

COVID-19 and Urban Pests

How will the COVID-19 pandemic influence urban pests and the industry to the future?

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Without a doubt, the current COVID-19 pandemic is the single biggest threat that humanity has faced since World

War II. Although human-induced climate change is without a question the greater danger to the long-term health of the planet, it has been the sudden onset of COVID-19 that has been so shocking and devastating. Already at the time of release of this article (1/May/2020), the number of reported cases has passed 3.3 million with over 230,000 deaths. Some experts believe the actual number is 5-10 times as many, as some countries have undertaken limited testing. By the time you read this article, the number of cases will sadly be many, many more. The question is when will it end? Some commentators have even suggested up to *200 million deaths* worldwide. Hopefully the physical distancing and isolation policies that are in place around the world will prevent the current tragedy from reaching these spine-chilling proportions.

Presently across the globe, researchers are in a race to overcome COVID-19. There are some 47 different groups attempting to create a vaccine and around 200 projects on developing anti-viral drugs. While we may not totally defeat COVID-19, like smallpox, we will hopefully minimize its

impact in the not too far distant future. Yet the impact of the pandemic will be evident for years and even decades to come.

But what influence will the COVID-19 pandemic have on urban pests? Already there are reports on an increase in observations of rodent populations from the United Kingdom, New Orleans in the US, and in Malaysia. The closure of so many shops, restaurants, and other facilities has forced rats and mice to hunt for new food sources, making them more noticeable on the street and increasing the likelihood of them coming into the home. Once in the building and human dwellings, the rodents are going to find an ample food source due to people's panic buying and hoarding activities.

With so many uncertainties ahead, this article considers and speculates on the implications of COVID-19 to the future of urban pests and the industry as whole.

Firstly, it is important to note that blood-sucking arthropods such as mosquitoes, ticks and bed bugs, do not and cannot transmit COVID-19. While some of these creatures can pass on a group of viruses known as the 'arboviruses', these are highly evolved microorganisms that have

developed a protein coat that can recognise and combine with the gut wall of the arthropods. The arbovirus can then enter the body of the arthropod, replicate in the salivary glands and be passed onto other creatures including humans during subsequent blood feeds. Viruses that have not evolved this coat are quickly broken down by gut enzymes. Furthermore, COVID-19 is not a blood-borne disease, it is a respiratory virus transmitted via droplets and contact with contaminated surfaces. This means that all future impacts of COVID-19 on urban pests will be indirect and relate to changes in human movements and economic damage to the world.

It is difficult to speculate what will happen to certain pest groups. In the case of bed bugs, with the number of travellers reduced to almost zero, and with hotels and motels being virtually empty, we could see a reduction in the bed bug problem. Yet bed bugs are resilient creatures, they can live for up to five months at 22°C and even longer in colder climates or when heating is turned off. When starved for an extended period, they will search for a new blood source and so existing infestations may spread to other rooms. This could then rapidly reignite the modern bed bug resurgence once life goes back to normal. Now would be a great time to ensure that all infestations are eliminated!

As noted above, rodents may move out of those areas where humans are less frequenting, such as shopping centres, restaurants and other food serving areas. We may then expect an increased rodent problem in more urban areas. Interestingly, in some countries there has been an increase in pests in restaurants after the shutdown. American cockroaches are coming up through drains as they are not flushed out on a continual basis and rodents are being more frequent in restaurant ceilings, presumably because it is quiet inside. This means that when the restaurant reopens there could well be immediate pest problems and food contamination issues. In fact, in some nations, there has been an increase in 'clean out' services as businesses are reopening.

In addition, the lock down orders presently imposed by many countries have forced people to stay indoor for weeks, if not months. Heating systems are now used for longer hours, especially in houses and apartments in temperate climates where the temperature is still relatively low at this time of the year. The availability of food debris and leftovers in the house due to lack of cleaning, coupled with the warmth will make the houses very attractive to rodents and pest ants.

All Health Departments, especially in Southeast Asia, are presently channelling almost all their staff and resources into managing the COVID-19 pandemic. This reduces the availability of funds to tackle vector-borne diseases such as dengue and malaria. Meanwhile, the cases of dengue have spiked over the last three months. For example, Singapore has had 5,792 cases with five deaths (as of 28/Apr/2020). These cases were much higher than those of the corresponding period last year. It is imperative that in the midst of battling COVID-19, we must try to sustain our vector control efforts for prevention of these deadly mosquito-borne diseases.

However, the biggest influence that COVID-19 will have on urban pests will be economic.

