

Key to controlling the spread of COVID-19

STAR HEALTH REPORT

Contact tracing to rapidly isolate people who could be infected with coronavirus disease 2019 (COVID-19) reduced the length of time people were infectious in the community over 4 weeks (from 14 January to 12 February 2020) in Shenzhen, China, according to a study published in The Lancet Infectious Diseases journal.

In Shenzhen, authorities identified who to isolate based on their contact with confirmed cases, as well as isolating people who already had symptoms. The new study finds that contact tracing increased the speed at which new cases were confirmed by 2 days (an average of 5.5 days initially, reduced to 3.2 with contact tracing). It also reduced the amount of time it took to isolate infected people by 2 days (from an average of 4.6 days down to 2.7). There were only three deaths in the study group during the study period.

On January 8, 2020, authorities began to monitor travellers from Hubei province for symptoms such as a fever and cough, and after 2 weeks expanded to monitor people without symptoms as well as the wider community. Suspected cases and



their close contacts provided nasal swabs, which were tested for coronavirus at 28 local hospital and 12 other centres. People with symptoms were isolated and treated in hospital before their test results were known, and those without symptoms were quarantined at dedicated facilities. Close contacts who tested negative were quarantined at home or in a dedicated facility and monitored for 14 days.

"The experience of COVID-19 in the city of Shenzhen may

demonstrate the huge scale of testing and contact tracing that's needed to reduce the virus spreading," says Dr Ting Ma from the Harbin Institute of Technology at Shenzhen, China. "Some of the strict control measures enforced here, such as isolating people outside their homes, might be unlikely to be replicated elsewhere, but we urge governments to consider our findings in the global response to COVID-19. To achieve similar results, other countries might be

able to combine near-universal testing and intensive contact tracing with social distancing and partial lockdowns."

For people who were isolated because they showed symptoms of COVID-19, it took an average of 4.6 days for them to be isolated following the first signs of infection. Contact tracing reduced this to an average of 2.7 days. For people diagnosed with COVID-19 after being contact traced and tested (87 people), a fifth (17 out of 87 people) had

not yet developed any symptoms, and 30% (25 out of 87) did not have a fever.

Contact tracing also reduced the length of time between someone first experiencing symptoms and being diagnosed. It took an average of 5.5 days if people were only tested after they reported symptoms, but with contact tracing there was only a delay of an average of 3.2 days between the first symptoms and a confirmed diagnosis.

In this study, transmission was most likely between people who shared a household, but not all close contacts caught COVID-19, with only 11% of close contacts of this kind developing the disease. Of close contacts who travelled together with an infected person (for example on a plane, bus, train or boat), an average of 6% developed the disease. Of close contacts who shared a meal with an infected person, an average of 9% developed the disease.

The authors note that these transmission rates will be higher in other countries, where measures such as isolation outside the home might not be as strict or rapid. These data do not give any insights into why some cases cause higher levels of transmission than others.

TUBERCULOSIS

The COVID-19 pandemic must not divert attention

If resources are diverted away from child and adolescent tuberculosis (TB) programmes in order to fight COVID-19, the consequences for the estimated 400,000 children and adolescents in the African region needing TB and multidrug-resistant TB care each year could be devastating, warned the International Union Against Tuberculosis and Lung Disease (The Union) recently.

As the coronavirus pandemic makes its way into the African continent, there are concerns about its potential impact on the large number of children and adolescents living with TB infection or disease across the region. TB is both curable and preventable but remains a major cause of morbidity and mortality in children and adolescents and has only recently been afforded the attention that was long overdue.

An estimated one million children fall ill with TB every year, and one-quarter of all people with TB disease in the world live in Africa. In 2018, of all the people living with HIV in the world who developed TB, 72 percent of them were in Africa. And Sub-Saharan Africa accounted for 82 percent of all HIV-associated TB deaths that same year.

Worldwide, 90 percent of children who die from TB do not receive the standard treatment that could save their lives. This oversight is due to various challenges in TB detection in children and because standard diagnostic tools are less effective. TB is an often undiagnosed or misdiagnosed cause or co-morbidity of common childhood illnesses such as pneumonia, malnutrition and meningitis. Adolescents with TB are also neglected, despite being identified as a high-risk age group for developing highly infectious TB, and having age-specific challenges to accessing diagnosis and care.

The Union is calling on donors and partners to continue to support TB care and prevention responses – including a focused effort on child and adolescent TB. The Union is also calling on national TB programmes and ministries of health to keep TB and comorbidities on the agenda during the COVID-19 response.

HEALTH bulletin



The intelligent knife: new approach to cancer surgery

Scientists have developed an 'intelligent knife' that can tell surgeons immediately whether the tissue they are cutting is cancerous or not. An international team speculated that the metabolic status of tissue, as assessed by mass spectrometry, might aid in this process.

A handheld diathermy device was applied to tissue from the cervix to create a small "surgical aerosol" of compounds that was transferred through a suction tube to a mass spectrometer and analysed immediately. Evaluated tissue samples included 16 healthy cervical specimens, 50 human papillomavirus (HPV)-positive specimens (with or without cervical intraepithelial neoplasia), and 21 cervical cancer specimens. The mass spectrometry patterns (particularly lipid metabolite analysis) distinguished the three types of tissue with 100% sensitivity and specificity.

