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SPECIAL NUMBER - COVID-19



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INDIA'S No. 1 SAFETY SHOE MANUFACTURER

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EDITORIAL



Dear Readers,

The challenges posed by COVID-19, are new to us and we must learn to live with it and move ahead. Re-opening of work activities during or post lockdown due to COVID-19 pandemic, even partially, poses extraordinary challenges before the organisations. Many organisations have accepted the challenges as a new normal and started their work activities with the precautions and as per the guidelines issued by the Governments. Organisational resilience blending the principles of enterprise risk management, business continuity and crisis management with change management has evolved in recent times.

Resilience allows enterprises to display characteristics that help them to not just survive the change by passive response but thrive in it, allowing an organisation to resume normal or improved business activities as soon as possible. Organisations are focusing on making the workplaces safer and advising the workers to return to their jobs. Limiting the number of people present at site, at any given time, reshuffle of shifts or arrangements to enable employees to work from home are also attempted by many organisations.

The first line of defence against the COVID-19 is a set of simple measures that involves physical distancing, mandatory use of face masks or face cover, frequent hand washing with soap, respiratory etiquette, sanitising contact surfaces and self-monitoring of health. These requirements are inexpensive and have by now become known to everyone, and employees need only be nudged into adopting them through persistent communication, free provisioning of masks and sanitising materials, and organising workplaces suitably. Government authorities have addressed the COVID-19 issue by a publishing the manual of preventive measures that covers all types of workplaces and advises mainly on behavioural changes, with some additional requirements for offices.

We are publishing this April - June 2020 issue of the Industrial Safety Chronicle, as a special issue on COVID-19, to provide the useful information on COVID-19 issues and challenges before us at one place. It has nine articles written by Occupational Health Specialists. Some of them have narrated their experiences of reopening of their manufacturing activities during COVID-19. Also, covered an article from construction site stating what precautionary measures they have adopted their day-to-day work.

In this issue, we have also included the first pillar - commitment to process safety of CCPS's Risk Based Process Safety (RBPS) Guidelines. In Jan-Mar 2020 issue, we had published an introductory article on Process Safety Management – From Conception to Development as a part of CCPS's RBPS Guidelines. The other three pillars of RBPS will be covered in series of the next issues.

I hope readers will find this issue very useful.

Lalit R. Gabhane
Chief Editor & Director General

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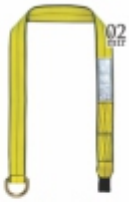
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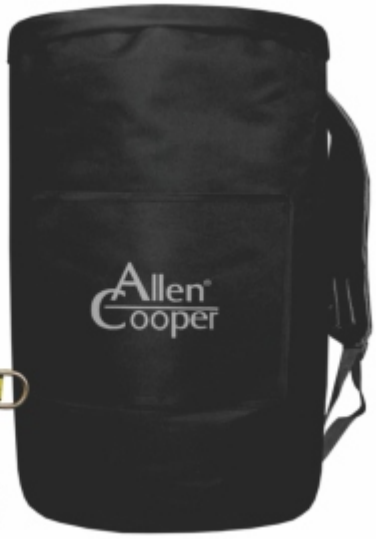
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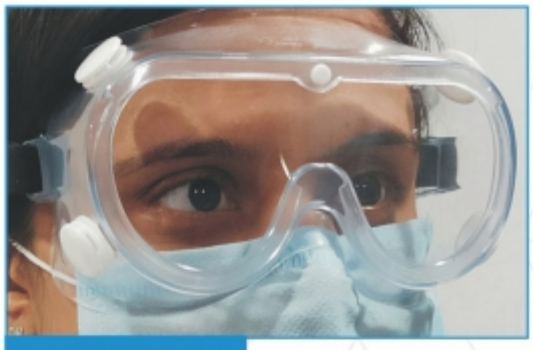
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COVID-19 DISEASE: AN OVERVIEW

DR. SANTOSH DATAR
Occupational Health Consultant
Email : svdat@yahoo.com

**"Nothing in life is to be feared, it is only to be understood.
Now is the time to understand more, so that we may fear less."- Marie Curie**

The above quote by one of the greatest scientists of all times, Madam Mary Curie aptly applies to the current crisis. COVID-19 pandemic has caused devastation throughout the world. Its adverse impact has been seen in terms of human sufferings, loss of human life, financial burden, loss of jobs, decreased agriculture production, stoppage of manufacturing activities, disruption of services and economy. It has created fear psychosis among people.

People participation is extremely important in dealing with the pandemic in addition to various control measures taken by Government of India and various state governments. Health education and full scientific information about the disease is especially important and will help to bring desired change in people to adopt safe behavior, to contribute to the efforts of Governments to manage the pandemic and dispel myths and fears about the disease. Let us answer some commonly asked questions about the disease.

What is Corona Virus?

Coronaviruses are a large family of viruses which may cause illness in animals or humans. They are commonly found in animals like bats, pigs, birds, camels and humans and are known to cause respiratory infections. They may range from common cold to more severe respiratory diseases. Some of these deadly diseases are Middle East Respiratory Syndrome (MERS), Sever Acute Respiratory Syndrome (SARS) and the recent COVID-19 disease.

What is COVID-19?

COVID-19 is the infectious disease caused by the most recently discovered corona virus, SARS-CoV- 2. The virus originated in Wuhan in China in December 2019. Now it has become a pandemic affecting almost all countries across the globe.

What are the symptoms of COVID-19?

The most common symptoms of COVID-19 are fever, tiredness, and dry cough. Some patients may experience breathing difficulty. Some of the other symptoms seen are aches and pains, nasal congestion, headache, conjunctivitis, sore throat, diarrhea, loss of taste or smell or a rash on skin or discoloration of fingers or toes.Some people even though infected with virus may not exhibit any symptoms or may exhibit very mild symptoms.



What happens when one gets infected with covid-19 virus?

It has been seen that about 80 % patient recover and do not need hospital admission. But around 1 in 5 persons infected with this virus may become seriously ill and develop shortness of breath. Some of these patients may need admission in intensive care unit (ICU) and some may unfortunately die. The positive news that in India, the number of patients recovered is now more than number of active cases.



How the COVID-19 is transmitted?

The persons infected with the novel coronavirus are the main source of infection. When a person with COVID-19 virus coughs, sneezes, speaks, or exhales, small droplets harbouring the virus are expelled from the nose or mouth. The other person in close contact can inhale these droplets and can catch the disease. These droplets when expelled also fall on objects and surfaces around the person.
When other people touch these surfaces, the virus particles sticks to their hand. If these persons touch their face, eyes, nose, or mouth with these contaminated hands, they can catch the disease.

As per the current evidence, the period of infectivity starts 2 days prior to onset of symptoms and lasts up to 8 days. Some studies have indicated that asymptomatic persons can transmit the virus and that is the reason all must follow universal precautions and observe social distancing. Everybody should maintain safe distance from other people at least of 1.5 metres, preferably 2 metres. All should also wash hands frequently and before touching the face, nose, mouth, or eyes.





What is the incubation period of COVID-19?

Incubation period is the time taken to develop symptoms after the person is exposed to a germ capable of causing the disease. It differs for every infectious disease. For covid-19 the incubation period is commonly 5-6 days but can range from 2 -14 days

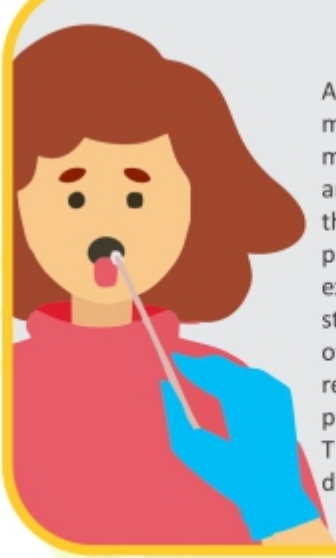
Who is more likely to get COVID-19?

This is a new virus and none of us have any immunity. That is why all of us are at risk of contracting the disease.

Who is likely to develop complications?

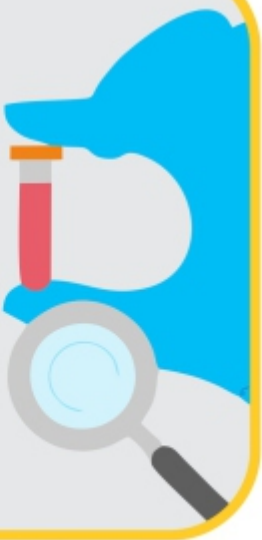
Many people can fight the infection as their immune response gets activated and it eliminates the virus. These persons may develop very mild symptoms or may not develop any symptom at all.

However, it has be seen that older persons or person with comorbidities such as diabetes, high blood pressure, coronary artery disease, asthma, chronic lung disease, cancer, chronic kidney disease or any other chronic debilitating disease are more likely to develop complications and serious illness.



How Covid-19 is diagnosed?

At present, RT-PCR test is done on swabs taken from nose or mouth. The test detects the strands of virus present in nose and mouth. However, it must be noted that this test is not fool proof and in few who are infected may not be positive. Also, it detects the virus strands that are present on the day swabs are taken. The person who has tested negative today can get infected if he is exposed to virus in future. Also, the test does not tell us whether strands of virus are alive or dead and are capable of infecting other persons. This is because some confirmed positive cases remain positive for a long some confirmed positive cases remain positive for a long time even if their symptoms have disappeared. The results must be interpreted with clinical and other diagnosticinformation about the patient.



Are antibiotics effective in preventive or treating COVID-19?

No. At present there is no treatment for cure or prevention of COVID-19.

Is there any vaccine available for prevention of COVID-19?

No. At present, there is no vaccine available for prevention of COVID-19

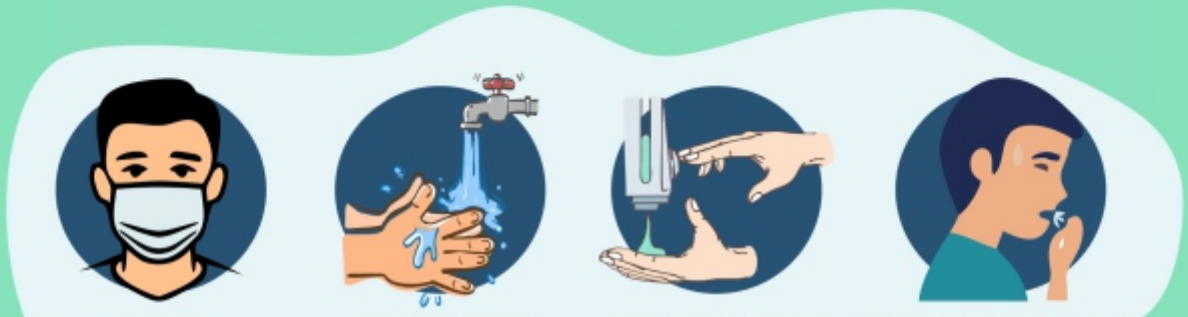
Can COVID-19 be transmitted by food?

At present, there is no evidence that food can transmit COVID-19. However, one may take following precautions to prevent food and water borne diseases especially in view of approaching monsoon

1. As far as possible, carry homemade food at work
2. Carry own water bottle when going out of home
3. Avoid eating raw food outside
4. Wash your hands before and after handling food brought from market
5. Wash fruits and vegetables thoroughly with clean and lukewarm water. Do not use any disinfectant.
6. Refrigerate all perishable food as soon as possible
7. Cook food thoroughly especially vegetables, meat, poultry, eggs, and sea food

If you get fever due to any of the infectious diseases prevalent in monsoon season, it will unnecessary result in panic.

What precautions I should take to prevent COVID-19?



- three pillars of COVID-19 prevention are social distancing, hand washing and not touching your face, mouth, nose or eyes. First one protects you from catching the infection through droplets and other two protects you from transmission through contaminated objects.
- Maintain atleast 1.5 meters (1.5 feet) and preferably 6ft distance between yourself and any other person. Follow universal precautions and treat every person as probably infected and maintain the distance.
- Wash hands often with soaps and running water for atleast 20 and upto 40 seconds by proper rubbing. If soap and water are not available, use an alcohol-based hand sanitizer with at least 70% alcohol. Hand washing is one of the most effective ways of preventing many infectious diseases including COVID-19. Lot of videos are available on internet how to wash hands. Please do watch them with your family.
- Avoid touching your face, eyes, nose, and mouth. If one must touch the face, wash hands thoroughly with water and soap for at least 20 seconds .
- Do not share articles of personal use such as handkerchief or towels or mobile phones.
- Avoid non-essential travel or crowded places
- Avoid non-essential travel or crowded places
- Avoid physical contact such as handshaking, hugging etc.
- Regularly clean most touched surfaces like doorknobs, tabletops, telephone instruments, water taps, pantry uten--sils, tea/coffee cups, handrails, toilet seats etc.
- Observe healthy lifestyle to boost your immunity by measures such as adequate sleep, adequate fluid intake, well balanced nutritious food, regular exercise, stress relieving measures and avoidance of smoking, tobacco and alcohol
- Follow cough etiquette. Cover your nose and mouth witha tissue or bent elbow while coughing or sneezing. Dispose the tissue paper immediately in trash bin and wash hands
- Do not believe in rumors and unscientific advice posted on social media and do not forward such messages

Should I use Mask?

Yes. Masks act as barrier and prevent secretions from nose and mouth from entering the atmosphere. Mask should be worn by everybody when stepping out of the house. The masks may protect you to some extent and but mainly they protect others from you if you are asymptomatic carrier. This is your social obligation and you must follow it regularly.

Government of India has given guidelines on use of homemade masks. As per these guidelines, it is suggested that such people who are not suffering from medical conditions or not having breathing difficulties may use the handmade reusable face cover. These face covers could be made from clean cloth available at home, which needs to be thoroughly cleaned and washed before a face cover is stitched/made. The face cover should be prepared in such a manner that it can cover the mouth and nose completely and can be tied over the face easily. Kindly refer to the Health Ministry website for more details.

Medical masks should be worn by health care providers or frontline persons who are likely to get exposed to the virus. These people include police, other law enforcement agencies, sanitation workers, etc. Confirmed positive cases and their close contacts also should wear medial mask.

How to wear the mask?



1. Wash hands thoroughly before wearing mask
2. Hold the mask by ear loops and place each loop around ears
3. Mold or pinch the stiff edge to fit you nose
4. Pull the bottom of the mask over your mouth and chin
5. Avoid touching the mask with unwashed hands

How to remove the mask?



1. Wash your hands before removing the mask
2. Avoid touching the front of the mask. Only touch the ear loops
3. Gently remove the mask by holding ear loops
4. Throw the mask in trash bin
5. ?Wash your hands thoroughly

What should I do if I develop respiratory symptoms?

- Do not panic. Every feveror cough is not COVID-19.
- Maintain a good personal hygiene
- Stay home and isolate yourself
- Wash hands often with water and soap for at least 20 seconds
- Wear a surgical mask immediately. Change it often and when it becomes wet. Dispose the mask in trash bin and wash hands
- Seek medical help immediately
- Clothes and utensils used by you should be washed separately
- Follow medical advice without fail
- Ask family members to stay away from you and take necessary precautions
- Cover your nose and mouth with a tissue while coughing or sneezing. Dispose the tissue immediately and wash hands
- Stay away from family members

What is the difference between isolations and quarantine?

Both involve keeping suspected/confirmed cases away from others and prevent spread of infection by breaking chain of transmission.



The quarantine is for people who are not sick and have no symptoms but may have been exposed to COVID-19 virus. They are monitored during quarantine for development of any symptoms. Generally, the person is released from quarantine if she/he does not develop any symptoms up to 14 days because that is the maximum incubation period of COVID-19 as explained earlier. Quarantine will be either at dedicated government facility or at home.

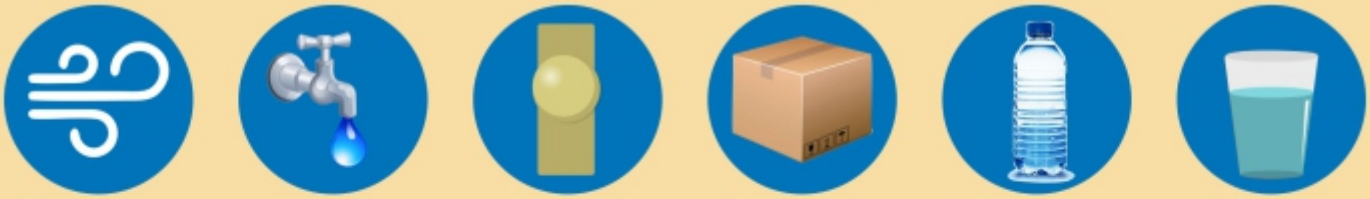


Isolation is for people who are tested positive or have developed symptoms. Patients who are clinically assigned as a very mild case by doctor are eligible for home isolation subject to certain conditions. These conditions have been outlined in the relevant Government advisory. They are discharged from isolation once they are cured in line with the current Government guidelines. However, they may be asked to be in home quarantine for some more time i.e. 7 days as per current guidelines.

Why the policies for testing, using masks, treatment, quarantine, and isolation keep on changing?

This is a new virus and research is still going on about other modes of transmission, medicines which may help in curing or preventing the infection, management of serious cases and development of vaccines. The policies keep on changing because with time, scientists and doctors gather more and more information and they may advise the authorities to modify policies to control the infection or treat the patients in a better way. Tests are done for persons who are eligible as per the government criteria and this is done to make use of best available resources and not to waste the kits and lab time where it is not required. Testing, contact tracing and quarantine or isolation of suspected/confirmed cases are the most effective strategies adopted by health authorities to control the pandemic.

