits make it more manoeuvrable. The LCA Mk1A would have an indigenous AESA radar with better PVIs. The AESA, developed indigenously, would propel the industry a fair amount of distance into the contemporary. Following the Mk1A is the LCA Mk2, a heavier, medium weight, powered by the more powerful single-engine and supporting canards to provide a high degree of manoeuvrability. This is where we are looking to break even against the modern-day Rafale. The date may not be in the immediate future but with the requisite support from all quarters, the defence production industries may pull out the proverbial rabbit from the hat. Once that's done India would be self-sufficient.

The Rafale as of now looks a good bet because it comes off the shelf and made to order, however, it burns a major hole in the pocket and worse, if the nation once again takes to maximum reliance in defence imports, it would take us another few decades to have our own credible industry. It is imperative that the push offered by the military and the government be maintained to ensure that Indian products reach global standards.

By the time the LCA project is completed with the culmination of the Mk2, it is expected that the AMCA project would get a new vigour of life to propel itself as a true blue fifth-generation fighter.

(The author is an IAF veteran. Views expressed are personal.)

<https://www.financialexpress.com/defence/rafale-or-lca-where-would-a-punter-put-his-money-on/1977891/>



Tue, 02 June 2020

Tejas Fighter Jet to get third production line soon

By Raunak Kunde के 50 वर्ष

Hindustan Aeronautics Ltd (HAL) is on its way to establish a third production line for the Tejas Fighter Jet by end of November later this year and which will be used to manufacture initially 18 Twin Seater LCA-Tejas Trainer variant which is part of 8 Trainer order that IAF has placed previously under Tejas Mk1 contract and 10 additional order soon to be placed under Tejas Mk1A contract, said a report filed by Mail today.

30,000 sq meters of HAL land have been used near Nekkundi to set up a third production line for the Tejas fighter jet which is equipped with structural assembly hangar, process shop, and sheet metal shop, among others.

The First Production line can manufacture 5 jets per annum and an erstwhile Kiran hangar has been converted into the second production line and is capable to produce three aircraft per year. The third Production line can manufacture 8 jets per annum from FY 2021-22 onwards and the first Two Twin Seater LCA-Tejas Trainer variant will be rolled by November 2021.

HAL also has offered to establish fourth Tejas Production line in its Nashik Unit which was previously used to make Sukhoi-30MKI locally under Russian license if IAF wanted a faster deliveries schedule which will take the production of Tejas Mk1A to 20 aircraft per annum if fourth production line is also activated by 2023 but IAF is yet to confirm need for fourth

production line but it is possible that it might be used as production line for MWF-Tejas Mk2 in near future.

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<https://idrw.org/tejas-fighter-jet-to-get-third-production-line-soon/#more-228412>

Defence News

Defence Strategic: National/International

THE ECONOMIC TIMES

Tue, 02 June 2020

Defence sector reforms: How to balance operational necessities with indigenisation push

The Indian defence planners face a peculiar paradox. On one hand is the need to keep the armed forces operationally ready at all times, to combat perpetual threats along active borders and to respond to national and regional situations.

The process of indigenisation however entails diligent perspective planning

By Lt Gen Anil Ahuja (Retd)

Paving way for 'Atma Nirbharta' (self-reliance) in defence sector, Finance Minister Nirmala Sitharaman, on May 16, 2020, announced policy and structural reforms, which include : gradual banning of imports of select weapon systems ; corporatisation of Ordnance factories; enhancement of Foreign Direct Investment in defence sector on automatic route; and faster defence acquisitions based on 'realistic' General Staff Qualitative Requirements of the services. A few days earlier, the Chief of Defence Staff also made similar assertions.

Both these policy pronouncements have one common theme, the need to reverse the trend of defence imports and become self-reliant. A laudable idea which has been articulated and experimented before! We know what we desire, but need diligence and persistence to put the building blocks in place. Endeavour is to highlight some imperatives.

The Paradox

The Indian defence planners face a peculiar paradox. On one hand is the need to keep the armed forces operationally ready at all times, to combat perpetual threats along active borders and to respond to national and regional situations. The process of indigenisation however entails diligent perspective planning, assured budgetary support, and patience for design, development and manufacture, including allowance for some inevitable failures. Also, at initial stages, the indigenous procurements come substantially more expensive, till the development and capital costs get amortised and economies of scale begin to emerge. It is for this reason that even the most developed nations, indigenise defence systems selectively.

Selective Approach

The first step therefore is to implement this policy in segments in which we already have proficiency e.g. Artillery guns, missile, multi barrel rocket launchers, some categories of radars, munitions etc. alongside, identify areas in which we desire to become self-reliant, with time lines. In these spheres, we may acquire one-time operational requirements and thereafter embark on a 10-

15 years budget supported, design, development, technology acquisition and production program. Abrupt moratoriums can be self-defeating.

A perspective has been put forth by the CDS about 'tying up with foreign partners for concrete transfer of technology', to enable Make in India. It merits appreciation that, even the basic technology transfers often come tied to acquisitions. Acquiring stand-alone technologies in niche areas like aero engines, marine engines, seekers, electronic warfare equipment etc pose even bigger challenge, since such technologies, considered 'crown-jewels' of industry are not shared even 'at a cost'.

The rationale for introducing the Strategic Partnership model in Defence Procurement Procedure (DPP) 2016 and of 'Buy Global (Manufacture in India)', proposed in DPP 2020, are based on leveraging this interlinkage. Mapping of technology voids jointly by users, DRDO, private industry and formulation of a pragmatic plan to develop or acquire these is the basic building block for the edifice of defence indigenisation.

Spiral Development

In recent days, the Services have also been called upon to 'set realistic GSQR', which it is assumed are deliberately pitched high. A suggestion has been made to accept weapons meeting only 70% of the GSQR for promotion of indigenous defence industry. This concept is flawed on considerations of operational edge and cost of human lives. What is acceptable however is the concept of 'spiral development', in which, during the course of development, lower, but operationally acceptable variants, can be inducted as Mark 1 and progressive upgrades offered thereafter. This indeed has been the practice for indigenous inductions like: Nag ATGMs, Akash Missiles, and even Tejas aircraft.

Another misconception is that of the armed forces 'misrepresenting their operational requirements to import weapons of their choice'. This needs urgent correction.

Firstly, the armed forces acquire weapons to operate in the geostrategic construct defined by the political leadership and the battlefield environment visualised by the top military leadership. Procurements are made to achieve identified military objectives, in the context of National Security Strategy and National Defence Strategy (enunciated or implicit).

Secondly, it is the CDS led HQ Integrated Defence Staff that heads the committees which feed acquisition proposals to the Defence Acquisition Council (DAC), leaving little scope for the services to 'misrepresent'. India as a credible 'pole' of the multi-polar Indo-Pacific also needs to share regional responsibilities and our weapon acquisitions need to factor in politico-military objectives enunciated.

Finally, the hallowed structures like the Defence Planning Committee, CDS, the Department of Military Affairs, which have been put in place recently, require robust integral staff of professionals for institutionalised in-house diligence. Hurried decisions taken at the highest levels, in ad hoc manner, can be unsettling for the armed forces and counterproductive to national security.

Reorganising Procurement

This needs to be complemented by a reorganised Defence Acquisition Organisation and pragmatically refined Defence Procurement Procedure (DPP) 2020. Changes that take away HQ IDS from feeding the 'acquisition funnel', as evident in draft placed in public domain, will be detrimental both, to capability development and to the functioning of the office of CDS itself.

Our intent is laudable, the higher defence organisation structures are in place but ultimate success will lie in how diligently we address the basics, without undue haste.