The authors envision a future where a diathermy wand with a tube sucks aerosolised tissue into a mass spectrometer in the operating room and identifies tissue that should be biopsied or resected, in real time. To reach that goal, this technique first will have to be tested on many more samples to confirm its accuracy and to determine the circumstances in which it is most useful. Finally, it remains to be seen if this technology can aid in identifying other precancerous lesions and other types of cancer, beyond cervical cancer.

Role of Zinc and Selenium in boosting immunity

FAHMIDA HASHEM

Almost all nutrients in the diet play a crucial role in maintaining an optimal immune response, and both insufficient and excessive intakes can have negative consequences on the immune status and susceptibility to a variety of pathogens. Among the most important ones are zinc and selenium.

Zinc is a vital trace mineral for the immune system. The ability of zinc to boost immunity in certain disorders has been backed up by numerous studies over the past few decades. A study conducted by Ohio State University has found that zinc can stop the immune system from getting out of control and causing serious problems after 'sepsis' which is a life-threatening condition in which the body attacks its own organs and cells falsely to fight off infection.

We have no specialised zinc storage system in our body which means we must take it every day. Zinc is present in a wide variety of foods, but it is important to remember that phytates can bind zinc and inhibit its absorption. Phytates are found in whole-grain bread, cereals, and legumes. This means that zinc contained in grains and plants is not as well absorbed as zinc found in seafood and meat. Examples of foods that are high in zinc are oysters, beef, crab, lobsters, fortified cereal, pumpkins seeds, yoghurts, cheese, oatmeal, and peas etc.

So what evidence is there to support taking zinc for COVID-19? There have been hundreds of studies investigating zinc for the common cold. Zinc can inhibit the binding

of the cold virus to cells within the nasal mucosa and suppress inflammation. COVID-19 is a new disease, and we are still learning about it, so to date, there has not been any specific studies of zinc for COVID-19, and we can only look at its effects in other conditions. A Cochrane review of 18 studies found zinc lozenges (at least 75mg/day) administered within 24 hours

as an antioxidant in the extracellular space, the cell cytosol, in association with cell membranes and specifically in the gastrointestinal tract, all with the potential to influence immune processes. Selenium influences both the innate, 'non-adaptive' and the acquired, 'adaptive' immune systems. Foods high in selenium include nuts, tuna, oysters, beef, chicken, tofu, whole wheat pasta,



of the onset of symptoms reduced the duration of cold symptoms in healthy people. Zinc also showed to inhibit the activity and replication of another coronavirus (SARS-CoV which caused an outbreak in 2002) in the laboratory.

Selenium is basically another trace element naturally present in the human body. Dietary selenium has been found to play a role in the immune treatment of viral and bacterial infections. Selenium acts

shrimp, and mushrooms. Scientists have found that people who are malnourished or follow poor diet habits depleted of essential nutrients are more prone to develop infections and diseases than those who do not. So, following a healthy diet is very important as our immune system needs adequate nourishment and nutrients to fuel itself and fight off foreign intruders and disease.

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How COVID-19 patients can avoid ICU management

PROF M KARIM KHAN

We know that intensive care unit (ICU) is for critically ill patients. We also know that we have a scarcity of ICU beds as well as specialists in critical care management in Bangladesh. There are approximately three beds for every 1 million population. Needless to say that it is also very expensive. Data states that about 20% of COVID-19 patients need hospital management and out of 20%, only 5% needs ICU management. Unfortunately, 87% of the patients died who received ventilatory support.

If COVID-19 patients do not have any serious comorbidity they do not require hospital management. Home quarantine for fourteen days and supportive treatment as per symptoms, light exercise, gurgling with lukewarm water, and nutritious food intake is enough to cure them. Those who develop pneumonia need broad-spectrum antibiotics, similarly used in community-acquired pneumonia. But those who develop respiratory distress need hospitalisation and high flow oxygen. Nebulisation with bronchodilators may also be needed. COVID-19 is very contagious but it is not deadly if we take adequate precautions. We need mental strength, proper hygiene practice and supportive treatment if affected.

So to avoid the need for ICU care we need abundant oxygen supply, nebulisation machines and timely supportive treatment in case of hospitalisation. COVID-19 does not have any vaccines or specific treatment to date, so stay home and stay safe.

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HOW TO HOME QUARANTINE

The home quarantined person should:

Stay in a well-ventilated single-room preferably with an attached toilet

Needs to stay away from elderly people, pregnant women, children

Restrict his/her movement within the house

Under no circumstances attend any social/religious gathering

Wash hand frequently with soap and water or with alcohol-based sanitizer

Avoid sharing household items like dishes, glasses, cups, utensils, towels, bedding

Wear a surgical mask at all time. The mask should be changed every 8-8 hours

Dispose off used mask in a closed bin and bin should also be handled responsibly

If symptoms appear, he/she should immediately inform the nearest health centre

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