How Corona Virus survives on surface ?



3 hours
In the air
(droplets from cough, sneezes etc.)

4 hours
Copper
(taps etc.)

4 hours
Non-porous
(doornobs, elevators buttons, light switches etc.)

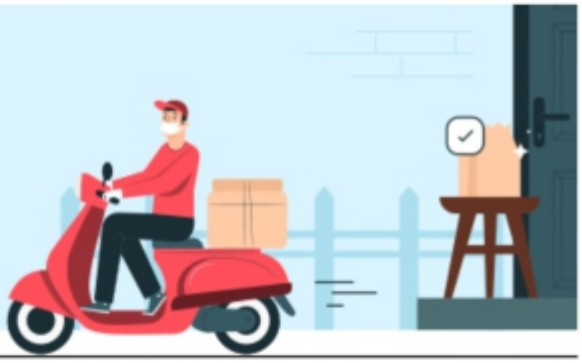
24 hours
Cupboard
(mailed package unlikely to have)

2 - Days
Plastic

9 - Days
Glass
(include mobile phones)

Is it safe to receive a package from visitors or courier?

Yes. The likelihood of an infected person contaminating commercial goods is low and the risk of catching the virus that causes COVID-19 from a package that has been moved, travelled, and exposed to different conditions and temperature is also low. On can leave the package aside for few days if it is not urgent and then open it. Wash your hands after handling the package.



What are the facts about the COVID-19 which will help to dispel the myths?

1. Hot and humid climate will not stop transmission of novel coronavirus
2. Cold weather and snow do not kill novel coronavirus
3. Mosquitos have no role in transmission of novel coronavirus
4. There is at present no evidence that pets can transmit novel coronavirus
5. Taking a hot bath does not prevent novel coronavirus infection
6. Hand dryers are not effective in killing the novel coronavirus
7. Ultraviolet light should not be used to sterilize the skin. It can cause skin irritation.
8. Spraying alcohol or chlorine on the body will not kill the virus which has already entered the body
9. Vaccines against other respiratory infections do not prevent novel coronavirus infection
10. Antibiotics do not work against novel coronavirus
11. Garlic is good for health, but its consumption does not prevent novel coronavirus infection
12. Drinking alcohol does not prevent COVID-19 and it is very harmful to health
13. Thermal scanners detect only fever (which is a common symptom in all infectious diseases) and not COVID-19

How do I deal with the fear and anxiety related to COVID-19?

It is natural to have a lot of anxiety. But one should know that in majority of individuals, COVID-19 is a mild disease. If one follows precautions, there is low risk of contracting the disease. If you are so anxious that it is affecting your peace of mind, seek professional help. It is best you talk to your doctor



Where Can I get latest information about Corona virus?

1. Ministry of Health & Family Welfare, Government of India. https://www.mohfw.gov.in/
2. World Health Organization https://www.who.int/emergencies/diseases/novel-coronavirus-2019

I would like to end this article on a positive note. COVID-19 pandemic has shaken us from our slumber and made us rethink whether we can continue our current lifestyle and mode of working. We can take some positives and learn from the current crisis.

- Many have reconnected to their families and have spent quality time with their near and dear ones due to the ongoing lockdown. This trend should continue by maintaining healthy work life balance.
- There is no alternative but to adopt healthy lifestyle as outlined earlier to promote good health, develop good immunity and prevent or control diseases or medical conditions such as obesity, diabetes, blood pressure, coronary artery disease and mental depression
- Once must give up harmful habits such as consumption of tobacco, alcohol, other narcotic substances, and smoking. This is the right time to do this.
- Corporates and companies will have to think of modifying their working strategies such as working with limited number of employees, working from home, avoiding unnecessary travel etc.
- More focus should be on prevention of infectious diseases which are still leading killers in India and improving public health structure to deal with them and future such pandemics
- It is time to look at our finances and avoid any unnecessary expenses, provide adequate health and life insurance cover, create a contingency fund and invest wisely
- We will have to learn to respect the nature, the environment and the animals

References:

- Ministry of Health & Family Welfare, Government of India –FAQs
- World Health Organization (WHO) - FAQs
- Centre for Disease Control (CDC), U.S.A. – FAQs
- Advisory on use of Homemade Protective Cover for Face & Mouth - MOHFW, GOI
- Advisory on Social Distancing Measure in view of spread of COVID-19 disease - MOHFW, GOI
- Advisory against spraying of disinfectant on people for COVID-19 management - MOHFW, GOI
- Revised guidelines for Home Isolation of very mild/presymptomatic COVID-19 cases - MOHFW, GOI
- Guidelines on rational use of Personal Protective Equipment - MOHFW, GOI
- Revised strategy for COVID-19 testing in India - MOHFW, GOI
- Revised discharge policy COVID-19 - MOHFW, GOI
- Interpreting a COVID-19 test result - BMJ 2020;369:m1808

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BUILDING ORGANISATIONAL RESILIENCE FOR PANDEMIC PREPAREDNESS

DR SUVARNA MOTI
Independent Public Health Specialist, Mumbai
Email: pathare_suvarna@outlook.com

Introduction

COVID-19 pandemic has marked 2020 globally[1]. This pandemic has exposed inadequacies in responses at the community, state, national and international levels – be it health system, governance/economic/political or multilateral agencies' responses[2]. The world of work is severely affected during the novel corona virus disease 2019 (COVID-2019) pandemic[3]. Rise of the recent corona virus identified the need that enterprises must increase their resilience and help ensure community well-being by embracing modified work patterns and future work tools and practices.

Enterprises responding well to the pandemic have worked beyond business continuity planning bringing in resilience capability to manage their business. Organizational resilience goes beyond recovery of critical operations after an unexpected event and includes aspects of an organization's operations including its supply and distribution chains, customers, investors and brand.

Defining organizational resilience

An organizations ability to respond effectively to adverse events depends on their structure, the management and operational systems they have in place, and the collective resilience of these[4]. Organizational resilience is defined as 'the ability of an organization to absorb and adapt in a changing environment'. (ISO 22316:2017 Organizational resilience – Principles and attributes. 2017)[5]. Organizational resilience has become a vital element of contemporary corporate strategy. It is a dynamic strategic initiative to allow an organization to sustain in an evolving environment while facing disruptions and emerging successful[6]. Resilience cannot succeed in isolation since it depends upon the interconnectedness of business unit sand their interactions with the community and business environment to contribute to the organization's objectives[1].

For operational purposes, resilience can be defined in terms of a set of organizational capabilities/routines that shape the three inclusive and connected resilience stages of a firm's resilience capacity as shown in **Fig.1**[7]**.** Capabilities of all three resilience stages will need to develop to define the organizational resilience. This includes anticipation capabilities to identify potential risks and take proactive steps leading to the development of a resilience potential.

Anticipation capabilities build effective responses to critical situations whereas, coping capabilities help to realise resilience potential by applying crisis plans and use collective knowledge to develop crisis specific solutions. Learning is necessary to adapt to changes, transform prior knowledge, and develop capabilities that underlie the first two resilience stages[7].

At each resilience stage, cognitive actions generate and select action alternatives, and behavioural actions utilise the best options to respond effectively to the crisis situation. Briefly speaking, resilient organizations can only emerge with effective interplay of cognition and behaviour. Changing behaviour without any cognitive development or creation of knowledge without any accompanying change in behaviour doesn't work effectively. Besides, contextual factors (e.g., resources, social capital, and power) are important to the successful accomplishment of the three resilience stages as well as the development of resilience capabilities.

Organizations should develop a diverse knowledge base to anticipate change, away from the organization's core business to ideate for crisis reaction and decide for the most suitable solution. Each resilience phase includes some learning – be it for anticipation, for coping, and/or learning from crisis (adaptation). Resource availability fosters development of all three capabilities. Social resources positively influence development of coping capabilities. Power based on expertise and shared responsibilities promote adaptation capabilities[7].

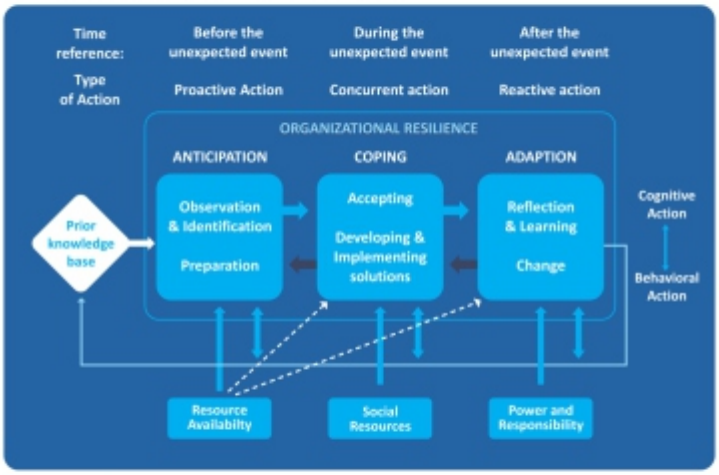


Fig.1- Duchek's capability-based conceptualization of organizational resilience[7]

Duchek, Stephanie. Organizational resilience: a capability-based conceptualization. Business Research (2020) 13:215–246 https://doi.org/10.1007/s40685-019-0085-7

Alternatively, organizational resilience can be expressed as a function of the overall vulnerability, situation awareness and adaptive capacity of an organization in a complex, dynamic and interdependent system[5,6]. Suffice to mention here that as the world of work evolves while navigating through the COVID crisis, organizational resilience can be sequestered into specific opportunities listed here[6]:

1. Risk management to reduce possibilities of exceeding the organization's recoverable limits
2. Business continuity planning to redefine and extend the recoverable limits for the organization
3. Situational awareness algorithms for early recognition and reduced response time
4. Creative and responsive systems for responding to change in the face of challenges

Fig-2 lists six foundations of organizational resilience operating through some key principles[1]. These six foundations will be responsible for developing the three resilience strategies and are addressed in detail later in the process. Considering the resiliency focus continues to be on developing capacity and capability among employees across the business, a broader remit needs to be expressed for emphasis on enterprise-wide risk and resilience function moving beyond physical risk management and, factoring risk-based resilience planning, and agile communication strategy for communicating activities and responses to risk events[1,8].



Fig. 2 Six foundations of organizational resilience[1].

Whyte, Mark, Cox, Andy, Spender, Danny & Love, Rachel. Organizational resilience: evolution and application. Nov 2018. Creating a Resilient Organization Enterprise Resilience. https://www.controlrisks.com/our-thinking/insights/organizational-resilience-evolution-and-application.

Developing resilience for pandemic preparedness

Possible effects on business from a pandemic event can include:

- Reduced labour supply, including your regular employees or availability of subcontractors or temporary employees
- Customer orders cancelled or not fille
- Interruption in getting supplies or materials
- Change in demands (for example, increased internet use, decreased tourism/travel)
- Reduction or restrictions on public meetings or gatherings (including sports, clubs, theatres, community centres, restaurants, religious gatherings, etc.)
- Restrictions on travel (regional, national or international)
- Reduced availability of health care or home care services
- In more extreme situations, possible disruptions in other services such as telecommunications, financial/banking, water, power (hydro), gasoline/fuels, medicine, or the food supply[9].

Framework for actions

Some basic principles to consider while designing resilience[10]:

1. Distribution of control and not merely execution of measures for resilience across the sites. Central coordination will ensure teams have the necessary capabilities and coordinate the response.
2. Demand and ensure high quality, real-time data. Analytics experts create and use real-time dashboards. Such analytics are critical to resilience.
3. Committed and caring leadership that listens, cares and responds with role model/leaders whom people want to follow.
4. Create culture of empathy and develop employee bonding. Empathy for customers, communities, employees and their families go a long way. The most resilient organizations value employee bonding and encourage cultures to cultivate these supportive relationships at work. Such social bonds are vital[10].
5. Develop community resilience.

Key elements of organizational resilience for pandemic planning

Finally, the conceptual framework reveals enterprise and human centred elements to drive the resilience[8,11].

Enterprise-based Preparedness focus on efforts for system transformation

- Clear organizational objectives and roadmap for transformation
- Build upon extant knowledge base
- Institute central/site-based response teams
- Ability to identify emerging threats/assessment of risks
- Monitor regulatory & health updates
- Assess market and financial impacts
- Strong and supportive relationships with stakeholders
- Reinforce coping mechanisms
- Create learning opportunities
- Continue to build future of work capabilities
- Capacity building of external stakeholders

Human-Centred Responses emphasise the development of human capabilities

- Engagement with stakeholders
- Commitment as unified team
- Promote Modified/Virtual/Remote work practices
- Increase support for Help Desks
- Drive communications

Defining organizational resilience

Organisations should focus on building a more resilient future by carrying out the listed actions in a concerted manner detailed here:

Key Considerations [1, 8, 10, 11, 12]

- Post-event review of current pandemic viz. COVID-19 and organisation's response to it with a detailed SWOT analysis recognising key steps responsible for resilience.
- Build resilience in a sustainable way. Design for failure, regardless of the threat.
- Elucidate core principles of resilience in the organisation and metrics for assessing, monitoring and governance. Address the requirement to be responsive and adaptive while weighing the need to protect and control.
- Develop community resilience plans in partnership with community stakeholders and suppliers.
  - Have you developed collaborations for community resilience?
  - Find out about pandemic planning in your region and locality, for example through regional resilience teams and local resilience forums and liaise with agencies and local responders.
  - Share best practice with other businesses in your community, as well as through industry associations.
- Has the organization identified a Pandemic Preparedness Team which will develop emergency response plans?
  - Invest in people who excel in strategic foresight and know how to plan for multiple threats
  - Establish a team consisting of human resources, finance, business stakeholders (business continuity planning), supply chain/procurement, marketing & communications executives and a wide range of stakeholders in the planning process (e.g. health & safety representatives, union representatives, local resilience teams and responders)
  - Ensure the plan has been reviewed and approved by the Board of Directors annually.
- Test and update current business continuity or emergency response plans; stress-test plans, both discussion-based and full-scale real-world exercises.
  - Validate the Pandemic Plan annually (i.e., through tabletop exercises, functional exercises, tests) so personnel understand their roles and responsibilities.
  - Set up authorities, triggers, and procedures for activating and terminating the company's response plan, altering business operations (e.g. reducing operations as necessary in affected areas), and transferring business knowledge to key employees.
- Identify the critical functions needed to operate, maintain and determine how global trends might impact especially, during a pandemic
  - Review the Risk Assessment and Business Impact Analysis to confirm the critical events and stakeholders will be the focus of continued operations during a pandemic event.
  - Review the potential impacts of ceasing non-critical functions
  - Consider the manning along with other key elements such as equipment, materials, suppliers, contractors and logistics for these activities.
  - Confirm critical processes can be performed remotely or identify an alternative.
  - Validate critical business processes can continue with internal and external support.
  - Confirm communication tools are available and operational.
  - Validate essential tools to work remotely are available (i.e., laptop, VPN, etc.)
  - Do internal resources need to be reallocated to ensure these activities can continue?
- Identify key person dependencies and minimum staffing requirements.
  - Retrain personnel for key persons that may be unavailable during a pandemic.
  - Define alert levels/triggers, travel guidelines and restrictions, physical distancing procedures
  - Define telecommuting/video conferencing/alternate sites — workplace and leave flexibilities as well as pay and benefits
  - Revise sickness absence policy aligned with government advice
  - Adapt business models quickly by providing online learning, teaching and connecting
- Contact key suppliers and contractors to check if they have developed Business Continuity Plans?
  - Identify the key suppliers/contractors that support critical activities.
  - Diversify supply chains.
- Is there a clear communications strategy and is regularly updated?
  - Identify arrangements for communicating consistently with all key personnel and stakeholders in the event of a pandemic.
  - Key contact details (e.g. employees, suppliers, customers) should be maintained.
  - Establish a Help Line to assist employees.
  - Develop a communication plan to facilitate consistent internal and external communications.

- Consider customers' needs during a pandemic and whether to review business model and arrangements to continue to meet those needs. (e.g. enhance mail ordering and internet shopping capacities)
- Establish communication policies for reducing the spread of infection, based on local health advice.
- Educate personnel, at both the family and employee level - Personal hygiene/protection tips, Social distancing

- Is it possible to utilise technology to reduce the need for face-to-face interactions during a pandemic?
  - Consider measures such as home working and teleconferencing and if necessary, equipment/software is available to support this.
  - Review/update/create work from home policy

Build risk models for finance.

- Work with supply chain for inventory forecasts and predict supply and demand.
- Assess financial stability and identify variables that will impact revenue and cost.
- Define scenarios that address global slowdowns, model cash flow, etc.

- Introduce measures to relieve mental stress, psychological issues as coping mechanisms.
  - Develop occupational health services' support mechanisms.
  - Plan for a likely increase in demand for employees' welfare services especially online counselling services, during a pandemic.
  - Stabilise employee assistance programs.
  - Identify employees and key customers with special requirements and incorporate the requirements of such persons into preparedness plan.
- Monitor and track global trends and risks, both chronic and acute, and take early warnings seriously.
  - Are there arrangements in place for the regular review of advice from the Government on the specific health impacts associated with the pandemic/ health alerts?
  - Sign up for local emergency management agency alerts.
  - Use the current advice to forecast and plan for employee absence during a pandemic.
  - Align pandemic policies, standards, and procedures with public health recommendations as well as appropriate laws.
  - Update intranet site to link to the World Health Organization (WHO), local public health departments, etc.
- How is the learning for adaptation strategies institutionalized?
  - Reflection and learning of previous experiences
  - Actions upon previous learnings

Conclusion

Organisational resilience has evolved in recent times blending the principles of enterprise risk management, business continuity and crisis management with change management. Resilience allows enterprises to display characteristics that help them to not just survive the change by passive response but thrive in it, allowing an organisation to resume normal or improved business activities as soon as possible.