(The Author is a former Corps Commander and Deputy Chief (Policy Planning & Force Development) at HQ IDS. anil79er@gmail.com)

(Disclaimer: The opinions expressed in this column are that of the writer. The facts and opinions expressed here do not reflect the views of www.economictimes.com.)

<https://economictimes.indiatimes.com/news/defence/defence-sector-reforms-how-to-balance-operational-necessities-with-indigenisation-push/articleshow/76134129.cms>

MoD discusses proposed defence procurement guidelines with industry

On the question of making procurement faster and simpler, Chandra said that DPP 2020 aimed at reducing the burden of bank guarantees

By Ajai Shukla

The defence ministry's procurement Chief, Apurva Chandra, has announced that, to promote indigenization, defence procurements worth less than Rs 50 crore per year would be reserved for micro, small and medium enterprises (MSMEs).

Addressing an industry gathering in New Delhi on the draft Defence Procurement Procedure of 2020 (DPP-2020), that was placed in the public domain for comments in March, Chandra said the foreign direct investment hike to 74 per cent proposed in DPP-2020 would not be hiked to 100 per cent as the proposed hike adequately protected the concerns of foreign industry.



With the draft DPP-2020 proposing to increase the mandatory indigenous content in defence platforms the military was acquiring, Chandra sought to allay concerns about how indigenous content would be measured | Illustration: Ajay Mohanty

“I think it is a big step that we have moved from 49 per cent to 74 per cent and we should celebrate that rather than pitching for 100 per cent as it does not make much of a difference, since you (i.e. foreign industry) have direct control,” said Chandra.

In a statement that MSMEs are welcoming, Chandra said: “We are contemplating to reserve any procurement less than Rs 50 crore per year for MSMEs within India, if such products are available within the country.”

On the question of making procurement faster and simpler, Chandra said that DPP 2020 aimed at reducing the burden of bank guarantees, and at making trial and quality acceptance procedures more transparent.

“These are the changes that may not be visible upfront but those who are operating the DPP and actually participating in the contracts will feel the difference once this is approved and gets operationalized,” he promised.

With the draft DPP-2020 proposing to increase the mandatory indigenous content in defence platforms the military was acquiring, Chandra sought to allay concerns about how indigenous content would be measured. “With the support of industry and what they had suggested, we have come out with a new methodology on how indigenous content is to be measured and that is a very objective sort of criteria which has been suggested by the industry itself,” said Chandra.

Admitting this was a contentious issue, he added: “So it will be much easier to measure indigenous content or come at a conclusion as to how much is the indigenous content in future because till now it has been a sort of grey area.”

The draft DPP-2020 released in March contained the promise that the final version would, for the first time, include chapters on post-contract management and on the procurement of information and communications technology (ICT) software and systems. Suggesting that procurement officials are still struggling with the new chapters, Chandra said: “New chapters on post-contract management... and a new chapter on procurement of ICT software and systems where probably a much faster mode of procurement compared to the regular mode of procurement in the DPP is required and that will be coming out.”

Another new aspect to DPP-2020 is the introduction of leasing, rather than purchase of military platforms and equipment. “Leasing will be a totally new area and, considering budget constraints,

that will probably open a new area of acquisition for the armed forces which will develop over the next few years,” he said.

The benefits of leasing, rather than outright purchase have become evident from the navy’s leasing of a nuclear attack submarine, INS Chakra, from Russia. Instead of paying a huge lump sum for the Chakra, the Indian Navy is making relatively modest annual payments that allow it to operate the vessel for a decade. Now, the defence ministry hopes to extend leasing to a range of equipment such as air transport fleets, trainers aircraft and simulators.

https://www.business-standard.com/article/economy-policy/mod-discusses-proposed-defence-procurement-guidelines-with-industry-120060200070_1.html



Tue, 02 June 2020

Make in India: BMP 2 vehicles for the Indian Army to be made at OF Medak

Confirming this to Financial Express Online, Dr Uddipan Mukherjee Joint Director and PRO, OFB, said, “These 156 BMP Vehicles are going to be manufactured by the Ordnance Factory Medak, which is under Ordnance Factory Board.”

By Huma Siddiqui

With the Futuristic Infantry Combat Vehicle (FICV) project being pushed to the backburner, the Ministry of Defence has cleared the proposal for procurement of 156 BMP 2 Infantry Vehicles for the Indian Army. The whole project of 156 BMP Vehicles is going to be roughly for Rs 1100 crore.

Confirming this to Financial Express Online, Dr Uddipan Mukherjee Joint Director and PRO, OFB, said, “These 156 BMP Vehicles are going to be manufactured by the Ordnance Factory Medak, which is under Ordnance Factory Board.”

In 2018, the plan was to involve the private sector companies in the upgrading of the fleet of infantry combat vehicles in which top companies including Tata and Mahindras were expected to participate in the bidding process.

The whole contract for modernizing around 1600 in service BMP2 armoured vehicles was to be done in two rounds and around 640 Soviet Origin Vehicles were to go to the private sector and depending on how the project moved the decision for the balance was expected to be taken. However, in the background, the Ordnance Factory Board (OFB) was trying hard to get the balance of the BMP 2 vehicles.

What had the Indian Army proposed earlier?

A comprehensive up-gradation of BMP 2 armoured vehicles.

These vehicles are to be modernised with control systems.

To have Kornet E anti-tank missiles and third-generation night vision capability.

These vehicles have the capability to be deployed in various roles. Besides the offensive combat mission, they can be used as an armoured ambulance or an amphibious dozer.

These BMP 2 Vehicles have been renamed as ‘Sarath’ and are the mainstay of the mechanised infantry.



“Infantry Combat Vehicle BMP2 is an extremely potent and formidable weapon platform that equips Indian Army’s Mechanised Infantry battalions,” says Brig N Bhatia, an Indian Army veteran.

Over a period of time BMP platform has been used to develop a number of variants such as Armoured Engineer Recce Vehicles, Armoured Amphibious Dozers, Armoured Ambulance, Armoured Vehicle Tracked Light Repair, Missile and Mortar Carriers, NBC Recce Vehicles etc.

Expert View

“Infantry Combat Vehicle BMP2 is an extremely potent and formidable weapon platform that equips Indian Army’s Mechanised Infantry battalions,” says Brig N Bhatia, an Indian Army veteran.

Sharing a bit of the background of these vehicles, Bhatia says, “The Infantry was initially equipped with Armoured Personnel Carriers that were meant to transport it into the battlefield to keep the pace with fast-paced armoured formations. This was the birth of Battle Taxi concept where infantry was merely being moved in armoured carriers providing it limited protection from enemy weapons.”

“However the concept of Battle Taxi underwent a complete change with the introduction of Russian made BMP 1 transforming it into an Infantry Combat Vehicle (ICV) enabling Infantry to fight a mounted battle using its small arms from the safety of armoured protection with enhanced weapons mounted on the vehicle,” says the former officer who was first commissioned in the Mechanised Infantry.

This changed the entire concept of modern battlefield necessitating the creation of specialised Mechanised Infantry battalions in Indian Army.

“Originally sourced from erstwhile Soviet Union, an upgraded BMP went into indigenous production by setting up manufacturing facilities for BMP 2 series of ICV at Medak, now in Telangana with Russian collaboration. It is now produced with almost indigenously sourced material. It has been rechristened “Sarath” to give it an indigenous name.”

According to Bhatia, “Over last more than four decades the employment of Mechanised Infantry, equipped with BMP 2 has evolved due to its being a very versatile weapons platform. It’s light weight makes it suitable for high-speed manoeuvres, quick deployment through air transportation and its ability to float through rivers and canal networks.”