The United Nations (UN) has estimated that the COVID-19 pandemic will cost the global economy at least USD\$1 trillion dollars. This staggering figure can be written as one million million or \$1,000,000,000,000; a number that is mind bogglingly difficult to comprehend. More recently, the Asian Development Bank has suggested the cost could go as high as USD\$4.1 trillion. Every day that we wake up to more news of the bears clawing at the stock market and in the early months of 2020, the global gross domestic product has already fallen by USD\$3.2 trillion dollars. Unemployment is rapidly rising and predicted to be higher than the Great Depression of the 1920s. The present pandemic has caused a massive number of the working class to lose their jobs. As of 1st May, 2020, the number of jobless claims filed in the US has passed over 30 million people. With fewer people in work, many businesses will be bankrupted without major

government support. It is expected that home loan defaults will be a record high and much greater than the 2008 global financial crisis. Most countries are now facing a recession and it is predicted that global poverty will rise by 3%. Some economics speculate that it will take 10 years for the global economies to recover from the present COVID-19 pandemic.

With poverty, the only winners will be urban pests. Think of the bed bug example above; while the modern global resurgence began in the hospitality industry, namely in backpacker lodges and hotels, bed bug infestations quickly spread throughout society. The most impacted has been those in low-socioeconomic housing, where tenants do not have the fiscal resources to pay for control and thus infestations go uncontrolled, and rapidly spread. There are many low income housing complexes where literally every apartment has become infested with bed bugs.

Many other urban pests thrive in poverty, not only rodents and cockroaches, but also birds, pest ants, along with a range of other vertebrate and arthropod pests. An increase in poverty also means a greater reservoir of vermin that can then spread to the wider society. Hence we can expect an increase in urban pest issues in the upcoming years.

Will this then translate into increased business opportunities for pest management companies? We are pessimistic at this stage. So far, pest management operators have largely been unaffected by the COVID-19 pandemic with most companies suffering less than a 5% drop in business, as sanitation and disinfection services have been in great demand. But this is unlikely to continue.

During this lock down period, all non-essential businesses that normally require pest management services are closed. Most restaurants now only offer take-away and no dine-in services. Business offices are shut-down and staff mandated to work from home. Shopping malls and department stores are closed. We speculate that in the months to come, the number of pest management accounts to be

terminated could also rise.

The number of premises that could be serviced by pest management professionals (PMPs) per day also is reduced. Because of the mandatory safety measures set by the management of building premises to avoid transmission of COVID-19, many precautions that were not required before the pandemic are now in place. Most service technicians are now mandated to wear fresh PPE, and bag it after they complete the job, before moving to the next premise to avoid potential cross-contamination. With the inadequate supply of PPE worldwide at present, this poses a major challenge to pest management companies to properly equip their service technicians.

Due to the fear of contracting COVID-19, the present pandemic also has created suspicion and wariness among people, plus we are warned to maintain our social distance at all times. Home owners may therefore not welcome PMPs in entering their homes for the treatment for pests such as German cockroaches. The lack of treatment over several months could lead to an increase in the amounts of indoor allergens, which in turn could lead to a higher risk of homeowners developing health issues such as allergies and asthma.

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The training of PMPs has also been disrupted by the pandemic. Most conferences and workshops had been either cancelled or postponed to 2021. Due to the need for PMPs to fulfil their continuous education units, many conferences and training seminars have opted for online learning, but such programs lack any practical assessment. This will seriously impede the learning process of PMPs and will directly affect their professional development.

In order to prop up the waning economy and the massive unemployment, governments

around the world have had to release huge cash amounts in stimulus packages to keep struggling people alive. For example, the US alone has released USD\$2 trillion to support the nation. Already this government has an extraordinary USD\$25 trillion debt and such amounts are unsustainable to the future.

Without further cash injections, economies will collapse and people will starve. But where will this money come from? While governments can and will continue to borrow, ultimately additional funds will only come from those that are working, namely the tax payers. Thus economic belts will have to tighten and taxes are expected to rise. This means that the average householder will have less spending power and less money to devote on such things as regular pest treatments, with fewer annual checks and a greater reliance on DIY pest solutions.

Furthermore, with the race to defeat COVID-19, we can expect future research funding to be directed towards virological research, as what happened during the AIDS/HIV crisis. The main difference between HIV and COVID-19, is that the latter affects everyone and thus we can expect a greater pot of the money to go towards COVID-19 investigations. This means that research funding on urban pests will likely suffer, leading to fewer innovations and a reduced pool of experts.

With the global attention on COVID-19, climate change is presently being ignored. The irony is that with the shutdown of various industries, the reduction in greenhouse gases may mean that the Paris Agreement may be met this year. With global economies slowing down, there will probably be less impetus to tackle climate change, particularly with conservative politicians who continue to ignore the body of evidence of the anthropogenic cause of the phenomenon, i.e. climate change being caused by human activities.

Climate change has been linked to a number of pest problems. This includes the spread of mosquito vectors through Europe and the Americas to regions that were once too cold

to support the mosquito population. We have seen ticks become active in winter months with the rise in temperatures causing animal deaths. Insect life spans are shortened with warmer weather and insecticide resistance evolves more rapidly. The world food crops are under increasing pressure as pest populations increase and are becoming harder to control with fewer effective insecticides. We can only expect pests to proliferate with a warming world.