Companies can create resilience to future threats by applying future of work concepts and practices that are already under exploration. Future work will be an amalgamation of physical and virtual environments spanning across collaborations, automations and digital platforms for a dynamic work environment defining future resiliency.

Organizations can respond to disruptions by pandemics and other disruptive events by:

- Metrics for monitoring effectiveness of program and assessing confidence in response and recovery plans
- Utilise technology, AI based digital tools to assess and monitor risks knowing when to escalate
- Determine critical business services, support systems, applications, and third parties to plan for business continuity.
- Conduct random, unannounced tests to simulate failures to determine the resiliency of connected systems.
- Practice incident response and recovery planning with service providers to train leaders, employees, and vendors to handle disruptive events

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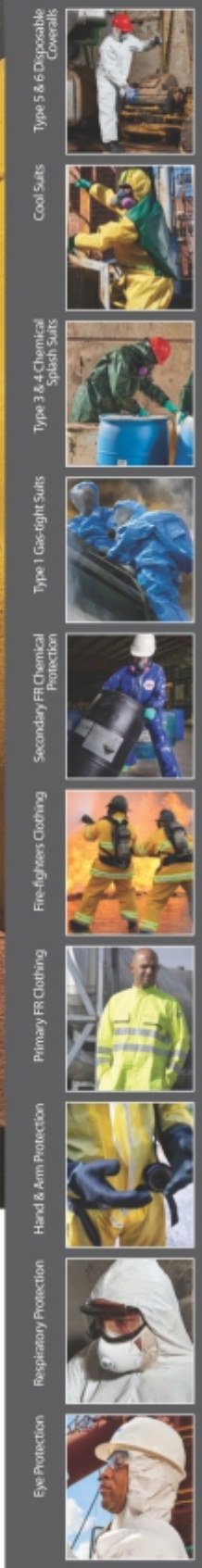
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COVID 19 - NON-PHARMACEUTICAL INTERVENTIONS (NPI) IN ORGANISED SECTORS

DR RAVIMOHAN H.V- Specialist Medical and Occupational Health (South) Hindustan Unilever Limited
Email : Ravimohan.Hv@unilever.com
DR. THIRUMALAI RAJGOPAL- Vice President, Global Medical & Occupational Health, Unilever

Introduction

Non-pharmaceutical Interventions are actions that people and communities can use to help prevent or limit the spread of illness. Workplaces offer many opportunities for people to interact. More interaction between people in close contact increases the risk of Covid 19. Preventing illness among employees can also support healthy and steady workplace operations. Staying at home when sick, avoiding close contact with those sick, covering your coughs and sneezes, hand hygiene, cleaning frequently touched surfaces and objects, being prepared and informed, are some of the measures that will help in preventing or slowing of the illness. Objective of this paper is to discuss some non-pharmaceutical interventions that could be initiated and managed in organized sectors.

Some interventions at organizational level:

Environmental NPIs include routine surface cleaning that helps to eliminate the virus from frequently touched surfaces and objects, such as refrigerator handles, desks, and door knobs in offices, childcare facilities, workplaces, and other settings where people regularly gather.

Prepare the building/ Workplace:

- Ensure any statutory inspections have been undertaken as required by local law (e.g. fire safety, lifts, water (legionella) ...).
- Ensure all inspections (HVAC, building systems), remediations and repairs necessary are completed.
- Establish safe distancing zones around reception desks and other common gathering points.
- Assure plexi-glass is installed around reception areas.
- Define & clarify maximum capacity of the workplace to allow physical distancing
- Assure appropriate training/instructions are given to 3rd party partners.
- Assure avoidance of recirculation of air and where possible install fresh air circulation options.
- Assure sustainable supply of items such as hand sanitizers, face coverings, disinfectant wipes, or related items. Expect longer than usual lead times.
- Contact and work with all key suppliers and vendors to preview requirements, and any revised scope and service levels.
- Conduct end-to-end walk through to ensure that every component of the facility has been addressed for ongoing operational purposes.
- Ensure alignment with other tenants (multi-tenant building) of protocols and measures proposed.

Prepare the workforce

- Define, prioritize, and communicate the list of roles being considered under the maximum workplace capacity defined.
- Consider initiating mental health first aid program and arrange tele-consultation with EAP providers.
- Advise staff to carry personal hygiene mini-pack e.g. disinfectant wipes, tissues, hand sanitizer(s) etc.
- Prepare and post reminders of physical distancing and cleaning protocols.
- Ensure employees complete and confirm understanding of all pre-briefing materials
- Install a daily contact protocol/diary for each person returning to work, to be able to do contact tracing if needed. Your site team will explain how to do this.

Control Access

- Control the entry points to a site including deliveries.
- Make sure thermal screening is in place.
- Make sure visitor screening is in place.
- Reconfigure common areas and lobby areas to allow for physical distancing. Ensure only employees who have acknowledged the briefing materials are given access to the workplace.
- Clearly communicate building protocols through signage and floor markings.
- Provide sanitizer (pedal operated), disinfectant wipes, PPE as appropriate.
- Disable touch screens (where possible).
- Monitor ongoing use to ensure operations do not exceed the planned capacity (e.g. badge in/out reports, network access, floor monitoring).

Create a Physical Distancing Plan

The number of employees in the workplace must not exceed the maximum capacity per workplace and per workplace floor in line with safe distancing guidelines. Local teams should consider a phased and gradual approach on roles and priorities including staggered arrival/departure times.

Specific routing and seating indication need to be installed where necessary and be supported by appropriate signage and seat assignments. Continuous monitoring of the use of the workplace will be critical to ensure operations do not exceed the planned capacity (e.g. badge in/out reports, network access, floor monitoring) and adjust where needed.

Re-design the workplace space:

Reconfigure space to achieve physical distancing including reduction of capacity of spaces (e.g. Define max person capacity per meeting room depending on sqm, remove chairs from meeting rooms, remove desk chairs, remove tables and chairs in soft seating and common areas, restaurant areas ...).

- Where appropriate create one-way flow direction using visual signage to avoid people gathering.
- Declutter spaces to allow for effective cleaning.
- Prohibit shared use of small rooms. Make them single occupant only
- Review maximum occupancy per meeting room, ensure maximum occupancy and physical distancing are visibly communicated.
- Have a dedicated Fever/Isolation room exclusively for suspected Covid cases with all the facilities as per legal requirement.

Evaluate facility services:

- Assure that all facility services can enable physical distancing and right hygienic circumstances. Where not possible, mandatory use of masks needs to be clearly indicated or these services need to be changed or reduced.
- Review Company store setup to restrict number of shoppers to allow physical distancing.
- Review use of elevators and ensure physical distancing is possible (e.g. queues/waiting lines, max number per elevator). Promote stairs utilization as alternative.
- Services on site where close contact is required or when physical distancing is not possible should not be offered/opened.
- Canteen / food services need to be reviewed with a focus on physical distancing and contact less payment. Options to consider are:
- Reconfigure canteen seating (e.g. reduction of tables and chairs).
- Change from 'free preparation' (i.e. salad bars, plated food etc) and provision in canteen into pre-package to allow for safe takeaway.
- Reduced offerings.
- Bring in your own food.
- Implement staggered and/or extended lunch times.
- Removal of free snacks at coffee & tea hubs or consider alternatives which limit risk.
- Pre-ordering and payment via app.
- Use of disposable materials (only). Use of cutlery is allowed if it can be distributed, returned & cleaned safely.
- If not possible then use disposable cutlery (only). Bring your own coffee / teacup and reusable water bottles **Reduce touch points & increase cleaning**
- Assure cleaning and housekeeping team wear appropriate personal protective equipment (PPE).
- Maintain enhanced cleaning and disinfection practices. Implement cleaning standards, supplementary cleaning protocols, with an enhanced focus on high traffic and high touch areas (Common areas, staircases, handrails. door handles, service centres, rest rooms, pantries, copiers, switches etc.).
- Assess touch free protocols and reduce the number of touch points where possible. (e.g. high traffic areas, reception, doors & door handles, touch screens, bins, markers, remote controls, water, soap ...).
- Supply disinfectants near or on each desk particularly those that are shared.
- Assure 'clean desk policy' is applied and enforced where required.
- Enable and promote self-hygiene measures throughout the building through hand sanitizers and disinfectant wipes (e.g. lobbies, elevator areas, desks, meeting rooms, service centres, coffee/tea pantries, copiers, keyboards ...).

Communicate for confidence

- Use AV/TV screens to remind people of self-hygiene, physical distancing, PPE requirements where appropriate.

Thermal Screening and Health Checks

Keep primary objective as safety and conduct health declarations and temperature scans of everyone entering a facility, including employees, contractors, and visitors. This assists the identification of anyone suffering from flu like symptoms or anyone who has had recent contact with someone with COVID-19 symptoms or has an elevated body temperature.

- Follow the advice from local occupational health and legal.

Consequently, the way in which these checks will be performed will vary per country. A Non-contact Infra-Red Thermometer that is directed at the forehead of the subject is the most common device used. Some larger sites with a greater footfall may utilize an approved thermal camera supported by a block-body camera.

Initially the temperature check may cause a short delay on entry as people become familiar with the process. The use of signages and tensile barriers will help guide people through the simple process whilst maintaining the physical distancing required.

Process Set-Up

Provide a visual indicator on the floor designating the position where the person is to be scanned.

- Direct the flow of people using signage and barriers/dividers.
- Persons in the queue must maintain physical distancing.
- Take the temperature using one of the approved non-contact methods.
- Individuals whose temperature is within the entry limit will be allowed to enter the site.
- Individuals whose temperature is above the limit will not be permitted to enter the site.

The wearing of surgical masks will be triggered based on the following criteria:

- Advice from local/ cluster Occupational Physician based on factors like community transmission of cases clearly more than current situation in that country.
- National level governmental advice on observing extra precautions in the event of sustained transmission
- local legislation requiring the wearing of masks
- In countries where testing is not available, or the units are in remote areas then contact with a sick individual with respiratory symptoms at the workplace should trigger the use of masks until Destroy SoP clean has been completed.
- Any employee with fever, fatigue, dry cough and other symptoms, is to wear masks and seek medical attention immediately. These employees should not return to the workplace until after a medical review/evaluation and receiving medical clearance.

Personal NPIs:

Stay home when you are sick. Cover your coughs and sneezes with a tissue. Wash your hands often with soap and water.

Vulnerable or high-risk people: Employees with any of the comorbidities that may increase the risk of serious COVID-19 for individuals of any age, fall in the group of 'vulnerable' or 'high risk' employees and they should be the last to come into office.

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NATIONAL SAFETY COUNCIL OF INDIA LAUNCHES
COVID-19 AWARENESS POSTERS

The National Safety Council has come up with additional varieties of Poster on "Covid-19".

These posters are useful for displaying in any Industries / Establishments.

The eye-catchy posters help in creating awareness among all the employees, workers and remind them to follow safe practices when around others.

The Posters are readily available in English (Size 75cm X 50 cm). For Regional languages, Kindly E-mail your requirements on ***poster@nsc.org.in.***





NATIONAL SAFETY COUNCIL OF INDIA
www.nsc.org.in

"Protect Yourself and Others"

COVID-19 WORKPLACE INTERVENTIONS: L&T EXPERIENCE

DR. DIVYANG SHAH – MBBS, MD (PSM), DIH
Head – Medical, Health & Welfare Services, Larsen & Toubro Limited
Email: divyang.shah2@larsentoubro.com

Introduction

On 31st December 2019, the office of the World Health Organization (WHO) in China was informed about the detection of cases of pneumonia of unknown aetiology in Wuhan City and Hubei Province of China. On 30th January 2020, the WHO declared the outbreak a Public Health Emergency of international concern and on 11th February 2020, WHO announced the name of the new Corona Virus disease: COVID 19. By the end of May 2020, over 6 million people were diagnosed with COVID 19 and 35 lakh people lost their lives globally. COVID-19 has affected 185 countries.

India reported the first confirmed case of the coronavirus infection on 30th January 2020 in the state of Kerala. The number of COVID-19 cases in India is on the rise, and the state of Maharashtra has been badly affected with the highest number of cases. By the end of May 2020, 2 lakh cases were detected in India.

With its massive workforce of approx. 44,761 full-time employees and 2,93,662 contract workmen, L&T also faced the challenge of combating this novel disease among its workforce. Larsen & Toubro (L&T) is an Indian multinational engaged in technology, engineering, construction, manufacturing, and financial services with over USD 21 billion in revenue. It operates in over 30 countries worldwide. A strong, customer–focused approach and the constant quest for top-class quality have enabled L&T to attain and sustain leadership in its major lines of business for eight decades.

The scope of this article is restricted to L&T's planning and preparedness with respect to occupational health and wellbeing. Other business and financial implications and their mitigation measures are not discussed in this article.

L&T's preparedness on occupational health and wellbeing of its workforce, employees and families is summarized below in the Plan, Do, Check, Act (PDCA) format.

Plan

Due to its diversified portfolio –ranging from construction of building & factories, rail, road and metro construction, engineering, manufacturing, hydrocarbon engineering, defence construction, to IT solutions and smart solutions – it was essential for the company to have a common unified approach to tackle the pandemic situation within and outside India.

L&T's top management proactively started planning both short-term measures and long-term measures before the lockdown was announced.

L&T's executive committee (E-com),comprising directors of its various businesses, which is the apex committee in the organization for group-level decisions, constituted a high-level committee exclusively for COVID-19 related matter sand decisions. The committee was named 'Decision Response Team' (DRT). It consists of the director of L&T's infrastructure business, director of Defence and L&T-Next, Corporate HR head, Group HR advisor and director of health & medical services. The DRT kept a constant vigil on the situation, addressed enquiries from anxious employees with quick decisive responses while ensuring business continuity. The DRT met frequently over MS Teams for constant evaluation of the situation.

The Company's Group HR head was appointed one-point authority for all internal communication related to COVID19. This was to ensure that there is uniform communication across all businesses and there are no different or parallel communications. It helped a lot on planning, communicating and implementing uniform policies and standard operating procedures (SOP) across the organisation.

Do (of PDCA)

Communication is the key to the success of any programme and campaign. L&T's top management – including Group Chairman Mr. A. M. Naik, MD & CEO Mr. S. N. Subrahmanyan and other senior executives – addressed all levels of staff through MS Teams. This was a great morale booster to all L&T people and their families since many apprehensions and uncertainties were addressed. This webinar series lasted for about a month and covered all employees of the company. Use of technology helped in boosting the mental health of L&T's people.

A comprehensive SOP has been prepared on Work Resumption for offices, manufacturing units, project sites and cross-country jobs. This SOP was reviewed and revised as and when there were updates from the Government and other statutory bodies. The first SOP was released as far back as on15th April, and has been subsequently reviewed and revised from time to time, incorporating the emerging Government guidelines and the needs arising from the evolving business scenario.

The SOP covers the following major sections

Preparedness prior to resumption: Details on area disinfection, cleaning and testing of safe drinking water, HVAC system cleaning, availability of hand sanitisers with pedal access (no hand touch), type of disinfection material, its method, frequency and PPEs are laid down.

Official Working Procedure: Changes in the working methodology are made to avoid crowding/maintaining social distance while working. Guidelines have been prepared on working days (e.g. working cohort groups), working hours (staggered shifts, staggered start and end time) and Work From Home (WFH) (e.g. for pregnant ladies, mothers with young kids).

Travel and transportation: Government guidelines on travel within city limits and national and international travel have been incorporated in the SOP.

On resumption of work: Detailed procedures on various aspects are laid down.

These comprise

- Security procedures at entry gates
- Sanitization during entry
- Attendance system
- Preventive measures during duty hours at offices
- Sanitization and upkeep of common places / utilities
- Common access places
- Canteen

Personal Protective Equipment: All employees and workmen across the organization are provided a pair of washable and reusable face masks. A matrix of task specific PPEs has been prepared.

Security / Sanitation Staff	All those involved in security services, transportation services, facility management , sanitation activities etc. of floor area, garden area, site, offices and all other areas cleaning activities shall use PPE such as face covers/shields, masks, goggles, full body covers, gloves, shoes, etc. as applicable. Staggered shift system shall be made for these personnel to minimize exposure to health hazards.
Medical staff	All medical staff including doctors, nurses and medical attendants are advised to wear necessary PPE like goggles, face covers/shields (refer Annexure - D), masks, gloves, coverall/gowns (with or without aprons), head covers, shoe covers, etc. as applicable.

Additional Measures for Project Sites / Yards and Country Offices are detailed in the SOP such as:

- Controlled access inside the project and workmen habitat
- Verifying compliance to safety standards before restarting of activities
- Pedestrian pathway and access to workplaces
- Fall protection arrangements

Do's and Don'ts – with specific reference to the current pandemic – have been prepared on pre-startup activities such as plant & machinery, temporary electrical installation, excavation, formwork, scaffolds and working platforms. Risk management of COVID-19 is integrated in all existing environment, health and safety management systems (EHSMS). At all project sites, the Company has started screening of the labour force, their medical check-up, EHS Induction; and training & awareness on COVID19.

A separate section has been dedicated to process-related measures specific to cross-country jobs.

Check (of PDCA)

A task force team has been created at each worksite & office comprising a medical doctor, head HR & head of operations.