“A need is being felt to further modernise the BMP 2 under Modernised Infantry Combat Vehicle (MICV) project but this has met with little success. Overall BMP 2 will remain the mainstay of Mechanised Infantry units in the foreseeable future,” he opines.

<https://www.financialexpress.com/defence/make-in-india-bmp-2-vehicles-for-the-indian-army-to-be-made-at-of-medak-of/1977825/>



ज्ञान प्रसार एवम् विस्तार
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Tue, 02 June 2020

In Swadeshi push, over 1000 imported products delisted from paramilitary canteens

From microwave ovens to footwear and branded products like Tommy Hilfiger shirts – over 1000 imported products will now not be available at the Kendriya Police Kalyan Bhandars (KPKB), the parent body that runs paramilitary canteens across India, which will sell only Swadeshi products from June 1.

This comes after the Union Home Ministry said only Made in India products will be sold in all KPKB canteens. Apart from this, seven firms importing products including Skechers, Ferrero, Red Bull, Victorinox, Safilo (Polaroid, Carrera) have also been de-listed. The KPKB has also stopped several products of companies, which have not provided the information sought by them.

The KPKB has divided all products into three categories.

“In pursuance to the decision taken by the Ministry of Home Affairs, Government of India, Swadeshi Goods only will be sold through KPKB Bhandars w.e.f. June 1, 2020. In the process of implementation of the decision in letter and spirit, product-wise information was sought from all of the registered firms vide this office,” KPKB said in a letter sent to all paramilitary forces.

The central police canteens sell products to cater almost 50 lakh family members of about 10 lakh personnel serving in CRPF, BSF, ITBP, CISF, SSB, NSG and Assam Rifles.

According to official communication by the Home Ministry based on the information submitted by the firms, this office has categorized all listed products in three categories Category 1 – Products Purely Made in India, Category 2 -Raw Materials Imported but Products Manufactured/Assembled in India, and Category 3 – Purely Imported Products.

Products falling under Category 1 and Category 2 will be allowed to be on KPKB inventory and for sale, through KPKB Bhandars whereas products falling under Category 3 will stand de-listed with effect from June 1 and their sale will not be allowed with effect from June 1.

“Further, the firms with all of the listed products falling under Category 3 will itself stand de-listed from KPKB inventory w.e.f. 1st June 2020. However, the firms whose inventory consists of mixed categories of products will be allowed to continue with KPKB but with products of Category 1 and Category 2 only. Products of Category 3 of such firms will stand de-listed from KPKB inventory w.e.f. 1 st June 2020,” the letter said.

The parent body has also delisted those products belonging to companies, which have not provided the information to KPKB.

The KPKB has also clarified in its letter that product categorization has conducted on the sole basis of information provided by the firms only and in case of any litigation, the information provided by the firms will be used as evidence and onus to prove the information as correct will be on the respective firm.

“If a case of misinformation or hiding of information/facts by any firm is found at a later stage. The concerned firm will be liable for suitable proceedings.” KPKB said.

Some products which have been de-listed are — Colgate Palmolive products like body wash and mouth wash, Havells products like hair straighteners, HUL (GSK) certain categories of Horlicks, HUL Magnum chocolate ice cream, Loreal Maybelline Kajal, Several products of LG electronics, Mars chocolates a few Nivea products, a few products of Philips, Bajaj and Panasonic, Blue star, Abbott healthcare product Similac Isomil, several Addidas body spray sold by Cavincare, Eureka Forbes products, Gillette and vector products sold by P&G, Red Bull energy drink, Air freshener Airsick (Reckitt Benckiser), Safari Samsonite luggage products and few VIP luggage products, a few products of Samsung, Sleepwell blanket range, Few Range of Timex, Two products of TTK Prestige, Real fruit juice, SKECHERS footwear range.

<https://idr.w.org/in-swadeshi-push-over-1000-imported-products-delisted-from-paramilitary-canteens/>



Tue, 02 June 2020

Indian-American aerospace expert Vivek Lall appointed General Atomics Chief Executive

Vivek Lall, a prominent Indian-American aerospace and defence expert who played key roles in some of the major defence deals between India and the US, has been appointed as the Chief Executive of General Atomics Global Corporation at its headquarters in San Diego, California.

Vivek Lall had resigned in April as vice president of Aeronautics Strategy and Business Development at Lockheed Martin, an American security and aerospace giant, to spend more time with his family in San Diego, where he resides. However, weeks later the world's premier drone manufacturer roped him in.

“We are pleased to announce that Dr Vivek Lall will assume the position of Chief Executive at General Atomics Global Corporation, effective immediately,” GA said in a statement emailed to PTI on Sunday. General Atomics (GA) is one of the world's leading privately held nuclear and defense company.



“With Dr Lall's expertise, GA Global will expand its global footprint for managing sales, service, and international industrial collaboration in strategically important countries like Japan, Australia, the UAE, and others,” the company said.

“Dr Lall's extensive experience in the US and international markets will strengthen the company's international growth,” said General Atomics, which along with its affiliated companies operates on five continents.

For the Jakarta-born, Vivek Lall, this is his second stint with General Atomics, which produces a series of unmanned aircraft and provides electro-optical, radar, signals intelligence, and automated airborne surveillance systems.

In his capacity as Chief Executive of Strategic Development at General Atomics from 2014 to 2018, Vivek Lall played key role in the decision of the Trump Administration to sell category 1 unmanned aerial vehicles (UAVs) to India, a non-NATO country.

The UAVs that can carry missiles fall under the category-1 classification.

In his new role as Chief Executive, Vivek Lall, 50, would be heading the General Atomics Global Corporation.

General Atomics is the principal private sector participant in thermonuclear fusion research through its internationally recognized DIII-D and inertial confinement programs. It is also a leader in development of next-generation nuclear fission and high-temperature materials technologies.

For over a decade now, Vivek Lall has been instrumental in major bilateral defense deals worth around USD 18 billion. This includes the procurement of 24 MH-60R Multi-Role Helicopters from Lockheed Martin for the Indian Navy worth USD 2.6 billion, which was announced during the India visit of President Donald Trump in February.

In his capacity as vice-president and country head for India, Boeing Defense Space & Security, Vivek Lall was instrumental in several multi-billion bilateral defence deals. Prominent among them being 10 C17 strategic lift worth USD4 billion, P-8I Anti-submarine warfare aircrafts (eight and then four) worth USD3 billion, 28 apache helicopters and 15 chinooks worth USD 5 billion 22 harpoon missiles worth USD 200 million.

He was appointed to the US Federal Aviation Advisory Committee two years ago and has overseen multiple campaigns as well as pan India strategic industrial tie-ups.

Trained as a private pilot at the Phoenix International Flight Training Center in Florida, Vivek Lall has conducted his doctoral work in collaboration with NASA.

<https://idr.org/indian-american-aerospace-expert-vivek-lall-appointed-general-atomics-chief-executive/#more-228415>

India-Australia partnership to scale greater heights following June 4 summit: Envoy

During the summit, PM Modi and his Australian counterpart are expected to ramp up efforts to diversify Australia's export markets and find trusted suppliers of vital products and components. The new agreements will focus on reliable supply chains in key strategic sectors, including medical goods, technology and critical minerals, amid heightened tensions with China over Beijing's response to coronavirus pandemic

By Dipanjan Roy Chaudhury

New Delhi: India-Australia relations will 'scale greater heights' and elevated to next stage across sectors with the virtual summit on June 4 Australian High Commissioner Barry O'Farrell said on Monday.

"India and Australia relations will scale greater heights after the summit-level meeting between the two countries," O'Farrell said.

During the summit, Prime Minister Narendra Modi and his Australian counterpart Scott Morrison are expected to ramp up efforts to diversify Australia's export markets and find trusted suppliers of vital products and components.