One positive aspect of the COVID-19 pandemic has been the increased cooperation between nations. Could this mean that defence expenditure will be reduced and used in a more positive sense for saving lives, improving the economy, and further ameliorating the effects of climate change? Only time will tell. However, with the failure to rapidly tackle the COVID-19 pandemic, especially in the US and European countries, the cost blow-out has been enormous. This could lead to a shift in world powers and a change in the economic powerhouse of the world. The paranoia that some countries feel about this will mean defence expenditure is likely to increase, which means that there will be even less money available for the global good, less money to everyone, and less money going towards the control of urban pests.

Sadly, we are living in dark times and the light at the end of the tunnel is yet to be seen. Our fundamental way of life has been altered forever. How will the pest management industry adapt to the changing face of the global economic fortunes? Who knows, but the times ahead will be challenging. Unfortunately what is clear is that the future remains very uncertain. ■

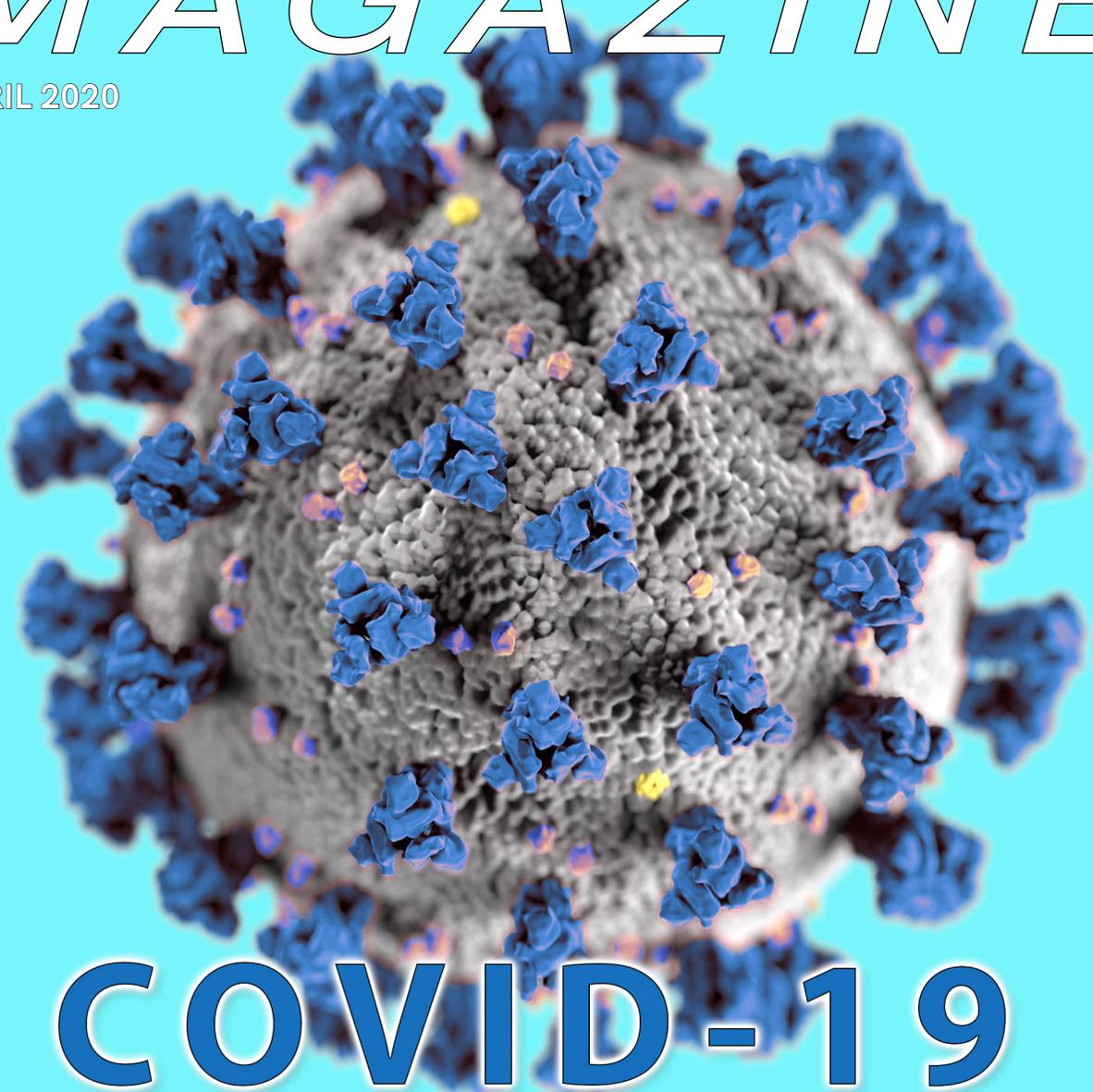
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