A team of volunteers has been trained by a medical team on **1)** helping security personnel on temperature screening, **2)** helping canteen staff to ensure physical distancing during lunch breaks, and most importantly **3)** to have a vigilant eye at their workplace to ensure that all staff adhere to non-pharmacological intervention during office hours such as keeping the face mask on always, maintaining physical distancing, and the availability of hand sanitiser liquids.

Checklists for various activities have been prepared and are filled up daily.

Union representatives were involved in preparedness planning at each stage. Their suggestions were incorporated to make the workplace safer. A plant round with them before start-up boosted their confidence level, which, in turn, helped in mobilising the manpower at worksites.

Act (of PDCA)

COVID-19 is a new virus. There is a lot of information which is dynamic. A daily flood of information appears on media – including social media. All this often creates confusion & a fear psychosis. DRT, at regular intervals, filtered this information & disseminated the correct information, advisories & guidelines across L&T. This helped in boosting the morale of employees.

Challenges and mitigation

L&T's journey to mitigate the risk of COVID-19 was not a smooth one. The virus is new, there is little concrete scientific information available & information is getting updated based on experience & data. It is, therefore, natural for people to get worried about their health. To filter out what is correct from the emerging information is a huge & challenging task. A dedicated helpline is available for employees to directly contact the Company's doctor for any COVID-19 related queries and information. Various health promotional webinars were organised with the help of medical experts on topics such as parenting, care of the elderly, and ergonomics during work from home. Many health advisories and information were published through intranet & made available on the Company's internal portal.

Further, many of employees have some other co-morbidities & lifestyle diseases, for which regular follow-up with consultant doctors & laboratory investigations was a big challenge. To help employees in such situations, the Company runs their medical services without any shutdown. A list of hospitals for tele-consultations (video/ audio) was published. With the vision & directives from the top management, clear strategy and planning, and frequent and transparent communication, implementation of preventive measures has resulted in safe resumption of business operations and a safer work environment.

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OCCUPATIONAL HEALTH FOR HEALTH CARE WORKERS IN COVID-19 ERA

DR. SHYAM PINGLE- Sr. Occupational Health Specialist & Adjunct Professor,
Indian Institute of Public Health, Gandhinagar
Email: drshyampingle@gmail.com

Current global crisis due to Corona virus has brought the Health Care community and its work related problems into focus. Globally there are more than 14 million confirmed cases and more than 6lac deaths (WHO) while India has crossed 1 million cases and 25000+ deaths at the time of writing this article and the numbers are increasing very rapidly.

While the Prime minister of India has rightly lauded their contribution, the occupational health problems of healthcare workers have traditionally been neglected not only by the authorities but also by the doctors themselves. They are the most vulnerable group on whose health the Covid control strategy rests.

Doctors are expected to live longer as they know more about how to stay fit and healthy and address the medical conditions ahead of time. Despite this, the possibility of heart diseases and cancer among doctors is swiftly rising. Also, the emerging trend of doctors committing suicide—which was hitherto uncommon—is a matter of grave concern. This shocking revelation was made in an article published in the International Business Times (2019) which stated that the life expectancy of doctors in India to be lower than the average Indian by more than 10 years.

Who are the Health Care Workers?

Scope of the term Health care workers is quite comprehensive and should include all stake holders in the health care set up depending on the size and complexity of the health care set up. They include Doctors, Dentist, Nurses, Medical assistants, Lab technicians, Pharmacist, Radiology technicians, Physiotherapists, Housekeeping staff & Patient care staff such as Ayah and Ward boys. Large hospitals also have Food handlers, Laundry workers and Maintenance staff.

What are the hazards for healthcare workers?

Major hazards in health care include Blood borne pathogens and biological hazards, Potential chemical and drug exposures, Respiratory hazards, Ergonomic hazards from lifting and repetitive tasks. Shiftwork and Mental stress are important hazards for health care workers across the world.

There is some, though not sufficient, attention on hazards in Clinical, Surgical, Laboratory and Radiology areas in the large hospitals but hazards associated with other areas such as Physiotherapy, CSSD, Maintenance, Housekeeping, Laundry and Food Handlers and those involved in medical waste disposal also deserve proper attention.

Situation in India is no better though. The data on the morbidity and mortality experienced by Healthcare workers in India is lacking as reliable statistics are not available in the country. Even large teaching hospitals and medical colleges do not have occupational health department for hospital staff. Hospitals are also not required to collect and report data on hospital acquired infections in its staff. There is no specific legal requirement for comprehensive occupational health services in hospitals and healthcare in our country. Even the medical community and unions have seldom made demands for protecting their health and safety except for protection from violence in recent years. Workplace violence has emerged as an important threat in healthcare over last few years. Though agitation by the doctors forced the Government to enact a nationwide law, it has failed to significantly change the situation on the ground so far.

COVID19 & Healthcare Workers

In current times the problem has become very concerning. In most published reports, healthcare workers represent 5-15% of infected persons. Worldwide, more than 600 nurses have died from COVID-19 according to an announcement on 3rd June 2020 by the International Council of Nurses. Globally, more than 450,000 healthcare workers may have contracted COVID-19. According to data collected by Amnesty International as of 5 July 2020, over 3000 health workers have died from COVID-19 and related causes in 79 countries around the world.

In China, the average attack rate in local healthcare workers was 144.7 per million – compared to 41.7 per million in general population. 1 out of 6 has a severe disease or is classified as critical. South China morning Post reported that 500 healthcare workers were confirmed as COVID 19 positive and another 600 were suspected (11.02.2020). NHCPRC reported that up until February 24th, 2055 healthcare workers had been confirmed infected with COVID-19, with 22 deaths in China.

In Italy more than 17 thousand healthcare workers have been infected and there have been more than 100 deaths. In Spain, 10% of diagnosed COVID 19 cases are doctors or nurses (on 25.03.2020). Centers for Disease Control (CDC) has reported about 75000 cases of COVID 19 among US healthcare workers along with 410 deaths as on 12th June 2020 and feels that it may an underestimate as data is not available for all cases. "Lost on the Frontline," a collaboration between KHN and The Guardian, has identified 586 healthcare workers who likely died of COVID-19 after helping patients during the pandemic as on 11th June 2020.

Indian Medical Association has informed on 15th July 2020 that in India 1302 doctors have been infected with Covid 19 while 99 doctors have succumbed to death. Hindustan Times reported on 6th May 2020 that Coronavirus has infected around 548 doctors, nurses and paramedics across the country. According to a report in The New Indian Express published on 3rd June 2020, 479 healthcare workers from All India Institute of Medical Sciences (AIIMS) Delhi have tested positive for COVID-19 including faculty, residents, nursing staffs, attendants, sanitation and security staffs. A report published in Deccan Chronicle on 5th June 2020 reported48 doctors and postgraduate students as COVID 19 positive in Hyderabad.

In a recent study of 4,357 HCWs in Wuhan, the main concerns reported by health workers were: infection of colleagues (72.5%), infection of family members (63.9%), protective measures (52.3%) and medical violence (48.5%). And 39.1% of the HCWs had psychological distress, participating in frontline treatments were isolated and having family members or colleagues infected.

There are numerous reports in the Indian social media about the stress being experienced by frontline health care workers fighting the COVID epidemic. Shortage of medical manpower resulting in overwork, lack of sufficient rest period and even weekly holidays have been reported widely. There are also reports of shortage of support staff leading to further stress on resident doctors.

Shortages of Personal Protective Equipment(PPE) for health and essential workers were reported in almost all of the 63 countries and territories from which Amnesty International collected information. Severe shortages of Personal Protective Equipment have been reported across India. In the initial stages of the epidemic, most of the PPEs were imported which affected their availability. However, indigenous manufacturing of PPEs has since picked up and the situation is expected to ease.

How to prevent the hazards?

Prevention occupational health problems in healthcare lies in Universal Precautions. The risk of infection increased due to lack of sufficient PPE and inadequate training further amplified the risk of infection for healthcare workers. Proper PPE (Personal Protective Equipment) plays most important role in protecting health care workers. Training & Education of healthcare workers and extensive medical surveillance are very crucial. Long-time exposure to large numbers of infected patients directly increases the risk of infection. Also, pressure of treatment, work intensity, and lack of rest indirectly increases the probability of infection. It is essential to identify, monitor & control exposures of health care workers and also offer them preventive Immunizations on priority as and when available eg for Hepatitis B.

Stress Management has a major and important role considering the enormous stress to which health care workers are exposed.

Dealing with life and death and round the clock work are the hallmark of health care work and both are stress generators. The development and implementation of mental health assessment, support, treatment, and services are crucial and pressing goals for the health response to the 2019-nCoV outbreak. Videos coming out of Chinese and Italian hospitals are graphically showing how much more stressed the health workers can be in this overwhelming pandemic.

Workplace Violence has become a grim reality in health care sector and needs to be tackled on priority. While inclusion of soft skills especially Communication in the curriculum of doctors and nurses will go a long way, legislative measures and state support to medical community is important.

On 16 April 2020, WHO published interim guidance that provides advice on adjusting Public health and social measures (PHSM), while managing the risk of resurgence of cases. A series of annexes was developed to help guide countries through adjusting various public health measures in different contexts. Furthermore, WHO has also published a surveillance protocol that can be implemented in facilities where cases of COVID-19 have been reported among health workers and a management guidance for the prevention of COVID-19 among health workers. Looking at the international labour standards ILO developed general guidance and information to employers on how to prevent the spread of COVID-19 in the workplace, and to enable workers to return to work safely while keeping the risk of contamination as low as possible. The guideline also provides ideas on how to protect workers' mental well-being during the pandemic.

Personal Protective Equipment (PPE)

To ensure minimal risk of infection when treating patients with COVID-19, the CDC recommends the use of personal protective equipment including a gown, gloves, and either an N95 respirator plus a face shield/goggles or a powered, air-purifying respirator (PAPR) for health care workers.

Department of Health and Family Welfare, Government of India has published detailed guidelines to ensure safety of Health workers on 20th April 2020.It has given recommendations in various settings such as Point of Entry, Hospital Setting (Out Patient Department, In-patient Services, Emergency Department, Pre-hospital - Ambulance Services, Other Supportive/ Ancillary Services), Health Workers in Community Setting, Quarantine facility and Home Quarantine. Components of PPE are goggles, face-shield, mask, gloves, coverall/gowns (with or without aprons), head cover and shoe cover.

Face shield and goggles: Protection of the mucous membranes of the eyes/ nose/mouth by using face shields/ goggles is an integral part of standard & contact precautions. The flexible frame of goggles should provide good seal with the skin of the face, covering the eyes & the surrounding areas & even accommodating for prescription glasses.

Masks: The droplet precautions/airborne precautions using masks are crucial while dealing with a suspect or confirmed case of COVID-19/performing aerosol generating procedures.

Two types of masks are recommended for various categories of personnel working in hospital or community settings, depending upon the work environment:

1. Triple layer medical mask 2. N-95 Respirator mask

A triple layer medical mask is a disposable mask, fluid-resistant, provide protection to the wearer from droplets of infectious material emitted during coughing/ sneezing/ talking.

N-95 Respirator mask: An N-95 respirator mask is a respiratory protective device with high filtration efficiency to airborne particles. To provide the requisite air seal to the wearer, such masks are designed to achieve a very close facial fit. If correctly worn, the filtration capacity of these masks exceeds those of triple layer medical masks. Since these provide a much tighter air seal than triple layer medical masks, they are designed to protect the wearer from inhaling airborne particles.

Gloves: Nitrile gloves are preferred over latex gloves because they resist chemicals, including certain disinfectants such as chlorine. There is a high rate of allergies to latex and contact allergic dermatitis among health workers. However, if nitrile gloves are not available, latex gloves can be used. Nonpowdered gloves are preferred to powdered gloves.

Coverall/Gowns: Coverall/gowns are designed to protect torso of healthcare providers from exposure to virus. Although coveralls typically provide 360-degree protection because they are designed to cover the whole body, including back and lower legs and sometimes head and feet as well, the design of medical/isolation gowns do not provide continuous whole-body protection (e.g., possible openings in the back, coverage to the mid-calf only). By using appropriate protective clothing, it is possible to create a barrier to eliminate or reduce contact and droplet exposure, both known to transmit COVID-19, thus protecting healthcare workers working in close proximity (within 1 meter) of suspect/confirmed COVID-19 cases or their secretions. Coveralls and gowns are deemed equally acceptable. Gowns are considerably easier to put on and for removal. An apron can also be worn over the gown for the entire time the health worker is in the treatment area.

Shoe covers: Shoe covers should be made up of impermeable fabric to be used over shoes to facilitate personal protection and decontamination.

Head covers: Coveralls usually cover the head. Those using gowns, should use a head cover that covers the head and neck while providing clinical care for patients. Hair and hair extensions should fit inside the head cover.

It should be remembered that PPEs are not alternative to basic preventive public health measures such as hand hygiene, respiratory etiquettes which must be followed at all times. Everyone should always (if possible) maintain a distance of at least 1 meter from contacts/ suspect/ confirmed COVID-19 cases.

Care for Healthcare workers



It is obvious that availability of high quality effective personal protective equipment in sufficient quantity is very essential for frontline healthcare workers. Appropriately designed personal protective equipment and availability of modern equipment are basic essentials for productive work. It has been reported from Wuhan that the COVID protective gear was so cumbersome and expensive that healthcare workers were forced to use adult diapers during their shift so that they do not have to take off the PPE.

The development and implementation of mental health assessment, support, treatment, and services are crucial and pressing goals for the health response to the 2019-nCoV outbreak (Lancet March 2020).

Our health care set ups in the state sector are perpetually saddled with manpower shortage and perceived lack of support from the state. The new trend of outsourcing / on contract workers in various industries has been extended to healthcare not only in private industry but also in government sector. The cost savings come at a tremendous cost in terms of quality of manpower and consequently the quality of care. There is strong need to improve the monetary compensation and working conditions of staff working in health facilities.

Besides respectable and attractive salaries, proper on campus accommodation, timely promotions, non-monetary recognition are essential system changes are required. Every large hospital should have a dedicated and qualified occupational health professional looking after occupational health of healthcare workers. Occupational health of health care workers is not yet a matter of priority for stakeholders. This has resulted in increased risk and decreasing attraction for career in medicine. The increase in awareness about personal protection, availability of sufficient PPE, proper preparedness and response would play an important role in lowering the risk of infection for healthcare workers in the immediate aftermath of COVID 19 pandemic.

Health and safety protections at the workplace, and benefits associated with being part of the COVID-19 response, should be equally available to all health and essential workers engaged in the response, irrespective of the terms of their contract (permanent or temporary), whether they work in the formal or informal sector, and how long they have been in post. Given our huge population and shortage of healthcare workers, the situation needs to be addressed by improving working conditions and occupational health of healthcare workers, innovative human resource policies and structural reforms. Health departments should regularly report infected and dead health workers along with total Covid 19 infections and deaths. Each incident of health worker infected should be investigated and reasons for the same should be immediately fixed. Private employers, also have a responsibility to secure just and favourable conditions at work for their health care workers.

This is essential for a healthy India, today and tomorrow.

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COVID19: A MENTAL HEALTH PERSPECTIVE!

MS. A. SARSWATHI
Consultant Psychologies, Reliance Corporate Park
Email: sarasuchar@protonmail.com

The Long Night

As I sit writing this, I realize that India's long dark lockdown is finally opening up and we are in the phase 3 of unlock. This decision although hotly debated, has been mostly due to economic reasons. As a Psychologist working in Mumbai, this has been an overwhelming time for me with people from all over the world reaching out. So, I put my thoughts down from the perspective of an experienced mental health professional consulting primarily in an urban setting.

The Challenges

Statistics tell us that we have more than 40 million people affected with this virus with about 4lakh deaths due to complications. That is a fatality rate of roughly 10%. Initially, people were very scared and followed the lockdown more out of fear. As the numbers increased, we had lots of people calling us in panic with worries about the future, relationships and finances. Housing societies sealed themselves in and stopped outsiders from entering. My society went one step further and stopped people from walking within the compound or going out. Many small companies let contract workers go. And, even ones asked employees to take some salary cuts. This led to a sense of financial insecurity with everyone getting worried about their EMIs and bank loans. A new fear gripping the country is the cost of treatment, which, if reports are to be believed, may be in lakhs. We are also terrified for our elder/seniors and children.

In my conversations with clients these are the concerns that have arisen:

Children: Children have been really bored and restless as they were used to running around. Engaging them in a constructive manner proved to be a big challenge. Many parents creatively interested them in doing household chores. Some started game hour and sit down together and play some games for an hour. Those with two or more school going children have had a tougher time. And work from home, especially with kids around threw up more issues. Restless children would interfere with official calls. Temper tantrums were on the rise. Adding to the stress, was the awkwardness and humiliation that parents felt when their children were not silent in front of their bosses or colleagues. This led to interpersonal stress between spouses. "You can't manage the children till I finish the call?""Can't you even this small thing for me?"And so, the blame game started. Schools came up with the bright idea of taking zoom classes. Imagine having two devices for the two children and sitting with the children and attend the classes every single day!

The demands of home schooling the kids further burdened the already worn out parents. Another challenge reported was that couples had difficulty sharing the burden. In most cases, mothers were automatically assigned the task which was unfair to the them as they were already managing the household chores while also working from home. There was suddenly so much free time according the calendar, but really where did it all go?????