The new agreements will focus on reliable supply chains in key strategic sectors, including medical goods, technology and critical minerals, amid heightened tensions with China over Beijing's response to coronavirus pandemic.

Australian farmers could also benefit, with talks underway on expanding agricultural exports to India, including barley, as China throws up new trade barriers, media reports stated.

The leaders will seal a new defense agreement allowing reciprocal access to bases and co-operation on military technology projects, while a new education partnership will be on the table to help overcome Australian university reliance on Chinese students.

The talks in terms of strategic convergence, now have greater significance as COVID-19 exacerbates the strategic contest between the US and China.

Morrison was scheduled to visit New Delhi in January, but had postponed it due to the bush fires in Australia. The rescheduled plan for May was put on hold due to the outbreak of Covid-19.

Modi has so far been part of virtual summits in the Saarc and G-20 formats but this will be the maiden bilateral summit held through a virtual domain.

The Australian PM and Modi have been in touch with each other to discuss measures to contain the pandemic. During a phone call in April, both leaders agreed to remain attentive to the wider significance of the India-Australia partnership, including in the Indo-Pacific region, even as they focused on solving the current health crisis. They agreed on the importance of bilateral experience-sharing in the context of this health crisis, including through collaborative research efforts.

Australia has felt that it could do more with India in global and regional responses to the threat of terrorism besides widening the scope of their Indo-Pacific partnership to stabilise the Indian Ocean Region through the logistics support agreement for their defence forces. The agreement was originally scheduled to be signed in January during Morrison's visit.

Logistics sharing agreements with nations like Japan and Australia will significantly enhance the capability of the Indian Navy to operate eastwards, which is an increasing area of interest. However, sources have cautioned that the agreements should not be seen in the context of the 'Quad' initiative (quadrilateral security dialogue among the US, Japan, Australia and India).

<https://economictimes.indiatimes.com/news/politics-and-nation/india-australia-partnership-to-scale-greater-heights-following-june-4-summit-envoy/articleshow/76138677.cms>

Private players may soon end ISRO monopoly

By Arun Ram

Chennai: India's space programme is all set for privatization as the Space Commission has cleared a proposal to set up a National Space Activities Promotion Board.

Two sources in the department of space familiar with the developments told TOI that the Prime Minister's office is expected to give its nod for the move that would mark the beginning of the end of Indian Space Research Organisation's monopoly in the Indian space sector.

In fact, the proposal came as a result of a year-long process initiated by the PMO to reform strategic sectors. Finance minister Nirmala Sitharaman had, on May 16, announced that the government would make future projects for planetary exploration and outer space travel open for private sector.

A senior official in the department of space told TOI that the proposed board will have powers independent of Isro. "It may have a chairman and a handful of members drawn from different strategic government sectors as also independent experts. The board will broadly lay the road for private companies to take up research and development of rockets and satellites, besides taking up space missions. The PMO will decide on its constitution and autonomy," the official said.

Leading space-faring nations such as the US and China, besides the European Space Agency, have been encouraging private companies to be part of their space programme, while India had kept its core activities within Isro while outsourcing manufacturing of components for rockets and satellites from private companies. "This will soon end," said the source. "Isro will be one of the players, if a prominent one, in future space missions."

The PMO had, in June last year, set up a committee headed by Union minister Nitin Gadkari to study and suggest measures to strengthen the country's strategic sectors. A deputy secretary in the PMO has been coordinating the reform plan for the space sector. There were differences of opinion within Isro as a section wanted to hold on to the organisation's monopoly, while several seniors felt the need for opening up the sector to increase revenue from satellite launches and take up ambitious interplanetary missions.

After several rounds of discussions, the space commission (which is chaired by the Isro chairman and comprises about a dozen secretaries of the Union government besides the national security advisor) approved the proposal on May 20. Four days earlier, Union finance minister Nirmala Sitharaman had said the government would allow private players to share Isro's assets.

"India already has the benefit of an extraordinary institution like Isro, but now lots of private players are also coming in with innovative space technology. We will allow private players to benefit from Isro's assets and give them a level-playing field to boost India's space sector further," she had said.

ISRO Chairman K Sivan did not respond to calls and messages from TOI.

<https://timesofindia.indiatimes.com/india/private-players-may-soon-end-isro-monopoly/articleshow/76146037.cms>

"Great job": ISRO on historic NASA, SpaceX mission

On Sunday, SpaceX's Dragon spacecraft with NASA astronauts Bob Behnken and Doug Hurley successfully docked with the International Space Station

By Swati Sharma

New Delhi: A day after a SpaceX rocket carrying two NASA astronauts lifted off from the Kennedy Space Centre in Florida, the Indian Space Research Organisation on Monday congratulated the two organisations and termed the manned space mission as "historic."

On Sunday, SpaceX's Dragon spacecraft with NASA astronauts Bob Behnken and Doug Hurley successfully docked with the International Space Station.

The duo entered the ISS at 1:02 pm Eastern Time (1702 GMT) Wearing black polo shirts and khaki pants. They were greeted by fellow US astronaut Chris Cassidy, as well as cosmonauts Anatoli Ivanishin and Ivan Vagner.

The mission was the first between a private and a government-funded organisation, heralding the dawn of commercial space travel. The launch on Saturday also assumes significance as it was the first manned flight from US soil in nearly a decade.

India has also been preparing the ground for its first manned space mission, "Gaganyaan". The Rs 10,000-crore ambitious project is expected to be launched in 2022, the year of the 75th anniversary of India's Independence. Four Indian Air Force fighter pilots selected as potential candidates for the mission are currently undergoing training in Moscow.

<https://www.ndtv.com/india-news/great-job-isro-on-historic-nasa-spacex-mission-2238646>



The duo entered the ISS at 1:02 pm Eastern Time (1702 GMT) Wearing black polo shirts and khaki pants.

TECH EXPLORIST

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Tue, 02 June 2020

Scientists uncovered exotic quantum properties in magnetite

Dancing electrons solve a longstanding puzzle in the oldest magnetic material

By Amit Malewar

Magnetite (Fe₃O₄) is the oldest magnetic material known to mankind. It is a common mineral with strong magnetic properties, used widely in catalytic processes.

In a new study, scientists uncovered exotic quantum properties hidden in magnetite. The study reveals the existence of low-energy waves that indicate the critical role of electronic interactions with the crystal lattice.

The primary purpose of the study was to determine the excitations involved in the charge-orbital order of magnetite and describe them using advanced theoretical methods. They performed experiments at MIT; synthesized magnetite samples at the AGH University of Science and Technology and conducted theoretical analyses at the Institute of Nuclear Physics of the Polish Academy of Sciences (Przemyslaw Piekarczyk, Krzysztof Parlinski), the Jagiellonian University and the Max Planck Institute (Andrzej M. Oles), the University of Rome "La Sapienza" (Jose

Lorenzana), Northeastern University (Gregory Fiete), the University of Texas at Austin (Martin Rodriguez-Vega), and the Technical University in Ostrava (Dominik Legut).

Prof. Przemyslaw Piekarczyk At the Institute of Nuclear Physics of the Polish Academy of Sciences, we have been conducting studies on magnetite for many years, using the first-principles calculation

method. These studies have indicated that the strong interaction of electrons with lattice vibrations (phonons) plays a vital role in the Verwey transition.”

Scientists quantified the optical response of magnetite in the extreme infrared for several temperatures. Then, they lit up the crystal with an ultrashort laser pulse (pump beam) and estimated the change in the far-infrared absorption with a delayed probe pulse.

Prof. Nuh Gedik, head of the research group at MIT, said, “*This is a powerful optical technique that enabled us to take a closer view at the ultrafast phenomena governing the quantum world.*”

The estimations uncovered the presence of low-energy excitations of the trimeron order, which correspond to a lattice deformation. The energy of two coherent modes diminishes to zero when moving toward the Verwey change—demonstrating their essential conduct near this transformation.

Advanced theoretical models allowed them to describe the newly discovered excitations as coherent tunneling of polarons. The energy barrier for the tunneling process and other model parameters were calculated using density functional theory (DFT) based on the quantum-mechanical description of molecules and crystals.

The involvement of these waves in the Verwey transition was affirmed using the Ginzburg-Landau model. At last, the computations likewise precluded other potential clarifications for the observed phenomenon, including customary phonons and orbital excitations.

Dr. Edoardo Baldini and Carina Belvin of [MIT](#), the lead authors of the article, said, “*The discovery of these waves is of key importance for understanding the properties of magnetite at low temperatures and the Verwey transition mechanism. In a broader context, these results reveal that the combination of ultrafast optical methods and state-of-the-art calculations makes it possible to study quantum materials hosting exotic phases of matter with charge and orbital order.*”

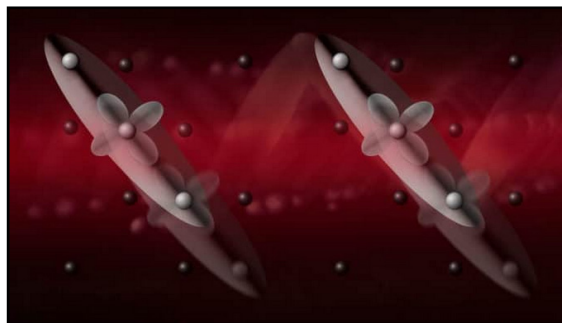
The obtained outcomes lead to a few significant ends. To begin with, the trimeron order in magnetite has elementary excitations with a deficient vitality, retaining radiation in the far-infrared region of the electromagnetic spectrum.

Second, these excitations are collective fluctuations of charge and lattice deformation that display essential conduct and are accordingly engaged with the Verwey transition. At long last, the outcomes shed new light on the cooperative mechanism and dynamical properties that lie at the origin of this intricate phase transition.

Prof. Piekarczyk said, “*As for the plans for the future of our team, as part of the next stages of work, we intend to focus on conducting theoretical calculations aimed at better understanding the observed coupled electronic-structural waves.*”

Journal Reference:

1. Edoardo Baldini et al, Discovery of the soft electronic modes of the trimeron order in magnetite. [DOI: 10.1038/s41567-020-0823-y](https://doi.org/10.1038/s41567-020-0823-y)
<https://www.techexplorist.com/exotic-quantum-properties-magnetite/32711/>



Researchers confirmed the existence of electronic waves that are frozen at a transition temperature of 125 kelvins and start “dancing together” in a collective oscillating motion as the temperature is lowered. In this illustration, a red laser beam triggers the dance of the newly discovered electronic waves in magnetite. Credit: Ambra Garlaschelli

Scientists create world's most heat resistant material with potential use for spaceplanes

By Allison Gasparini

Reusable spacecraft would make space exploration both more cost-effective and accessible, which is why space agencies have been actively pursuing their development. However, spaceplanes are subjected to extreme temperatures on exiting and re-entering the atmosphere. So, materials which can withstand the scorching temperatures are needed in their construction.

Scientists from the National University of Science and Technology (NUST) in Moscow have now fabricated a ceramic material which is more heat resistant than any other.

The previous material to hold the title of “most heat resistant” was tested in 2016 by a team from the Imperial College London. Using a laser heating technique which allowed them to test the material at extreme temperatures, they calculated that a chemical compound of the elements hafnium, a transition metal, and carbon had the highest melting point ever recorded at the time. Their findings showed hafnium carbide melted at just under 4000 degrees Celsius.



Prior to the discovery of hafnium carbide's high melting point, researchers from Brown University used computer modeling to predict a material made from hafnium, carbon and nitrogen would be the most heat resistant material. Their simulations showed such a material would melt at over 4100 degrees Celsius, roughly two-thirds the temperature of the surface of the sun.

Knowing the predictions made by the researchers at Brown, the NUST scientists set out to fabricate hafnium carbonitride and test it in comparison to hafnium carbide.

To create the material, they subjected powdered hafnium and carbon to high-energy collisions from balls within a cylindrical grinder called a ball mill. Ball mills are often used in ceramics to grind material into fine particles. Following the high-energy ball milling, the researchers combusted the resulting composite hafnium and carbon particles in a nitrogen atmosphere.

The hafnium carbide and hafnium carbonitride samples were then placed on graphite plates to be tested in a vacuum environment. When heated with a battery using molybdenum electrodes, the melting point of hafnium carbonitride was revealed to be higher than that of hafnium carbide.

Because the melting point of hafnium carbonitride is so high — above 4000 degrees Celsius — it could not be measured precisely in a laboratory. Future experiments will use a laser technique to determine exact measurements, like the one used by the Imperial College London to determine the melting point of hafnium carbide.

The material's ability to withstand high heats as well as its mechanical toughness makes it a promising candidate for use in the areas of aircraft which are exposed to the highest temperatures including the nose fairings, jet engines, and wings. Additionally, the researchers intend to test hafnium carbonitride in hypersonic conditions.

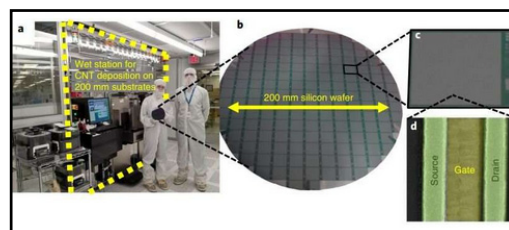
<https://www.forbes.com/sites/allisongasparini/2020/05/31/scientists-create-worlds-most-heat-resistant-material-with-potential-use-for-spaceplanes/#7aa0bd614f7e>

Carbon nanotube transistors make the leap from lab to factory floor

BY Becky Ham

Carbon nanotube field-effect transistors or CNFETs are more energy-efficient than silicon field-effect transistors and could be used to build new types of three-dimensional microprocessors. But until now, they've existed mostly in an "artisanal" space, crafted in small quantities in academic laboratories.

In a study published June 1 in *Nature Electronics*, however, scientists show how CNFETs can be fabricated in large quantities on 200-millimeter wafers that are the industry standard in computer chip design. The CNFETs were created in a commercial silicon manufacturing facility and a semiconductor foundry in the United States.



After analyzing the deposition technique used to make the CNFETs, Max Shulaker, an MIT assistant professor of electrical engineering and computer science, and his colleagues made some changes to speed up the fabrication process by more than 1,100 times compared to the conventional method, while also reducing the cost of production. The technique deposited carbon nanotubes edge to edge on the wafers, with 14,400 by 14,400 arrays of CNFETs distributed across multiple wafers.

Shulaker, who has been designing CNFETs since his Ph.D. days, says the new study represents "a giant step forward, to make that leap into production-level facilities."

Bridging the gap between lab and industry is something that researchers "don't often get a chance to do," he adds. "But it's an important litmus test for emerging technologies."

Other MIT researchers on the study include lead author Mindy D. Bishop, a Ph.D. student in the Harvard-MIT Health Sciences and Technology program, along with Gage Hills, Tathagata Srimani, and Christian Lau.

Solving the spaghetti problem

For decades, improvements in silicon-based transistor manufacturing have brought down prices and increased energy efficiency in computing. That trend may be nearing its end, however, as increasing numbers of transistors packed into integrated circuits do not appear to be increasing energy efficiency at historic rates.

CNFETs are an attractive alternative technology because they are "around an order of magnitude more energy efficient" than silicon-based transistors, says Shulaker.