Working from home: We have all at some point of time thought, "Wow! Working from home would be so great!". We would save the travel time (especially in a traffic clogged city like Mumbai) and the stress of the commute. However, when the lockdown happened, we realized that a lot of our need for friendships and entertainment has been met by the travel and at work with colleagues. We also realized that since we were out of the house, the responsibility around the home was put on hold for a few hours. There was a space between spouses. And suddenly, we became aware of how much we needed that space! With working from home, the other devil was that working hours suddenly increased. In office, could leave the work at the end of the day and go home. Now, that was not happening. Work hours stretched into longer and longer commitments with meetings happening round the clock and learning programs scheduled whenever the consultant was available.

Domestic Chores: With limited help available and with seniors and children, all the domestic chores had to be done along with working from home and within the expected time. In fact, in the first few weeks of the lockdown, almost everyone donned their chef's hats and posted pictures of amazing delicacies that they had prepared right in their kitchens that there were so many memes created around it.

While we all laughed at the jokes, it highlighted to me how stressful it got to cook after a while. One of my friends told me, "Even in my sleep I am making Chapati dough and rolling out the rotis. Household helpers were usually taking care of the routine cooking. Now with dining out not being an option, demands to make different varieties of food at home increased. Initially, people loved baking breads, cookies, cakes and rolls. After a while, the charm of something new wore off. Some people even said, the washing of the utensils after cooking is too much! This was not only limited to wives. Even helpful husbands, who were sharing in the chores, complained about this. Those who stayed in smaller apartments with limited space and without the privilege of washing machines, complained bitterly about washing clothes.

"Me" time: One of the major complaints has been lack of ME time. Time to relax and unwind for myself. Time to engage in mundane chatting or just simply lazing about. We thought it would happen but sadly, the weeks sped by without any such free time.

Parents: During the initial phase of the lockdown, there was a lot of concern regarding parents who were not living with their children. It was difficult to deal with their anxiety and another concern was, who will do the shopping for them. Who will look after them if something happened to them? Those who had parents staying with them, the challenges were different. If I go out and bring back the infection, I may not even experience any symptoms, but am I risking my elderly to this virus which deadlier for them? Some even had a tough time explaining the need for the lockdown to their stubborn elderly parents who insisted on behaving as if there was no problem at all and could not understand why they could not move about as freely as they had done for almost 6 or 7 decades of their life!

Is it any surprise then that this long lockdown has actually led to mental fatigue? Someone shared this image.



And it's absolutely true!

When we started the virus', spread was much lesser and the fear much more. Now, the focus is no longer on the fear of Corona but on fixing some of the urgent issues.

- Finances need to be fixed and planned. When will I get back to the income levels I was enjoying before the lockdown?
- Children's school and colleges are not yet open. How to manage home and get to work? Negotiating with the spouse to find an optimal solution.
- How to manage children's schooling? How much do you supervise?
- Managing screen addiction – This is a tough one as most adults have been addicted to the screen themselves. Now, how to manage children's addiction?
- How to find the balance between letting go of the hurtful things said and done during lockdown and putting the foot down on behavior's that have been unacceptable?
- Finding help for domestic duties/ chores and find some "ME" time.

Although I have painted a rather grim picture, the lockdown has come with its numerous funny and rib-tickling moments too. Many such sentiments have been captured in the WhatsApp forwards. Several people have done really well in doing something about their hobbies which time constraints had never permitted earlier. Some have taken to posting music videos and are garnering many views and likes. People have begun to read more, paint more, exercise and meditate more and even study more. These people have chosen to go along with healthy coping styles. Most people I have spoken to, have chosen a combination of both healthy and not so healthy coping styles.

And while that happened, nature tried to heal herself. Rivers became cleaner. Forests became greener. The air is more breathable and the air quality index in many major cities is way better than it has been for decades. Wildlife came out to enjoy without fear and worry about being harassed and in the process some fantastic pictures and videos of the fauna have circulated on social media.

Current Unlock 1.0

Most companies have now become operational, this time with 10% of work force. Financial concerns are motivating people everywhere to ignore the restrictions and step out in search of work and income. In a densely populated city like Mumbai, Unlock means that people can finally get out of small confined spaces that they call home, escape the claustrophobic jaws of relentless interaction with family members some of whom they don't even really like) and after a long, long time taste the freedom.

While the freedom tastes good, the challenges are now changing their face:

- What are the precautions that need to be followed from the point of view of safety?
- What can we do to manage kids since schools and colleges are still not open?
- How do we manage household chores if we are going to work since housing societies are still reluctant to allow maids?
- How can I ensure my workplace is safe as I cannot know where my colleagues are coming in from and whether they could be carrying an infection?
- When will all this end?

In the back of the head, all the articles which are being read or forwarded say that India is sitting on a potentially explosive situation.

(https://www.economist.com/asia/2020/06/06/infections-are-rising-fast-in-bangladesh-india-and-pakistan)

Prime Minister Narendra Modiji, in his speech, has emphasized that we need to accept and live with Covid and this should become THE NEW NORMAL for India.

What does this mean for us? What can we do at our individual level to ensure that we do not fall prey to the anxiety and stress that comes with COVID?

On a personal level, here are a few very simple dos and don'ts:

Do's

- Exercise regularly.
- Helps in keeping your mind calmer.
- Focus on things you can do today that are useful.
- Do it. Review it and feel good about yourself
- Stop and think how you can engage with children in a useful manner.
- Can they help with your cooking and cleaning chores to the extent that is possible?
- Kezep the expectation from kids age appropriate.
- Can we reward them for the same by having a playtime session? Playing Ludo/ Uno/ puzzles/ Story telling time etc.
- Try and involve seniors too in these activities.
- If its mobile games that they enjoy, set a time for it and STICK TO THE TIME LIMIT!
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- If its mobile games that they enjoy, set a time for it and STICK TO THE TIME LIMIT!
- Going through old photo albums and discuss old stories and anecdotes while reminiscing and sharing jokes.
- Take some time for self to meditate or listen to music. Others also can listen.

But this is your sacred time!

Don'ts

- Don't watch News on TV incessantly.
- Increases unnecessary tension.
- Mindless watching of videos may not give you satisfaction.
- You may end up feeling guilty that you wasted time.
- It is easy to give a mobile in a child's hand to engage him or her but it may not be useful to do as a strategy all the time.
- You will have the issues when the child is a teenager!
- Following solo activities exclusively. While some solo activity may be essential to your mental health, exclusive solo activities will cause unrest in others.
- Focusing on a rigid way of doing things may be counterproductive and others around you may get frustrated.
- Can we try some flexibility now and then???

Don't hesitate to Reach out and Ask for Help!

Whenever we are faced with a difficult time, talking to someone has always helped. Talking to friends and family is the first step, but when they cannot advise or when they are the cause of stress or even when talking to them is not an option, consider reaching out for professional help.

Given the tough times ahead, more and more helplines are coming up. There are specific helplines set up by the Ministry of Family, Women and Child, NIMHANS in Bangalore, TATA Institute for Social Welfare and a number of private organisations. The contact details are easily available online. In moments of despair or tension, just pick up the phone and talk to someone. Don't hesitate. Remember, the whole world is in this situation with you and with different levels of ability to cope with stress. Each one of us is fighting our unique battles while the world battles the virus unitedly. Help is always available, make sure you take it.

Together we Can!

Old Teamwork slogans work even at home! Organize and plan yourself to work as a team on all the responsibilities at home. We do this automatically at work and at home we don't even try to start the planning! We just leave it to the person who has been doing it all along or do what is convenient to us and leave the rest. That's not how a smooth organization runs and if you think about it the home is actually our first ever functional organization. So, let's bring some of that planning into our family environments too. This will ensure comfortable distribution of chores and reduce the burden on some of the family members. The net result: Happier homes and happier families!

Habits make Character:

Although, this time is very taxing and trying don't let go of healthy habits. You can relax the rules for a bit and take some time off but get back to healthy habits of exercising regularly, eating reasonably healthy food, sleeping on time and waking up at a fixed time, drinking enough water. For kids regulate the screen time and add physical activity to their day. Yes, schools are online but that means you have to think of new ways to engage them in their leisure and not put them in front of a screen again! Also, the habits you are encouraging now may become set for the kids and you will have to take more trouble to undo them later. So be realistic and stay disciplined. It looks harder but the alternative is more troublesome.

Stay Sane about Safety

- Even without the lockdown, we need to be sensible and not go out unnecessarily.
- Use a mask and cover your nose, mouth and chin with it. Otherwise, it is useless.
- Wash hands when you touch something outside. Do not touch your face/ mask unnecessarily or without washing your hands. This would mean being conscious of and getting rid of certain mannerisms and gestures that we may have always had.
- DO MAINTAIN 6 ft distance with others even if you are simply outside buying vegetables or waiting for a bus.
- Sanitize where necessary and at fixed times depending on the exposure that place has to outsiders.

Remember if you colleague at work has recovered from COVID, he or she is no longer infective. Do not discriminate against him or her! If you are the boss, be patient with your subordinates.

THE FUNDAMENTAL LAW OF PROTECTION

"Consider everybody around you as an asymptomatic carrier of COVID- 19 and capable of infecting you. Consider too, that you yourself could be an asymptomatic carrier of COVID-19, capable of infecting all around you. So train yourself, by using all your intelligence to neither get infected nor infect others."

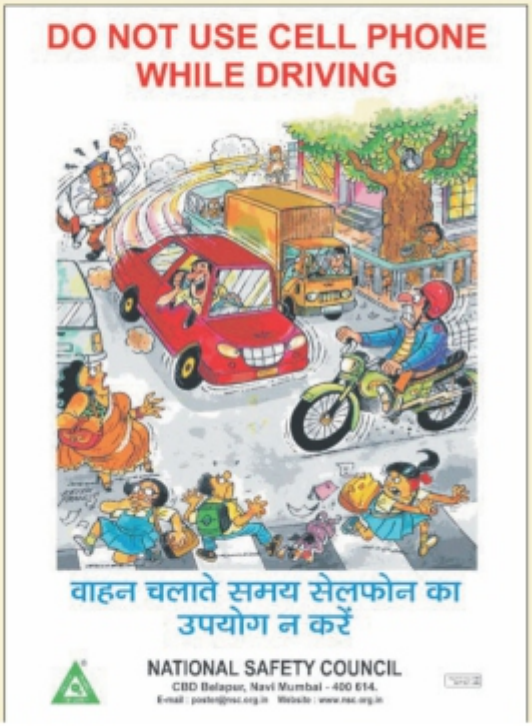
They are handling much bigger load than usual. If you are a subordinate, please convey to your colleagues and bosses, your personal challenges and do not agree to do much more than you can. Be realistic. If you become stressed and are carrying it for a long time, you will not be useful to your family or to your company. Try to understand the challenges that people are facing and be supportive. We have heard so many stories of medical workers being refused entry into their buildings, people who were admitted in hospitals being ostracized by others. You simply have to cough in the vicinity of another person to see the anxiety and paranoia light up their eyes. Being empathic and kind to others around you is going to be the values that distinguish you from others who are overwhelmed by the fear. **Please REMEMBER, we can't let fear paralyze us, but, being overconfident and careless is also not a good choice. In this new normal, look to the medical fraternity for updates and information about safety. Follow only advice given by authenticated sources and not every instruction that comes out of our wonderful Whatsapp Manual. All the best!**

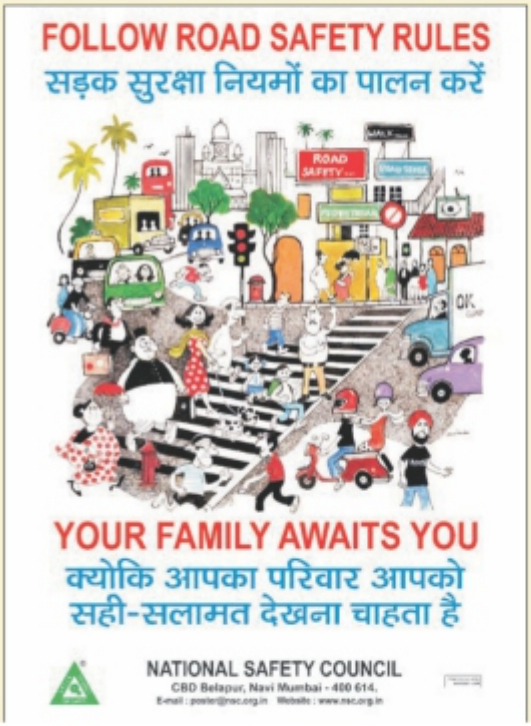
About the Author:

Ms. Saraswathi A. has worked in the industrial set up also for over 10yrs (G&B Vikhorli Mumbai) and is currently a consultant clinical psychologist at Reliance Corporate Park. She is a partner in Catalysts - a Consulting firm offering Pan India Mental Health support, training and assessment. She has written this article from the perspective of a psychologist working with a variety of patients in this time of crisis.

★ ★ ★

NSC'S ROAD SAFETY POSTERS





INFECTIOUS DISEASES: AN OVERVIEW

DR UNMESH KORDE, M.D.(PSM)
AFIH Health Management Professional Siemens Ltd
Email: unmeshkorde@rediffmail.com

The entry and development or multiplication of an infectious agent in the body of man or animals is called an infection. It also implies that the body responds in some way to defend itself against the invader, either in the form of an immune response or disease. An infection does not always cause illness and when it does so, it is called an **"Infectious disease"**

Traditionally, health and safety professionals have focused attention on prevention of classical occupational diseases such as Noise Induced Hearing Loss, Musculoskeletal disorders and occupational lung diseases. The last decade has also seen lot of work done in prevention of Non-communicable or Lifestyle diseases (NCDs). However, infectious diseases were largely ignored. The CoVid-19 pandemic has brought them back in focus. Their consideration should be an integral part of the planning process of any health and wellness program of modern industries, as well as HIRA documents.

Infectious diseases are caused by pathogenic microorganisms such as viruses, bacteria, fungi and parasites. They can be spread, directly or indirectly, from one person to another by various means.

A. Direct transmission

1. **Direct contact**- Infection may be transmitted by direct contact from skin to skin, mucosa to mucosa, or mucosa to skin of the same or another person. Examples are AIDS, leprosy, leptospirosis, skin and eye infections.
2. **Droplet infection**- This is direct projection of a spray of droplets of saliva and nasopharyngeal secretions during coughing, sneezing, or speaking and spitting, talking into the surrounding atmosphere. The expelled droplets may impinge directly upon the conjunctiva, oro-respiratory mucosa or skin of a close contact. Particles of 10 mmm or greater in diameter are filtered off by nose. Those 5 mmm or less can penetrate deeply and reach the alveoli. Examples are CoVid-19 and tuberculosis.
3. **Contact with soil**- The disease agent may be acquired by direct exposure of susceptible tissue to the disease agent in soil, compost or decaying vegetable matter in which it normally leads a saprophytic existence. Examples are Hookworm infestation and Tetanus.
4. **Inoculation into skin or mucosa**- The disease agent may be inoculated directly into the skin ormucosa like Rabies.
5. **Transplacental (Mother to child)**- Examples are AIDS and

B. Indirect transmission

1. **Vehicle-borne:** Vehicle-borne transmission implies transmission of the infectious agent through the agency of water, food (including raw vegetables, fruits, milk and milk products), ice, blood, serum, plasma or other biological products such as tissues and organs. Of these water and food are the most frequent vehicles of transmission, because they are used by everyone. Examples are Typhoid, Cholera and Hepatitis A
2. **Vector-borne:** Vector is defined as an arthropod or any living carrier (e.g., snail) thattransports an infectious agent to a susceptible individual. Examples are Malaria, Dengue and Plague
3. **Air-borne: a. Droplet nuclei:** "Droplet nuclei" are a type of particles implicated in the spread of airborne infection. They are tiny particles (1-10 microns range) that represent the dried residue of droplets. Examples are Chicken pox, measles

   b. Dust: Some of the larger droplets which are expelled during talking, coughing or sneezing, settle down by their sheer weight on the floor, carpets and other objects in the immediate environment and become part of the dust. Examples are Pneumonia and Tuberculosis
4. **Fomite-borne-** Fomites (singular; fomes) are inanimate articles or substances other than water or food contaminated by the infectious discharges from a patient and capable of harbouring and transferring the infectious agent to a healthy person. Examples are CoVid-19 and Bacillary dysentery
5. **Unclean hands and fingers-** Hands are the most common medium by which pathogenic agents are transferred to food from the skin, nose, bowel, etc as well as from other foods. The transmission takes place both directly (hand-to-mouth) and indirectly. Examples are Hookworm and staphylococcal infections.