Unlike silicon-based transistors, which are made at temperatures around 450 to 500 degrees Celsius, CNFETs also can be manufactured at near-room temperatures. "This means that you can actually build layers of circuits right on top of previously fabricated layers of circuits, to create a three-dimensional chip," Shulaker explains. "You can't do this with silicon-based technology, because you would melt the layers underneath."

A 3-D computer chip, which might combine logic and memory functions, is projected to "beat the performance of a state-of-the-art 2-D chip made from silicon by orders of magnitude," he says.

One of the most effective ways to build CNFETs in the lab is a method for depositing nanotubes called incubation, where a wafer is submerged in a bath of nanotubes until the nanotubes stick to the wafer's surface.

The performance of the CNFET is dictated in large part by the deposition process, says Bishop, which affects both the number of carbon nanotubes on the surface of the wafer and their orientation. They're "either stuck onto the wafer in random orientations like cooked spaghetti or all aligned in the same direction like uncooked spaghetti still in the package," she says.

Aligning the nanotubes perfectly in a CNFET leads to ideal performance, but alignment is difficult to obtain. "It's really hard to lay down billions of tiny 1-nanometer diameter nanotubes in a perfect orientation across a large 200-millimeter wafer," Bishop explains. "To put these length scales into context, it's like trying to cover the entire state of New Hampshire in perfectly oriented dry spaghetti."

The incubation method, while practical for industry, doesn't align the nanotubes at all. They end up on the wafer more like cooked spaghetti, which the researchers initially didn't think would deliver sufficiently high CNFET performance, Bishop says. After their experiments, however, she and her colleagues concluded that the simple incubation process would work to produce a CNFET that could outperform a silicon-based transistor.

CNFETs beyond the beaker

Careful observations of the incubation process showed the researchers how to alter the process to make it more viable for industrial production. For instance, they found that dry cycling, a method of intermittently drying out the submerged wafer, could dramatically reduce the incubation time—from 48 hours to 150 seconds.

Another new method called ACE (artificial concentration through evaporation) deposited small amounts of nanotube solution on a wafer instead of submerging the wafer in a tank. The slow evaporation of the solution increased the concentration of carbon nanotubes and the overall density of nanotubes deposited on the wafer.

These changes were necessary before the process could be tried on an industrial scale, Bishop says: "In our lab, we're fine to let a wafer sit for a week in a beaker, but for a company, they don't have that luxury."

The "elegantly simple tests" that helped them understand and improve on the incubation method, she says, "proved really important for addressing concerns that maybe academics don't have, but certainly industry has, when they look at setting up a new process."

The researchers worked with Analog Devices, a commercial silicon manufacturing facility, and SkyWater Technology, a semiconductor foundry, to fabricate CNFETs using the improved method. They were able to use the same equipment that the two facilities use to make silicon-based wafers, while also ensuring that the nanotube solutions met the strict chemical and contaminant requirements of the facilities.

"We were extremely lucky to work closely with our industry collaborators and learn about their requirements and iterate our development with their input," says Bishop, who noted that the partnership helped them develop an automated, high-volume and low-cost process.

The two facilities showed a "serious commitment to research and development and exploring the edge" of emerging technologies, Shulaker adds.

The next steps, already underway, will be to build different types of integrated circuits out of CNFETs in an industrial setting and explore some of the new functions that a 3-D chip could offer, he says. "The next goal is for this to transition from being academically interesting to something that will be used by folks, and I think this is a very important step in this direction."

<https://techxplore.com/news/2020-06-carbon-nanotube-transistors-lab-factory.html>

Researchers have developed a first-principles quantum Monte Carlo package called TurboRVB

First-principles quantum Monte Carlo is a framework used to tackle the solution of the many-body Schrödinger equation by means of a stochastic approach. This framework is expected to be the next generation of electronic structure calculations because it can overcome some of the drawbacks in density functional theory and wavefunction-based calculations. In particular, the quantum Monte Carlo framework does not rely on exchange-correlation functionals, the algorithm is well suited for massively parallel supercomputers, and it is easily applicable to both isolated and periodic systems.

"TurboRVB" is a first-principles quantum Monte Carlo software package that was initially launched by Prof. Sandro Sorella (International School for Advanced Studies/Italy) and Dr. Michele Casula (Sorbonne University/France), and has been continuously developed by many contributors for over 20 years. Very recently, Assist. Prof. Kosuke Nakano at Japan Advanced Institute of Science and Technology (JAIST, President: Minoru Terano, located at Nomi, Ishikawa, Japan) and his collaborators have published a comprehensive review paper in *The Journal of Chemical Physics* [K. Nakano et al. *J. Chem. Phys.* 152, 204121, 2020, DOI: 10.1063/5.0005037].

TurboRVB is distinguishable from other first-principles quantum Monte Carlo codes in the following features. (a) The code employs resonating valence bond (RVB)-type wave functions, such as the Jastrow Geminal/Jastrow Pfaffian, which include the correlation effect beyond the Jastrow-Slater wave function that is commonly used in other QMC codes. (b) Implemented state-of-art optimization algorithms, such as the stochastic reconfiguration and the linear method, help realize a stable optimization of the amplitude and nodal surface of a many-body wave function at the variational quantum Monte Carlo level. (c) The so-called lattice-regularized diffusion Monte Carlo method is implemented in the code, which provides a numerically stable diffusion quantum Monte Carlo calculation. (d) The implementation of an adjoint algorithmic differentiation allows us to compute derivatives of many-body wave functions very efficiently and to perform structural optimizations and molecular dynamics simulations.

The published paper describes the details of the algorithms implemented in TurboRVB and summarizes its applications to date.

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https://www.eurekalert.org/pub_releases/2020-06/jaio-rhd060120.php

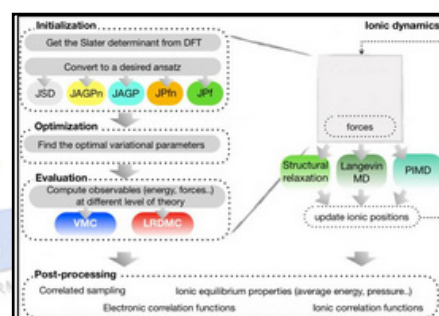


Image: Schematic figure of the TurboRVB workflow [K. Nakano et al. *J. Chem. Phys.* 152, 204121 (2020)]. The code implements flexible many-body wave function ansatz, such as JSD: Jastrow Slater, JAGP.

Vitamin D determines severity in Covid-19, says study

Many recent studies confirm the pivotal role of vitamin D in viral infections

A study by Irish researchers highlights the association between vitamin D levels and mortality from Covid-19. Based on the study, the researchers from Trinity College Dublin are calling on the government in Ireland to change recommendations for vitamin D supplements. However, other studies have warned that people should not take high doses of vitamin D to prevent or treat Covid-19.

The new study, published recently in the Irish Medical Journal, analysed all European adult population studies, completed since 1999, which measured vitamin D and compared vitamin D and death rates from Covid-19.

Vitamin D is produced in the skin during exposure to sunlight and is transported to the liver and then the kidney where it is changed into an active hormone that increases calcium transport from food in the gut and ensures calcium is adequate to keep the skeleton strong and free of osteoporosis.

But vitamin D can also support the immune system through a number of immune pathways involved in fighting SARS-CoV-2. Many recent studies confirm the pivotal role of vitamin D in viral infections.

This study shows that, counter intuitively, countries at lower latitude and typically sunny countries, such as Spain and Northern Italy, had low concentrations of vitamin D and high rates of vitamin D deficiency. These countries also experienced the highest infection and death rates in Europe.

The northern latitude countries of Norway, Finland and Sweden, have higher vitamin D levels despite less UVB sunlight exposure, because supplementation and fortification of foods is more common. These Nordic countries have lower Covid-19 infection and death rates. The correlation between low vitamin D levels and death from Covid-19 is statistically significant.

The research team consisting of Dr Eamon Laird and Professor Rose Anne Kenny, School of Medicine, and the Irish Longitudinal Study on Ageing (TILDA), worked in collaboration with Professor Jon Rhodes at University of Liverpool.

The authors propose that, whereas optimising vitamin D levels will certainly benefit bone and muscle health, the data suggests that it is also likely to reduce serious Covid-19 complications. This may be because vitamin D is important in regulation and suppression of the inflammatory cytokine response, which causes the severe consequences of Covid-19 and 'acute respiratory distress syndrome' associated with ventilation and death.

"In England, Scotland and Wales, public health bodies have revised recommendations since the Covid-19 outbreak. Recommendations now state that all adults should take at least 400 IU vitamin D daily. Whereas there are currently no results from randomised controlled trials to conclusively prove that vitamin D beneficially affects Covid-19 outcomes, there is strong circumstantial evidence of associations between vitamin D and the severity of Covid-19 responses, including death," said Professor Rose Anne Kenny.

"Here we see observational evidence of a link of vitamin D with mortality. Optimising vitamin D intake to public health guidelines will certainly have benefits for overall health and support immune function," said Dr Eamon Laird.

<https://www.theweek.in/news/health/2020/06/01/Vitamin-D-determines-severity-in-Covid-19-says-study.html>



Tue, 02 June 2020

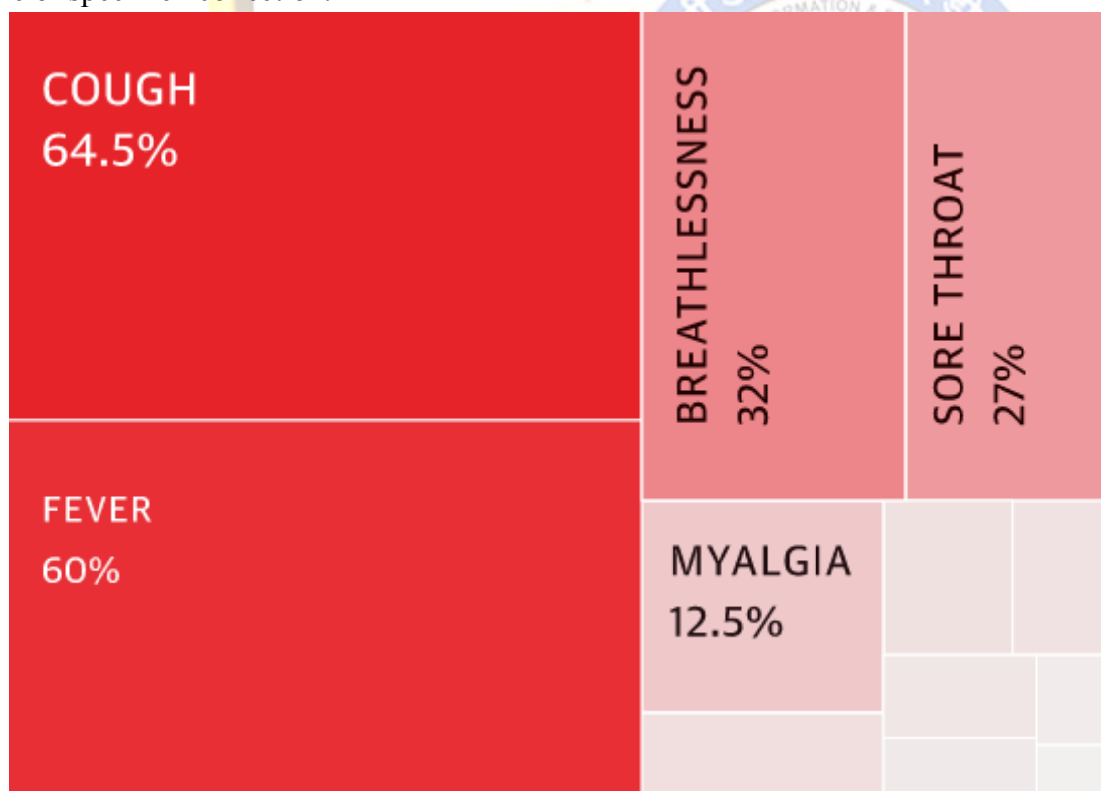
Data | More men and people aged 50 to 69 infected with COVID-19: research

Cough and fever were the most commonly reported symptoms

More men than women and those aged 50 to 69 years were infected with COVID-19, found a research paper published recently. The study, which analysed cases and tests conducted between January 22 and April 30, also presented its findings on the most commonly reported symptoms of patients and the chances of secondary transmission.

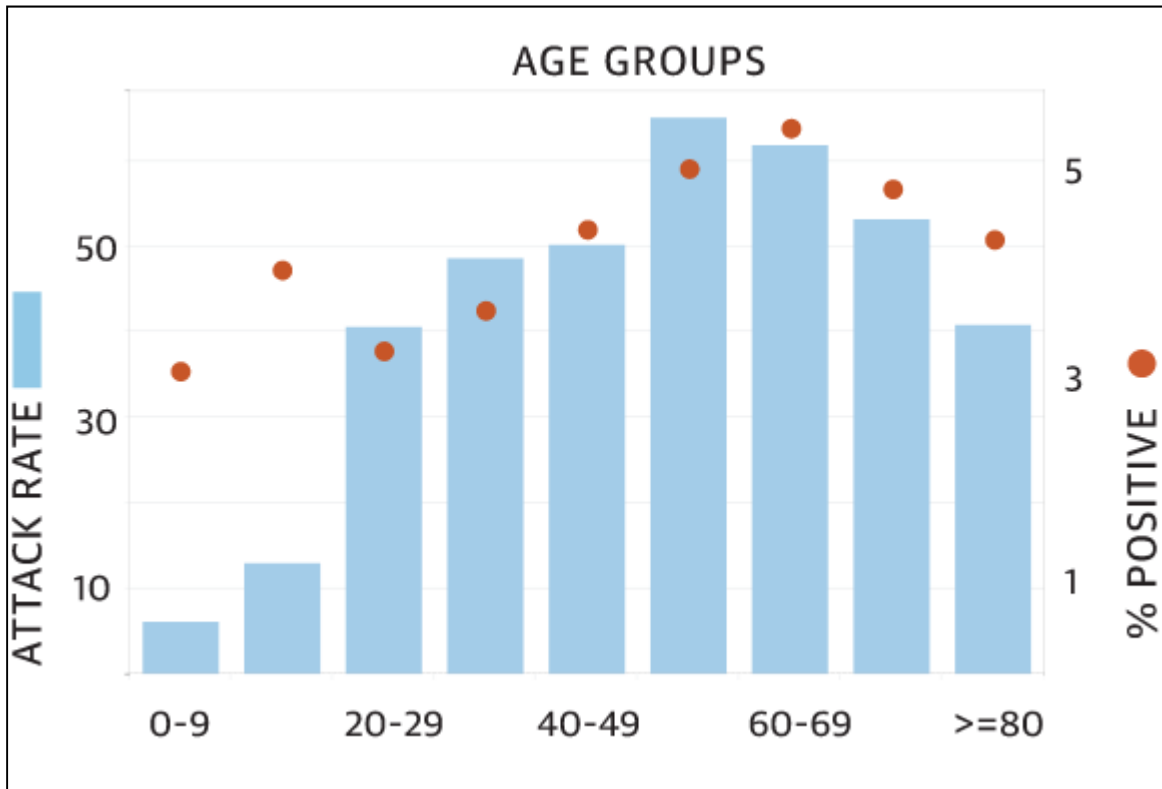
Symptoms

Cough and fever were the most commonly reported symptoms among COVID-19 patients at the time of specimen collection.