Prevention and control of infectious diseases

1. Controlling the reservoir: The most desirable control measure is to eliminate the reservoir or source, if possible. Elimination of the reservoir may be pretty easy with the animal reservoir (e.g., bovine tuberculosis, brucellosis), but is not possible in humans in whom the general measures of reservoir control comprise : early diagnosis, notification, isolation, treatment, quarantine, surveillance and disinfection - all directed to reduce the quantity of the agent available for dissemination.

a. Early diagnosis: The first step in the control of a communicable disease is its rapid identification. Early diagnosis is needed for (a) the treatment of patients (b) for epidemiological investigations, e.g., to trace the source of infection from the known or index case to the unknown or the primary source of infection (c) to study the time, place and person distribution and (d) for the institution of prevention and control measures.

b. Notification: Once an infectious disease has been detected (or evenit should be notified to the local health authority, whose responsibility is to put into operation control measures, including the provision of medical care to patients, perhaps in a hospital.

c. Epidemiological investigations: An epidemiological investigation is called for whenever there is a disease outbreak, Broadly, the investigation covers the identification of the source of infection and of the factors influencing its spread in the community.

d. Isolation: It is defined as "separation, for the period of communicability of infected persons or animals from others in such places and under such conditions, as to prevent or limit the direct or indirect transmission of the infectious agent from those infected to those who are susceptible, or who may spread the agent to others"

e. Treatment: The object of treatment is to kill the infectious agent when it is still in the reservoir, i.e., before it is disseminated. Treatment reduces the communicability of disease; cuts short the duration of illness and prevents development of secondary cases.

f. Quarantine: Quarantine has been defined as "the limitation of freedom of movement of such well persons or domestic animals exposed to communicable disease for a period of time not longer than the longest usual incubation period of the disease, in such manner as to prevent effective contact with those not so exposed"

2. Interruption of transmission : This may mean changing some components of man's environment to prevent the infective agent from a patient or carrier from entering the body of susceptible person. For example, water can be a medium for the transmission of many diseases such as typhoid, dysentery, hepatitis A, cholera and gastroenteritis. Water treatment will eliminate these diseases. Depending upon the level of pollution, this may vary from simple chlorination to complex treatment. However, control of the source of contamination is an important long-term measure. Food-borne disease is particularly prevalent in areas having low standards of sanitation. Clean practices such as hand washing, adequate cooking, prompt refrigeration of prepared foods and withdrawal of contaminated foods will prevent most food-borne illnesses When the disease is vector-borne, control measures should be directed primarily at the vector and its breeding places.

Vector control also includes destruction of stray dogs, control of cattle, pets and other animals to minimize spread of infection among them, and from them to man. On the other hand, episodes of infection either by droplets or droplet nuclei are not usually controlled effectively by attempting to interrupt their mode of spread; reliance is placed on early diagnosis and treatment of patients, personal hygiene and proper handling of secretions and excretions.

3. Protection of susceptible host

Susceptible host may be protected by:

a. Active immunization by vaccines- live or killed (E.g. Hepatitis B vaccine)

b. Passive immunization by immunoglobulins and anti-toxins (E.g. Anti-Rabies immunoglobulin)

c. Combined Active and Passive immunization (E.g. Tetanus toxoid with Anti-Tetanus Immunoglobulin)

d. Chemoprophylaxis- It implies pharmacological interventions for disease prevention. (E.g. Doxycycline for prevention of Leptospirosis)

Disinfection and disinfectants- Some terms explained.

Disinfectant: It is usually a chemical agent (but sometimes a physical agent) that destroys disease causing pathogens or other harmful microorganisms but might not kill bacterial spores. It refers to substances applied to inanimate objects.

Disinfection: Thermal or chemical destruction of pathogen and other types of microorganisms. Disinfection is less lethal than sterilization because it destroys most recognized pathogenic microorganisms but not necessarily all microbial forms (e.g., bacterial spores).

Sterilization: Validated process used to render a product free of all forms of viable microorganisms including bacterial spores. Sterilizer is the apparatus used to sterilize medical devices, equipment or supplies by direct exposure to the sterilizing agent.

Antiseptic: Substance that prevents or arrests the growth or action of micro-organisms by inhibiting their activity or by destroying them. The term is used especially for preparations applied topically to living tissue.

Asepsis: Prevention of contact with micro-organism.

Sanitizer: Agent that reduces the number of bacterial contaminants to safe levels as judged by public health requirements. Commonly used with substances applied to inanimate objects.

Common disinfectants are:

Natural agents- Sunlight and air.

Physical agents- Burning, hot air, boiling, autoclaving, radiation.

Chemical agents- Phenol, Cresol, Chlorhexidine, Hexachlorphane, Dettol, Cetrimide, Savlon, Bleaching powder, Hypochlorite, Iodine, Alcohols, Formaldehyde, Potassium Permanganate, Hydrogen Peroxide, Lime, Ethylene oxide, Pasteurization, Microwave, Ultraviolet radiation, Ozone.

It is clear from this discussion, that infectious diseases should be an integral part of HIRA documents of industries. This assessment should consider all possible modes of transmission- particularly food and water borne infections and respiratory droplet infections. For the former, regular canteen audits, HACCP certification, periodic medical check of canteen employees will go a long way in prevention. Respiratory droplet infections such as CoVid-19 will require permanent measures such as Social distancing, disinfection of common touch points, hand hygiene and use of masks for risk mitigation.

Adult vaccination is another area which needs emphasis. Industries should offer vaccination programs with Flu vaccine, Typhoid vaccine, Tetanus Toxoid and Pneumococcal vaccine as a part of their employee wellness initiatives.

Some common infectious diseases of public health importance in India are described here.

Respiratory infections
- CoVid-19
- Tuberculosis

Arthropod borne infections
- Dengue
- Malaria
- Lymphatic filariasis

Surface infections
- AIDS
- Tetanus

Intestinal infections
- Typhoid fever
- Viral hepatitis
- Acutediarrhoeal diseases
- Cholera
- Poliomyelitis

Zoonoses
- Rabies
- Leptospirosis

Respiratory infections

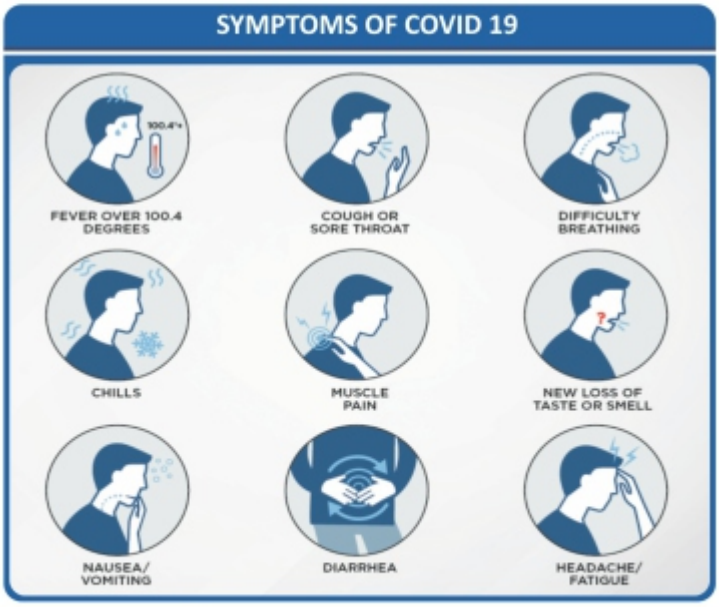
- CoVid-19

This is a respiratory droplet infection caused by the Novel Coronavirus named SARS-CoV-2, which has currently caused one of the biggest pandemics of this century.

Symptoms are absent or mild in majority of cases.They are fever, cough, breathlessness, loss of smell and taste. However, the virus spreads rapidly and causes severe illness in persons with co-morbidities such as diabetes, hypertension. Only about 20% patients require hospital care, but the absolute number of such patients has overwhelmed health care systems of even developed countries, forcing them into lockdowns.

Diagnosis is by RT-PCR testing using nasal or throat swab.

There is no specific treatment and majority patients recover on their own. Some drugs such as Remdesivir have shown promise. Prevention is by SMS- Social distancing, Masks and Sanitization of hands. Hydroxychloroquine has shown some protective role in prevention of infection in healthcare workers. A vaccine is still under development.



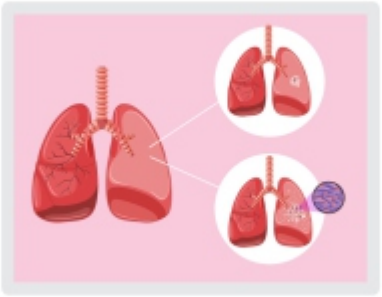
Tuberculosis

Tuberculosis is a respiratory droplet infection caused by bacteria known as Mycobacterium Tuberculosis.

Lung TB is the commonest form, but it can affect almost all organ systems of the body. Symptoms of lung TB are cough for 2 weeks or more, fever with evening rise of temperature, loss of weight and appetite. Diagnosis is by Sputum microscopy and Gene Xpert test. Chest X-Rays and CT-Scans are also useful.

Treatment is effective with Anti-TB drugs, which must be taken regularly for at least 6 to 9 months. If incompletely treated, drug resistant TB develops, which is difficult to treat and requires a duration of 18 months or more, with poor outcomes. TB kills around 4.5 lakh people annually in India. Deaths are due to improper or incomplete treatment leading to drug resistance, co-morbidities such as diabetes and combination with HIV.

BCG vaccine given at birth protects against severe forms. Early diagnosis and prompt treatment can prevent the spread to community.



Intestinal infections

• Typhoid fever

Typhoid fever is caused by bacteria called Salmonella Typhi. It is transmitted thorough contaminated food and water.

Symptoms are fever- which rises in a step ladder pattern, abdominal pain and constipation.

Diagnosis is based on clinical history, as blood tests have limited value. The popular Widal test which detects antibodies should be done only after 7 days of fever. Blood culture can diagnose typhoid in early days, but a negative report does not rule it out.

Treatment consists of antibiotics such as Azithromycin and Cefixime. Hospitalization is rarely required.

Prevention is by following good food and water hygiene. A vaccine is also available (Typhoid Vi conjugate vaccine)

Prevention of Typhoid

- Wash your hands
- Drink clean water
- Wash fruits & vegetables before use
- Get vaccinated



• Viral Hepatitis

Viral hepatitis is either food or water borne (A and E) or transmitted through unsafe blood, unsafe sex and from mother to child (B, C and D)

The disease is characterized by non-specific symptoms such as fever, chills, headache, fatigue, generalized weakness and aches and pains, followed by loss of appetite, nausea, vomiting, dark urine and jaundice.

Diagnosis of Hepatitis A and E is by clinical correlation of symptoms with Liver function tests or specialized antigen and antibody tests (usually not done). Hepatitis B, C and D are diagnosed by antigen tests. Hepatitis A and E usually recover with good nutrition and rest; hence no specific treatment is required. Hepatitis B and D have no treatment and are usually mildbut can cause complications such as liver cancer later in life.There are anti-viral drugs to cure Hepatitis C.

Prevention is by following good food and water hygiene. Vaccines can prevent Hepatitis A, B and D (to some extent.



• Acute diarrhoeal diseases including Cholera

Diarrhoea is the passage of loose, liquid orwatery stools, which is caused by variety of viruses, bacteria and parasites.

These diarrhoeal diseases cause significant deaths in India due to dehydration and circulatory collapse.

Mode of transmission is through contaminated food and water. The mainstay of treatment is Oral rehydration solution (ORS), which is lifesaving. Severe cases require intravenous fluids.

Specific treatment is required for diarrhoea due to bacterial or parasitic causes, e.g. for cholera, the drug of choice is doxycycline.

Zinc supplementation reduces duration and severity of diarrhoea due to any cause.

Prevention is by following good food and water hygiene. A vaccine is available to protect against Rotavirus- a common cause of diarrhoea in children.



• Poliomyelitis

Poliomyelitis is an acute viral infection caused by an RNA virus. It is primarily an infection of the human alimentary tract, but the virus may infect the central nervous system in a very small percentage (about 1 per cent) of cases resulting in varying degrees of paralysis, and possibly death.

India has not reported any polio case since January 2011 and has been declared polio-free since 27th March 2014. This was possible because of excellent surveillance and a hugely successful vaccination drive throughout the country.



• **Arthropod borne infections**

Dengue

It is a viral disease transmitted by the Aedes aegypti mosquito, characterized by fever with severe bone pains (break-bone fever) and clotting disorders in severe cases (Dengue haemorrhagic fever)

Diagnosis is by antigen and antibody tests in symptomatic persons. Treatment is supportive with anti-pyretics and fluids, as there are no anti-viral drugs.

Malaria

It is a parasitic disease caused by Plasmodium species transmitted by the female Anopheles mosquito. Plasmodium Vivax and Falciparum are commonly found in India, the latter being more dangerous.

Symptoms include intermittent fever with chills and weakness.

Diagnosis is by peripheral blood smear test & antigen testing.

Treatment by anti-malarial drugs such as Chloroquine and Artemesenin compounds is very effective. Primaquine prevents relapse of P.Vivax infection.

Lymphatic filariasis

It is caused by filarial worm- Wuchereria Bancrofti transmitted through the bite of an infected Culex mosquito.

Symptoms range from fever, lymph gland swelling to massive swelling of lower limbs (elephantiasis)

Diagnosis is by peripheral blood smear taken during the night, when the microfilariae are detected.

Treatment by Diethylcarbamazine (DEC) is effective.

All these mosquito-borne diseases can be prevented by preventing breeding of mosquitoes by not allowing water to stagnate and avoiding mosquito bites by using repellants or mosquito nets.





• **Surface infections**

AIDS

It is a viral disease caused by Human Immunodeficiency Virus (HIV) transmitted through unsafe blood, unsafe sex and from mother to child. It breaks down the body's immune system, leaving the victim vulnerable to a host of life-threatening opportunistic infections, neurological disorders, or unusual malignancies. Once infected, it is probable that a person will be infected for life.

The term AIDS refers only to the last stage of the HIV infection.

Presently, the HIV epidemic has stabilized in India.

Diagnosis is by ELISA and Western Blot tests.

Treatment with Anti-retroviral therapy (ART) reduces viral load and prevents opportunistic infections.

There is no vaccine. Prevention is by using safe blood, practicing safe sex and administering medications to prevent mother to child transmission.



Tetanus

It is a disease caused by the toxin of a bacterium called Clostridium tetani, transmitted through contamination of wounds with tetanus spores. In newborn, it occurs due to unhygienic practices such as cutting the umbilical cord with non-sterile instruments. Symptoms include muscular rigidity which persists throughout illness punctuated by painful spasms of the voluntary muscles .

Death rate tends to be very high, varying from 40 to 80 per cent. Treatment is difficult, hence prevention is the best policy. Tetanus toxoid vaccination has greatly reduced incidence of this disease.

This vaccine should not be taken after every injury but decided upon immunization status and extent of injury.

Anti-Tetanus Serum is indicated in severe injuries. Antibiotics such as penicillin are helpful as an adjunct in prevention.

All wounds receive surgical toilet

Wounds less than 6 hours old, clean, non- penetrating and with negligible tissue damage.		Wounds less than 6 hours old, clean, non- penetrating and with negligible tissue damage.	
Immunity category	**Treatment**	**Immunity category**	**Treatment**
A	Nothing more required	A	Nothing more required
B	Toxoid 1 dose	B	Toxoid 1 dose
C	Toxoid 1 dose	C	Toxoid 1 dose + Human Tet.Ig.
D	Toxoid complete course	D	Toxoid complete course + Human Tet.Ig.

A= Has had a complete course of toxoid or a booster dose within the past 5 years.
B= Has had a complete course of toxoid or a booster dose more than 5 years ago and less than 10 years ago.
C= Has had a complete course of toxoid or a booster dose more than 10 years ago.
D= Has not had a complete course of toxoid or immunity status is unknown.

- **Zoonoses**

Rabies

It is a disease caused by Rabies virus, transmitted through bites or licks of infected animals such as dogs, wolves and jackals.

Symptoms begin with pain and tingling at the site of bite, followed by widespread excitation of the nervous system. Water and air cause violent spasms of neck muscles. It is 100% fatal and only 3 affected persons have survived till date.

Diagnosis is by history of dog / animal bite and clinical features. It can be confirmed in patients early in the illness by antigen detection using immunofluorescence of skin biopsy, and by virus isolation from saliva and other secretions.

There is no treatment.

Prevention is by thorough washing of wound by soap and water immediately after the bite. A very effective vaccine is available. In serious bites, immunoglobulins are given.



Leptospirosis

It is a disease caused by a bacterium called Leptospira which is transmitted through contaminated dog or rat urine.

Symptoms are not very specific- fever, jaundice, muscle and eye pain. If untreated, complications such as kidney and liver failure may occur.

Diagnosis is by IgM ELISA blood test. Penicillin is the drug of choice but other antibiotics such as tetracycline or doxycycline are also effective. Prevention is by avoiding flooded waters and washing feet properly if exposed. Doxycycline taken once weekly is effective in prevention during monsoon. No vaccine is available.

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OCCUPATIONAL HEALTH SURVEILLANCE IN COVID-19 ERA

DR. DAMODAR V. LELE
Retired Occupational Health Physician, Hindustan Unilever Ltd.
Email: damodar.lele@gmail.com

The **COVID-19 pandemic in India** is part of the worldwide pandemic of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The first case of COVID-19 in India, which originated from China, was reported on 30 January 2020. The coronavirus outbreak constitutes a major and extraordinary emergency.

Occupational Health Surveillance is an integral part of various measures undertaken in Occupational & Health Safety Program in an industry or company. It is also a legal requirement. In view of various constraints due to COVID-19 pandemic, compliance to the same is likely to be in jeopardy.

The term **"Surveillance"** is derived from the French word meaning "to watch over". In public health, surveillance was originally developed as part of efforts to control infectious diseases, but the principles of surveillance can potentially be applied to other problems such as chronic diseases (diabetes, cancer or high blood pressure), occupational diseases or social problems (drug addiction). Health surveillance is a public health methodology, which aims to detect undesired health effects in a given population; with the primary aim to eliminate the source of the problem.

According to the definition of the International Labor Office (ILO) at page 22, **"Occupational Health Surveillance"** is the ongoing systematic collection, analysis, interpretation and dissemination of data for the purpose of prevention. It is designed to detect potential workplace hazards before irreversible health effects occur and provides information on where, how and why workers get sick or hurt on the job.

Surveillance is an important core activity in the practice of occupational health. Two broad groups of surveillance are commonly performed- **Hazard Surveillance and Health Surveillance.** Hazard Surveillance gathers the data in terms of identifying, recognizing, measuring and controlling the hazards at workplace. Health surveillance gathers health-related data of and from workers which help in early diagnosis of an occupational disease. The combination of the two approaches provides the best result to obtain a more accurate picture of the given occupational safety and health situation. The results of hazard and health surveillance should be fed into the continuous risk assessment process of the workplace.

Surveillance data reveals trends or emerging patterns in workplace hazards and illnesses. To be effective, surveillance must be followed by preventive corrective action and by evaluation of the effectiveness of intervention.

Occupational Health Surveillance as per statutory requirement:

- The Factories Act, 1948 (as amended in 1987), The Mines Act, Building and Other Construction Work (BOCW) Act and other similar acts and the rules framed there under provide for pre-employment and periodical medical examinations of workers. The factory Act provides for health surveillance of workers employed in industries with hazardous chemicals / processes and dangerous operations under section 41-C and section 87 respectively. A list of 29 notifiable diseases in schedule III, PEL values in schedule II and list of Dangerous operations is given in the Factories Act.
- Besides conducting OH surveillance, there is also a requirement that records of health surveillance should be maintained in Health Register. Access of the employee to his or her personal records should be granted on request.

Specific responsibilities of occupier in relation to hazardous processes is covered under Section 41C of the Factory Act which stipulates that every occupier shall provide for medical examination of every worker working in hazardous process and maintain accurate & up-to –date health/medical records (Occupational Health Surveillance).List of industries involving hazardous processes is given in The First Schedule.

Occupational health surveillance in India is focused to detect "notifiable diseases" specified in The Indian Factories Act and other acts, mostly through periodical medical examination or by isolated surveys for the same. From a strictly medical point of view, the doctor's function is to determine a candidate's suitability for work in a potentially harmful environment, and to protect workers from a hazardous work environment.

Difficulties envisaged for compliance:

- Our country was under lock down from 25th March, 2020 and provisions of various acts such as Disaster Management Act 2005 and The Epidemic Disease Act were made applicable. Though the lockdown is slowly easing down, public transport services are still limited
- Adequate number of trained technical people (Staff) required to conduct medical examinations are not available with Occupiers as well as well with external agencies conducting such examinations...
- Physical examinations including ENT, Ophthalmic and dental checks will not be possible due to inability to maintain social distancing & possibility of transmission of infection due to proximity where high risk of exposure & transmission exist.

- Investigations such as spirometry and audiometry are not advisable due to high risk of transmission
- It is very much possible that carriers may be asymptomatic. It would be prudent, therefore, to presume that every patient or employee is a potential source of infection and to take adequate precautions. This principle is called "Universal Precautions" in infection control.
- Non-essential testing and imaging should be deferred
- Diagnostic equipment used in curative care rendered at OHC carry the risk of transmission and should be thoroughly cleaned, disinfected or sterilized
- Since there will be limited number of employees present in the workplace as per Government guidelines during unlock phase, it also will not be possible to cover every employee in the surveillance.

The objective of periodic medical examination is early diagnosis of occupational diseases. Since all chronic occupational diseases have a long latency period, deferring the examination for some period of time is unlikely to cause any health issues and it is recommended that periodic examinations under factory act and other similar acts should be deferred till the current situation reasonably is under control.

However, if any employee has already shown early signs of occupational diseases in previous health surveillance, the occupational health physician may decide whether to conduct the check-up. This should be on case to case basis.

Conducting pre-employment Examination

The purpose of conducting pre-employment examination is to choose a person who is fit for the job and risks involved in the job are not threat to her/him or others e.g. bus driver or overhead crane operator. The pre-employment examination also helps in having a base line health data for comparison with future periodic medical examinations.

Conducting pre-employment examination is a dilemma for HR and OH physician since the legal and company policy requires the person to be fit for her/his job. If not very urgent, the employment maybe deferred for some time. OH physician and HR must take these decisions on case to case basis. The industries can jointly appeal to the state department of industrial health and safety or other competent authorities to extend the validity period of the last health surveillance. Appropriate authorities in the State government(Ministry of labor/Health/Factory Inspectorate) could consider that such statutory examinations may be conducted after lifting of lockdown, say within 3 months and extend validity of earlier certification by 3- 6 months.

In case periodic or pre-employment medical examination is conducted, ECG may be taken and copy given to the person as the base line graph will be helpful in case she/he is put on COVID-19 prophylaxis i.e. administration of drug hydroxyl-chloroquine. Occupational Health questionnaire, self-declaration of past medical history and telephonic interview,

Action taken in other countries for Occupational Health Surveillance

HSE, UK has issued guidance on 20 March 2020, setting out a proportionate and flexible approach to enable health and medical surveillance to continue. This advice takes care of the current constraints presented by the coronavirus outbreak. HSE has further suggested to administer an appropriate health / symptom questionnaire remotely or to conduct a telephone / video consultation. In either case, if there are no problems, a full assessment can be deferred for up to 6 months.

If there are problems, the occupational health professional/ appointed doctor can decide if a face to face examination is justified. In exceptional circumstances such medical examination / investigation should be undertaken only after a suitable and sufficient risk assessment and after putting in place appropriate controls.

For those workers who previously had no problems and, on that basis, had a full assessment deferred for 3 months in accordance with HSE guidance issued on 20 March 2020, the occupational health professional/appointed doctor can further defer a full assessment for up to 3 months without reviewing the worker again.

For initial assessment of new workers, the appointed doctor can follow the guidance for periodic medical surveillance and obtain baseline blood lead and hemoglobin levels. They should do this before the individual starts work for the first time with lead, and in any event not later than 14 days after first exposure. If there are no problems, they can defer a full assessment for up to 6 months.

The Chief Labor Inspector (Poland) has recommended suspending the mandatory periodical medical check-ups until the state of epidemic emergency in Poland is revoked. However, this limitation does not affect the employers' obligations to issue referrals to employee periodical check-ups on time. Moreover, employers are responsible for obliging employees to undergo medical check-ups as soon as the state of epidemic (emergency) is revoked.

Occupational Health Surveillance for preventing exposure to the Covid 19 virus in the workplace

On April 28th, the ILO celebrated the World Day for Safety and Health at Work, an annual international campaign to promote safe, healthy and decent work. In the context of the COVID-19 pandemic, occupational safety and health takes on even greater importance. This is why the theme of the 2020 World Day for Safety and Health at Work is Stop the pandemic: Safety and health at work can save lives. This campaign promotes the adoption of occupational safety and health measures in response to this pandemic aimed at preventing and mitigating health risks, including those arising from new working arrangements to prevent a tsunami of health problems.

To reduce the risk of exposure to COVID-19 in the workplace, employers should develop an infectious disease preparedness and response plan; prepare to implement basic infection prevention measures; develop policies and procedures for prompt identification and isolation of sick people; develop, implement and communicate about workplace flexibilities and protections; implement workplace controls; and follow existing Occupational Safety and Health standards.

Follow the latest public health advice and to identify and implement suitable control measures to mitigate the risk of COVID-19 infection in the workplace. Aim for minimizing exposure to COVID-19 at work.

Do not allow sick person on duty –ask her/him to go home and contact his family doctor or Government healthcare facility. If anybody falls sick while on duty, refer her/him to Government clinic or his doctor for further management and ask her/him to stay away from duty till certified fit. Employees in the vulnerable category should continue work from home. In both cases, the OH physician may do an appropriate follow-up at regular intervals.

The starting point of any Health Surveillance is the Hazard Identification, Exposure assessment & Risk Assessment which can include environmental monitoring, hazardous material registries, industrial hygiene and engineering controls.

Step One: Identifying workplace risks and hazards

Risk assessment begins with identifying how workers might be exposed to COVID-19 during their work but also at home and in the community. Sources of COVID 19 exposure are as follows: -

- **Personal contact risks** include personal interactions required while performing job functions or through their proximity to others in communal areas such as bathrooms, locker rooms and lunchrooms.
- **Equipment contact risks** includes any interaction with equipment necessary to perform one's job function, such as electronic devices, stationery supplies, and any industry-specific equipment.
- **Surface contact risks** includes interactions with workplace surfaces, including doorknobs, light switches, railings, and elevator buttons, shared workstations and shared tools, among other high-contact surfaces.
- **Non-occupational risks and external vectors** includes community spread, contact with infected persons, and recent travel from abroad.

The walkthrough: Practical tips

The first step for identifying personal, equipment, and surface contact risks is to perform a physical walkthrough of the workplace. The walkthrough's purpose is to create a detailed map or list of how workers and others interact in various parts of the workplace.

Fully understanding the interactions between workers, co-workers, third parties in the workplace & the physical set-up of the workplace enables us to create a detailed list of all identified risks, including those arising from surface and personal contact,

Step Two: Developing risk mitigation strategies

The second step of risk mitigation involves determining how to minimize or eliminate the identified transmission risks. Focus should initially be on high-risk sources of infection. It is important to consider secondary or tertiary strategies when primary or preferred methods of risk mitigation are not possible. Strategies for addressing risks identified in the workplace will necessarily depend on the nature of the identified risk. A safe workplace is achieved when everyone involved in the work communicates with each other to identify hazards and risks, talks about health and safety concerns and works together to find solutions. Provide information and training for workers.

Strategy development: Practical tips

For identified risks related to personal contact: First consider whether the activity that requires the personal interaction is necessary or can be eliminated; followed by considering if the activity can be performed online or by email or telephone; and then finally when other measures are not possible, ensure physical distancing is respected while performing the activity by adopting public health recommendations, which currently include keeping a physical distance of six feet (two meters) between individuals.

For identified risks related to surface or equipment contact: First consider eliminating the use of the surface or the equipment; when that is not possible, employers should ensure equipment is sanitized between different users and employees are engaging in proper hand washing practices and/or have appropriate personal protective equipment.

For non-occupational risks or external vectors: First consider screening employees, which can include testing or questioning, at the beginning of the shift or at a scheduled frequency, looking out for any COVID-19-related symptoms or risk factors; where that is not possible consider introducing a self-reporting system, promoting employee disclosure of COVID-19 infection, symptoms or risk factors.

Participatory disease surveillance (PDS) is an innovative tool for surveillance of communicable diseases in which employees are engaged actively for the self-reporting of symptoms or events to help health experts aggregate and analyze data for appropriate health intervention Use an online questionnaire.

Arogya setu app-Smart phones have been deployed extensively as disease surveillance tools in public health programs. These have been established as effective, affordable, adaptive, and cost-effective tools aiding real time data capture. Employees can fill in information on the app.

• Organizations can use data tools to help keep its employees safe during this period. It can be done by gathering health and safety-related information from their employees every day. The organization can pull this information into a dashboard and can makes decision about fitness for work based on insights they are able to generate from the data. This dashboard can identify people in need for urgent help as well.

• The dashboard is able to centrally track, monitor and respond on a daily basis to all employees spread across multiple locations.

OH physician can classify the employees on basis of the information and can counsel and guide the employee as per perceived need by use of Telemedicine

1. **Travel screening:** Direct questioning for international travel <2 weeks
2. **Occupational screening:** Unprotected occupational contact with COVID-19 patients and/or their contacts
3. **Contact screening:** Contact with a COVID-19 patient or a suspected COVID-19 patient and/or their contacts
4. **Cluster screening:** Cluster with individuals with international travel <2 weeks or contacts of a COVID-19 patient or a suspected COVID-19 patient or their contacts
5. **Symptom screening:** History of fever, cough, breathlessness, loss of smell or taste, acute conjunctivitis in patients or attendants or family members in the last 2 weeks
6. **Fever screening:** Body temperature screening with an infrared non-contact thermometer. Anyone with temperature more than 99 degree Celsius must be immediately escorted to a designated isolation room area and suitable examined by doctor wearing appropriate PPEs. The patient should be referred to his doctor or a COVID-19 Treatment Centre as appropriate.

Contact Tracing: Contact tracing is not the only important aspect that must be considered when it comes to health surveillance. Every day, employees must quickly answer exposure surveys, and a symptom check to see if they are becoming ill. Handing out paper-based questionnaires and filing them for hundreds of employees is simply not efficient. Continued medical surveillance will assist with this process and keep track of employees who test positive. Keep proper records of everything..

Returning to Work: After an employee has tested positive for COVID-19, there will be specific protocols in regards to his return to work. Follow-up with furloughed employees needs to be systematic.

Those who have never been infected will continue to be at high risk when lockdowns loosen and must be particularly diligent in their return to work.

Coronavirus is disrupting societies and personal lives. COVID-19 is a tremendous challenge for occupational health practice. Workers in many occupations are facing high risks of becoming infected. There is a long list of jobs that involve direct contact with the public and close physical proximity to others. Organizations will have to deal with the psychosocial and psychological consequences of the current Coronavirus outbreak. The long-lasting possible adverse societal and economic consequences/effects of this pandemic are difficult to estimate. Yet COVID-19 will have both a short-term and long-lasting impact on societies, healthcare systems, workplaces and individuals alike. Occupational Health professionals will have to contribute with knowledge and insights to provide appropriate occupational health for all workers affected directly and indirectly by this pandemic.

Apart from providing mental / psychological health support, the doctors can educate and encourage Corona recovered persons to donate their plasma for treating critically ill Corona patients...

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A STRATEGIC APPROACH IN PREVENTION AND CONTROL OF PANDEMIC COVID-19 SPREAD & RESUMPTION OF PROJECT ACTIVITIES

OM PRAKASH PRASAD - General Manager / Corporate HSE Head, Afcons Infrastructure Limited, Mumbai
ARVIND KUMAR ROY- Chief Manager (HSE),
Project: Ahmedabad Underground Metro Rail Project, Phase1, GMRCL
Email: akr_2007@afcons.com

Introduction

In December 2019, a novel coronavirus called Severe Acute Respiratory Syndrome Coronavirus -2 (SARS-CoV-2) has resulted in the outbreak of a respiratory illness known as COVID-19 in Wuhan City of Hubei Province of China. Soon it has engulfed entire world and posed a serious threat to humankind. The World Health Organisation declared it a PANDEMIC due to the nature of rapid spread of the illness and serious threat to human health including death.

In India, the first case of COVID19 was reported on 30th Jan 2020 and by the end oflast week of June 2020 India reported fourth highest number of confirmed cases in the world with more than16000 deaths.

As the COVID19 illness has started spreading with alarming speed, infecting millions of people, the entire world needs to take urgent call to cushion the pandemic's health and protect vulnerable population. The immediate visible solution of this unprecedented crisis was to impose lockdown, maintain physical distancing between individual, take hygienic precautions and adopt sanitization practices.

In a large swathe of the globe, lockdown brought the life and economic activity to a virtual standstill for many months. After lockdown, restarting economic activity and protect COVID19 spread became paramount challenge. Every individual, group, company, society, nation and world as whole, need to perform owns their responsibility of curtailing the spread of the disease and work in a great synchronisation.

AFCONS, as a responsible corporate, dedicated to alleviating the pain and misery of communities within its capacity, Afcons has extended its helping hand wherever possible. Afconians, across the geographies, have come forward voluntarily to support local communities in India, Africa, Bhutan and Bangladesh.

Afcons Approach against Covid19

Afcons have been committed to save our Country, Nation & Earth from outbreak Covid-19 pandemic. Afcons management recognised the need of our and sprung up in action even before lockdown has started in the country, taken many initiatives to take care of COVID 19 spread and protect workforce health like drafting and implementation of Standard Operating Procedures to strictly maintaining the physical distancing on all offices and construction projects.

Management and system approach

The top management of Afcons taken the lead in this extraordinary situation and demonstrated their commitment. The corporate office has been closed much before the nationwide lockdown; projects were provided adequate required support like finance and the other resources. The following Standard Operating Procedure related to Covid19 were drafted and strictly implemented on all offices and project across the geographies wherever any work is going on or work restarted:

1. SOP-work resumption after nationwide coronavirus lockdown– The work locations within the Afcons strictly to implement when lockdown withdrawn.
2. SOP-personal hygiene standards and protocol for cooks and helpers at camp mess during and post covid-19 lockdown.
3. SOP-best strategies to boost our immune system amidst covid-19 situations including dietary coverage in company mess, etc.
4. SOP- Equipment operations after Covid-19 lockdown
5. Relevant Checklists







Social Distancing Vs Physical Distancing

Afcons believes that human is a social being and adopted the approach to provide social, moral and medical support to all employees and workforce. Even a covid19 infected person need social support. In this pandemic healthcrisis person could not be left along. The social and moral support could be provided by maintaining adequate physical distancing and proper protections against getting infected.

On all projects and offices, the physical distancing is being followed strictly for all activities whether it is work or meeting or travel. Before conducting any construction activity, a detail plan was prepared, covid19 risks were identified and analysed, new work method adopted to maintain physical distancing along with control of covis19 spread by touching any surfaces.



Isolation and Quarantine

The quarantine and isolation facilities were developed in all company owned residential premises including labour camp and staff accommodation. It was made mandatory that all new arrival on project must compulsorily be kept in quarantine for fourteen days. During these fourteen days 3 times Covid19 test will be conducted, first on sixth day of arrival. Once an individual confirmed covid19 negative than only he could be deployed on work. If anyone, having any kind of covid19 symptom, first the local authority will be informed than if permitted person could kept in our own isolation facility with medical support as directed by local authority.





Screening and Testing for Covid19

All individual including visitors who are directly or indirectly engaged with construction and office activity screened twice a day and their records are being maintained. The body temperature of every individual is being taken by infrared thermometer before boarding (if person is travelling by company owned vehicle) and/or at project and office entry point and again while exiting the company premises and re-boarding (if) company vehicle. If any kind of covid19 symptom observed including slide rise in body temperature, immediately person is being escorted to medical facility and further required action are being initiated by medical staff.