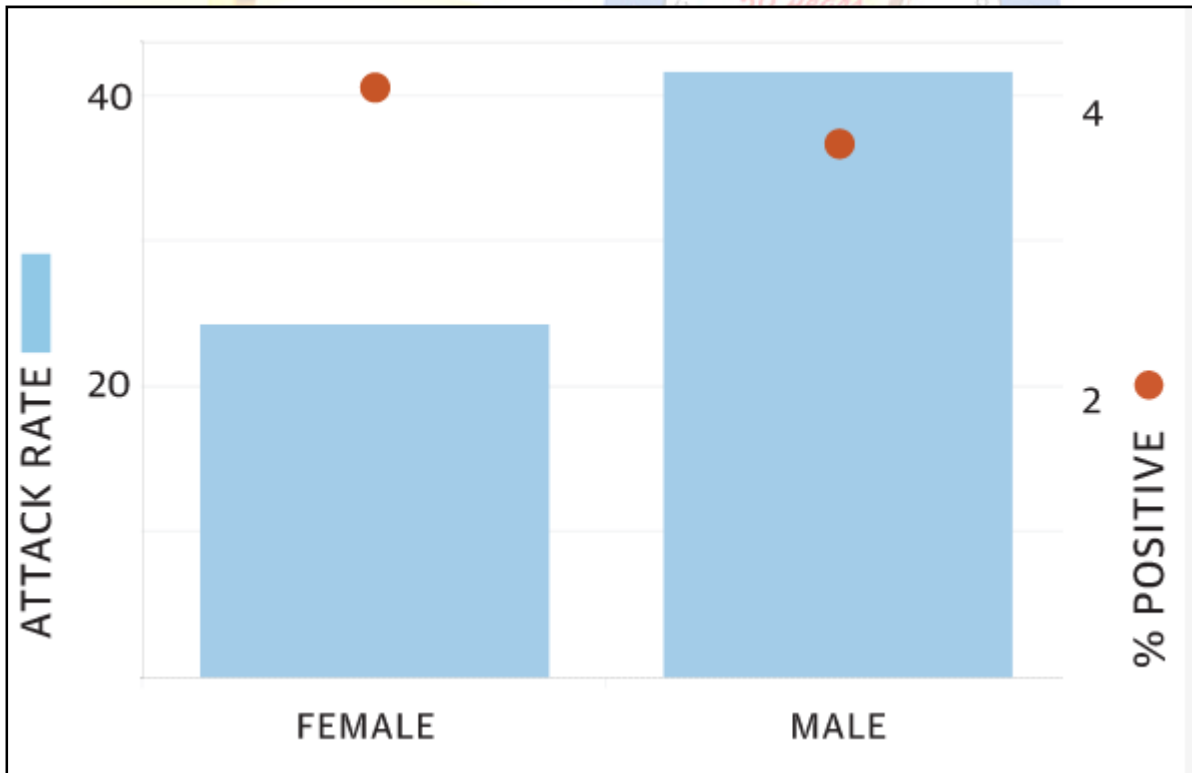
Most vulnerable

The attack rate (people affected per 1 lakh population) and the percentage of positive cases among those tested were highest in the 50 to 69 age group.



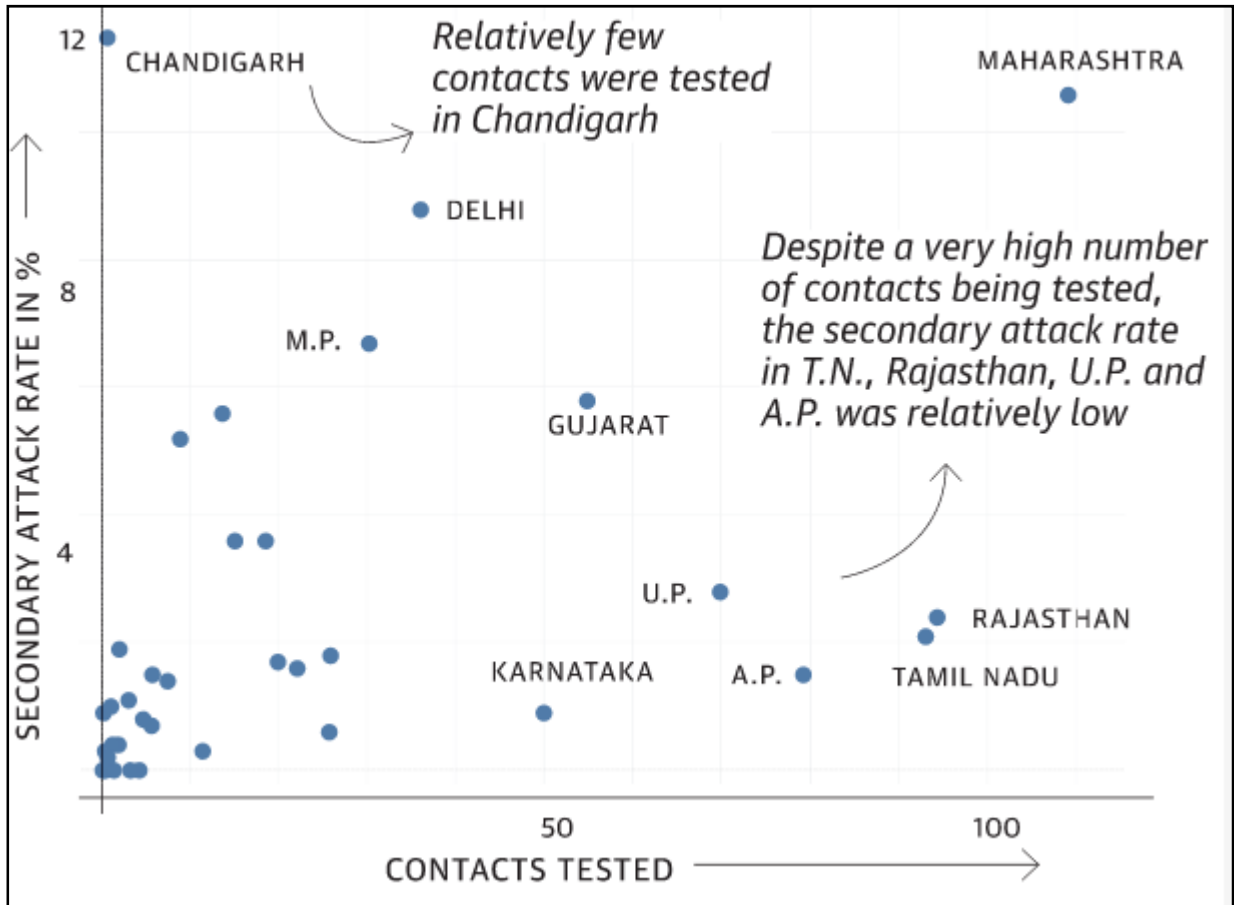
Gender ratio

The attack rate was significantly higher for men (41.6 case per 1 lakh males) than women (24.3 cases per 1 lakh females)



Chance of transmission

The secondary attack rate (the number of positives among contacts of primary cases) was highest in Chandigarh and Maharashtra.



Source: "Laboratory surveillance for SARS-CoV-2 in India..", ICMR COVID Study Group, Priya Abraham et al.
<https://www.thehindu.com/data/data-more-men-and-people-aged-50-to-69-infected-with-covid-19-research/article31725585.ece>