Sanitisation and Personal Hygiene

Sanitisation is one of most important prodigies to stop and prevent the spread of covid19. All the offices and construction area being sanitised extensively including vehicle and construction equipment. All probable surfaces being sanitised frequently like offices lift buttons, chair handles, washroom, doorknob, etc. are sanitised at regular interval every day. Special derive on personal hygiene is continually being carried for all employees and workmen. Hand washing facilities sanitisation arrangements were constructed additionally in adequate number to achieve 100% hygienic practices as suggested.



Information, Instruction and Training

Information, instruction and training on covid19 are the extreme important in fight against covid19. Realising this, aggressive program on information, Instruction and training are being carried out throughout the AFCONS. Numerous measures like, poster display in different languages, adequate instructions, training online and classroom training, toolbox talks, etc being organised on daily basis to educate all stakeholders.





Workmen retention Protocol





As country has witnessed a huge migration of workforce during lockdown, it became utmost important to provide all workmen insufficient and nutritious food, clean and hygienic accommodation, medical support in need, regular check-up, etc. Afcons came out with a comprehensive protocol to provide all these to all workforce to earn their believe. Complete guidelines were issued to all project sites related to cleaning, mess and eateries hygiene, purchase of grocery and other essential.

Conclusion

All the timely initiatives taken by Afcons have paid us back in terms of a huge dividend. The workers migration from project site was recorded minimal, effectively able to deny the entry of covid19 among Afcons existing employees and staff. All new workers who joined the project site were provided proper training, information and screened at right time and right point. Hence, Afcons strategic approach in prevention and control of covid19 spread not only helped company but also it has abetted to community and nation at a large.

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COMMITMENT TO PROCESS SAFETY

ANINDA DEV- Associate General Manager
Head HSEQ & Facility Management, Lanxes India Pvt. Ltd., Mumbai
Email: onkardb4@gmail.com

In continuation on the subject of process safety management- the most critical element of any chemical industry with a manufacturing potential, I shall in this article try to elaborate the first key constituent of a PSM which is the **commitment towards process safety.** As I write this article, the memories of the gas leakage incident near Visakhapatnam from LG Polymers industry & the severe consequences to the community that followed is still fresh in our minds.

When we say commitment it does not only indicate dedication or devotion to any particular subject, but also it is inclusive of the urgency to **act** upon that commitment! Therefore, I would rather extend this to say, just commitment is not enough-the industries needs to act simultaneously!

Broadly, to commit on the process safety the industry should focus upon:

- **Process safety culture**
- **Compliance with standards**
- **Process safety competency**
- **Workforce involvement**
- **Stakeholder outreach.**

Process Safety Culture & its importance:

All organizations possess a "culture" which is neither written or documented neither stated. It is a culmination or a mix of values, customs and a mix of formal & informal rules. A safety culture can be best defined as the shared attitudes, beliefs, values and behaviors relating to the subject of importance (here it is process safety). As the group reinforces the value proposition, embraces it, get accustomed to its benefits the "culture" gets embedded & integrated into the organizational dynamics.

The culture part is very important because it helps the organization to:

- Establish & enforce high standards of process safety culture
- Maintain a sense of harm or vulnerability
- Ensure proper communication channels
- Provide timely response to process safety incidents and mitigate

The below table shall illustrate the culture determinant of Process Safety:

Weak Culture:

1 Has less value for process safety propositions

2 Little knowledge on process risks means to control it

3 Devotes minimal resources to control process Risks

4 Acceptance of poor process safety performance

5 Relies on management to identify hazards & take the action on process hazards.

Strong Culture:

1 Integrates process safety in the organization as a Core value proposition

2 Has clear focus on process hazards & risks with mitigation plans

3 Proposes adequate resources proportional to the risk perceived

4 Seeks continual improvement

5 Employees are involved to identify hazards and take decisions without involving the management.

Process safety cultural evolution is continual. The need for it will apply to those organizations which initially lacks the culture or immature to it. As the evolution proceeds, the need for guiding & monitoring it by leadership is of paramount importance. The following key principles should be addressed while developing, evaluating or improving any management system for process safety culture

To maintain a sustainable practice:

Broadly this can be achieved by establishing & enforcing high standard of performance in process safety with leadership drive.

Developing & implementing strong culture:

This part takes time which is proportional to the priority given by the leadership on this topic. The key ways to develop & implement sound culture would encompass by empowering professionals on their responsibilities, establishing a learning & open environment with adequate means of effective communications. Timely response to process safety issues and fostering mutual trust also helps expedite the evolution of a strong culture.

Monitoring the progress by evaluation and guiding for improvement

Without the evaluation & monitoring part the entire gamut of the evolution process on the cultural attribute shall not yield the desired outcome. The organization should maintain an eye on its performance to process safety. Relevant clear metrics addressing both leading & lagging indicators are to be tracked, trended and responded to. At regular frequency these metrics should be shared with leadership. Surveys on cultural progress also helps to find the gaps and indicate discernable trends.

Compliance with Standards

This topic evolves around the process for maintaining adherence to applicable standards, codes, regulations and laws. **Standard** is a system to identify, develop, evaluate, disseminate and provide access to applicable standards, codes, regulations and laws that impact process safety. The standard addresses both internal & external standards, the local and state rules or laws as applicable to process safety. It is important because compliances reduces industry legal liability, operate the plant in a safe manner and consistent implementation of process safety best practices gets automatically induced once attempts on ensuring conformance with compliance are taken up as activity.

Standards activity should begin early in the process life cycle to ensure the design meets the applicable codes. The MOC element should address changes initiated by the standards system and the auditing element evaluates the compliance actions that must be taken.

The expectation out of the compliance with standards outcome is the organization is able to derive an accurate, complete and updated assessable set of documents, data and information. Categories of information includes company guidelines, compliance codes, regulations & laws etc..

Key principles and essential features :

A standard system establishes a formal process of for maintaining institutional awareness about the obligations. The following key principles should be addressed when developing, evaluating or improving any system for this element:

Maintain a sustainable practice

This can be achieved carefully planning the implementation of the compliance standards. It has to be ensured that an informal procedure exist for implementation of standards. The roles & responsibilities should be clarified in the procedure. Furthermore, standards & obligations needs to get identified to comply with and more importantly the organization should depute competent personnel to ensure that the standards compliance practices remains effective.

Conduct Compliance work activities

This element encompasses the key deliverables on the actions required to ensure compliance related activities in the organization. Facilities or individuals users define their own requirements for monitoring interpretations, anticipated changes and new concepts related to the standard element. On an ongoing basis the standards system should identify all proposed obligations or existing requirements and make that information available to the stakeholders. The standard system should coordinate with the auditing and management review elements so as to ensure compliance scrutiny is possible at defined intervals.

The key aspect of training should be provided to impart the necessary knowledge for process safety individuals to understand the standards & achieve compliance.

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Follow Through on Actions, Use of Compliance data

The results of compliance status may guide the action by the company. If compliance is achieved, then no action is typically required beyond notifying the compliance to the interested parties. When the compliance is not achieved then management is informed and the activities to attain compliance shall begin. The highlight of this key element comprises of the updating of compliance documents and reports, communication of conformance to appropriate authority and to maintain compliance records. The objective of this element can be achieved by :

a) The number of compliance violations per year – A higher number may indicate the failure to implement compliance & standards

b) The number of non- conformance to non-regulatory standards which may indicate the break- down of the system or the auditing program towards internal standards

c) The average amount of time between the audit review & the close out of all action items – a large period of closure time indicate an inefficient program or a lack of follow up process in the organization.

Process Safety Competency:

The process safety competency is one of the five pillars of the Commitment episode to process safety. Developing and maintaining process safety competency encompasses three interrelated actions:

a) Continuously improving knowledge & competency

b) Ensuring the required information available to those who need it

c) Consistency of approach

The main product of the competency element is the understanding and interpretation of knowledge that helps the organization to arrive at better decisions. The basic key principles and features for competency chapter in the commitment pillar on process safety management is:

Maintain a dependable practice:

Almost all companies profess to be learning organizations that aspire to a high degree of competency. However, those that are successful in this pursuit foster learning by establishing objectives and making plans to achieve these objectives. Fundamentally, we can sum of the following activities towards accomplishing sustainable or dependable practice on competency in an organization-

a) Developing a set of measurable objectives for maintaining and enhancing process safety competency.

b) Assigning responsibility for championing efforts to maintain & enhance process safety competency.

c) Based on the target set of objectives, identify to fund activities that are likely to support progress toward organizational objectives that promote competency.

d) To develop a learning plan

e) To promote a learning organization.

Enhancement of competency through activities

Plans, objectives, budgets alone are normally insufficient to bring about positive change. They need to be transformed into actions that improve competency. To again accomplish this the organization should adopt the following for best outcome:

a) Appointing a person to be responsible for maintaining the collective knowledge regarding each process, including process safety knowledge.

b) To create a technology manual for documenting the history of the process as well as knowledge that is critical to maintaining process safety competency.

c) Easy accessibility of the documented information.

d) Regular review and update of documents as required.

e) To solicit knowledge from external sources.

f) Consideration individual & organizational competency in succession planning.

Evaluate and Share Results

It follows from the principle of plan-do-check-act concept. Companies that frequently check the value derived from the activities that are part of the competency element are more likely to succeed. Periodical evaluation or management review helps to examine the benefits derived out of the work activities. The process safety professionals with other operating professionals together can identify needs and promote new initiatives based on the results from the evaluation. Plans can also be adjusted or resources reallocated based upon the periodic evaluations with senior management & process safety teams.

Thus a formal process should be in place to periodically evaluate the outcome of the process safety activity on the competency and shared with senior management for adjusting the priorities and resources.

Work Force Involvement

The next aspect I would discuss in this article is on the workforce involvement contributing to the commitment of process safety management. Workers at all levels or positions in the organization should have a defined role in this topic of discussion. An effective workforce involvement indicates towards developing a written plan of their participation and consultation. Work force involvement provides for a consultative relationship between workers and the management. There should be considerable space whereby the worker can provide the inputs. This opens up the responsiveness, mutual trust, individual empowerment and effective communication means.

How it is done?

The process of involving the workers normally can be done by (1) identification of the more common roles that workers can contribute in the implementation of RBPS management system and (2) the mechanism to facilitate this participation.

The anticipated result from the workforce involvement could be but not limited to

- Defines the roles & responsibilities of all involved
- Meets the potential needs of all the areas of process safety management
- Provides workers the necessary information on the potential hazards to which they are exposed.
- Their support to implement the elements of the RBPS management system.

Some guidelines to conduct work activities under the Work Force Involvement topic can include :

a) Constitute a job safety observation program for workers

b) Implement a suggestion submission and response program on any RBPS element

c) Strive to motivate a broad range of participants

d) Budget time into work schedules to allow workforce members get involve in the activities

e) Institute a formal mentoring program in which the senior experienced operators assist in the development of their juniors

f) Conduct process technology and safety workshop annually with significant work force involvement.

As the work force involvement in the organization takes its shape, it has to be ensured that their involvements are in practice and also is effective. For that key metrics for monitoring the performance and effectiveness of the workforce such as lagging and leading indicators needs to be tracked.

Timely resolution of and improvement opportunities for any workforce involvement performance issues should be identified by the metrics. Contract workers should participate on an ad-hoc basis, particularly those who are directly exposed to process hazards. The organization should communicate to publicize if notable success is achieved in the workforce involvement.

Stakeholder Outreach

The stakeholder outreach is the last element of discussion in this article on Commitment to Process Safety.

This is a process for

- Seeking out individuals or organizations that can be affected by company operations and engaging them in a dialogue on process safety
- Establishing a relationship with community organizations, other companies and professional groups, and local, state authorities
- Providing accurate information about the company products, processes – their hazards & risks.

This element also encourages the sharing of relevant information and lessons learned with similar facilities within the company and with other companies in the group.

The stakeholder outreach topic is important as by sharing relevant information with industry peers it will help promote better process safety for all. Sharing information in proactive ways with community and the government stakeholders build trust and commitment. By promoting openness & responsiveness, an effective outreach program will increase all stakeholders confidence in the company.

Companies train key personnel to interact with important stakeholder groups during planned events. Crisis communication and outreach training is provided to senior management to help deal with episodic events.

Higher risk situations usually demands a greater need for formality and minute detailing of the outreach element while companies with lower risks may decide to pursue outreach activities in less rigorous fashion.

Steps towards implementation of the stakeholder outreach element include:

a) Identify communication and outreach needs: which is done by figuring out the relevant stakeholders and defining the appropriate scope of the communication topics. Crisis communication plans should anticipate situations in which the company may need to rapidly increase its outreach efforts and engage resources.

b) Conduct of communication or outreach activities: This can happen once the stakeholder groups are identified and key audiences are targeted. The appropriate channels of communication should be identified as a myriad pf opportunities exist for interaction between company & stakeholders. Proper tools of communication thus developed can convey the right messages, most appropriate media to employ and select the best design of the communication products. Appropriate information sharing and maintaining external relationships forms the few other major highlighted areas in this topic.

c) Follow through on commitments and actions: One of the best way to develop trust is to consistently deliver on promises. Companies should be careful on the commitments made and even more cautious to follow through those commitments. Feedback received from stake holders on concerns etc should be tabled before management on an appropriate and timely response. Documenting these activities helps to ensure institutional memory. The communication issues can frequently provide insights into the stakeholder perception on the subject. These feedback should be used to revise or modify future outreach plans with stakeholders/community.

Reference:

1) CCPS guidelines on RBPS
2) Community awareness and emergency response guide (CAER)
3) The Chemical Safety Information and Site security
4) UK Employee Involvement in Health & Safety

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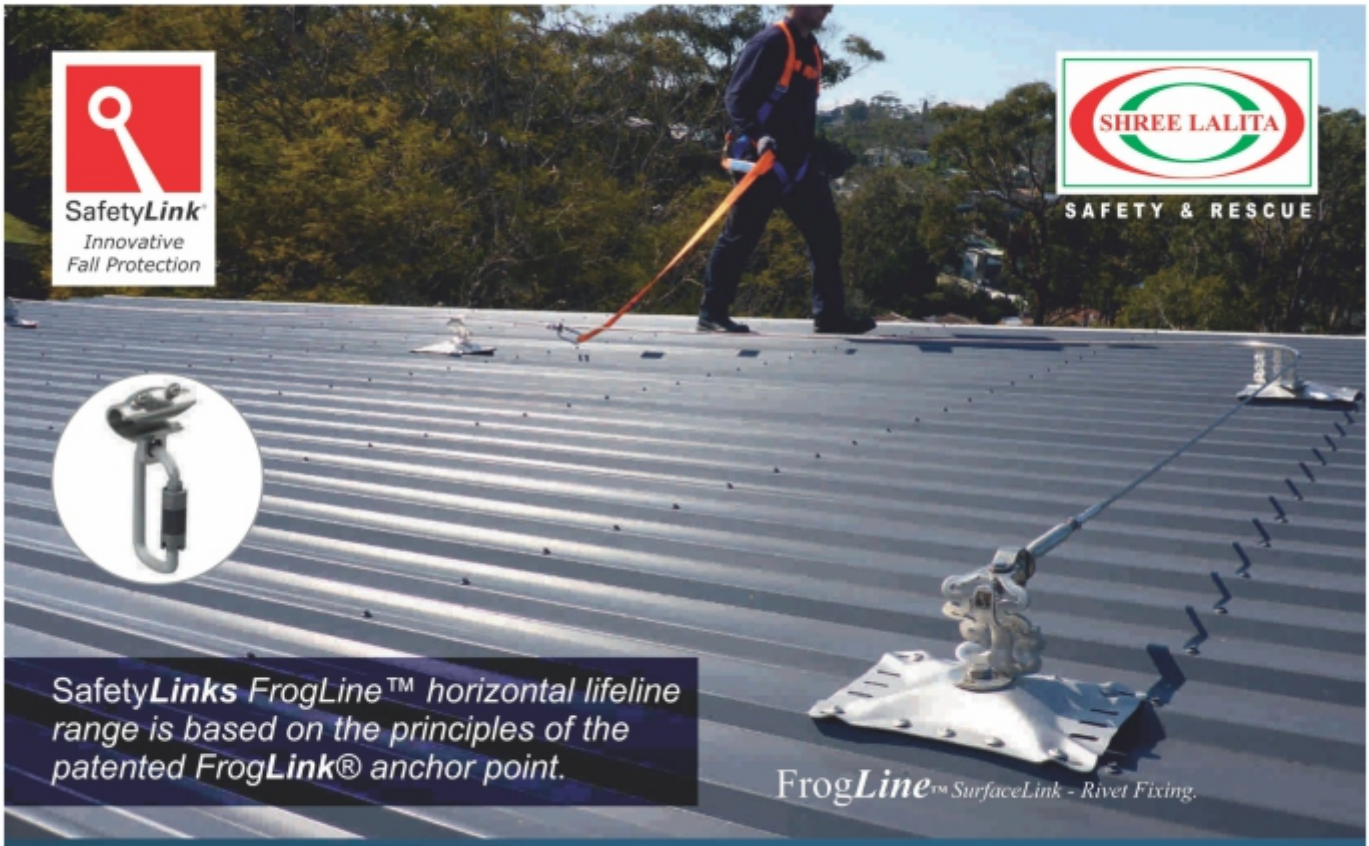
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