A DETAILED REVIEW ON THE TRANSMISSIBILITY OF COVID

Dr.Aishwarya S Assistant Professor[1],

Dr.Nithya P Associate Professor[2]

Meenakshi Academy of Higher Education and Research

aishwarya@mmchri.ac.in

Abstract:

The 2019 Coronavirus disease (COVID-19), caused by extreme ART 2 (SARS-CoV-2), has easily spread all over the world. At the end of June 2020, there were more than 5 million confirmed cases and over 500,000 deaths. The features of this disease show that SARS-CoV-2 can be spread by droplets extended during close contact and fomites. Potential airborne distribution was also envisaged in healthcare facilities because of such aerosol-generating practices [1,2]. After identification of the virus in stools, the position of the fecal–oral route in indoor environments must still be determined. Nevertheless, it remains important that fomites, direct contact and the alleged fecal–oral path are of relative significance. In clinics, there has also been major contamination. The CDC Weekly 2020 reports that 1716 of 44,672 COVID-19 cases in China reported their presence by 11 February, 2020. In order to protect health staff, it is also important to consider the risk of infection in a hospital setting.

Keywords: COVID 19, Transmissibility, Health workers

CONTAMINATION

Worldwide, SARS-Cov-2 has exploded and COVID-19 confirmations face a high risk of contamination. Infected patients usually undergo medication for at least 14 days in separate isolation wards. Any surface, particularly sometimes infected surface, may be contaminated by the virus [3–7]. Therefore, for disease control and sanitation reasons, surface pollution in wards should be controlled. In this respect, a fast RNA-free removal method has been used to detect surface contamination on the ward. The detection process was accomplished within 45 minutes from the processing of the surface sample to the measurement results. No effort is

ISSN 2515-8260 Volume 07, Issue 07, 2020

required in order for the nuclear acid extraction-free process. More specifically, the experiments took place on site and almost in real time. The test indicated that seven locations had been affected by 31 patients [8–10]. The sampled surfaces showed 72.7% fingertips, which indicate that this surface is a significant location for hygiene. The bedrails have meanwhile demonstrated the greatest association with other regions. The door handle in the bathroom was another high-risk surface. We are aware of the first on-site study of surface pollution COVID-19 in wards. The findings and the methodology used provide a possible additional guide for infectious prevention and hygiene recommendations [11–13].

VIRUS ON THE SURFACE

Previous studies have shown that the virus COVID-19 can live on the material surface of wardens. The researchers confirmed a reverse transcription polymerase (RT-PCR) chain reaction virus that normally deactivates the samples obtained, extracts nuclear acid and raises RT-PCR. Nucleic acid removal thus risks depletion of nucleic acid and sets a high identification cap on demand[14–16]. In addition, for one detection batch the entire nucleic acid process of extraction and amplification needs about 2,5-4 h. For on-site COVID-19 recognition in the setting, thus, a simple detection method should be employed. LAMP achieved brilliant success in the identification of pathogenic virus and was amplified within 45 minutes[17–19]. The LAMP assay also performs an amplification of nucleic acid without the need to remove nuclear acid, which avoids tedious RNA damage. In our present surface-contamination detection report we applied LAMP for these purposes. Patients with COVID-19 confirmed are held in rooms with multiple medical and living equipment for more than two weeks. Nosocomial transmission plays an important role, particularly in wards, in viral transmission and infection. Proven patients in custody will transmit infections or even breathlessness. Particles of expanded virus can sediment on the ward surface. Coronavirus transmission and dissemination are still unknown and are still being studied. We can help monitor the propagations of the virus and prevent cross-infections among patients or between patients and health care workers by systematically learn how the viruses contaminate the surface[20–22].

SPREAD OF VIRUS

In late 2019, a pandemic in the Hubei Province of China occurred due to Coronavirus 2 (SARS-CoV-3) extreme respiratory syndrome (COVID-19). This epidemic has easily spread to many parts of the globe causing over a million reported deaths by October 2020, causing major problems about any area of human life and severe social and economic implications[23–25]. The new coronavirus SARS-CoV-2 is closely linked with bats and pangolins, indicating that it arose in a Zoonotic.. Coronaviruses have a long history of transmission among cross-species, in which all the members of the seven coronaviruses that infect people are suspected of having zoonotic origins [26]. Besides the spread of coronavirus from animals to human being, cross-species coronavirus transmission among non-human animals has been confirmed. SARS-CoV-2 is expected to be transmitted in men mainly by direct airborne contact with droplets projected through coughing, snowing or chatting, and by indirect aerosol or fomita interaction[27]. Furthermore there has been concern that people can act as a means of transition of wild and domestic animals (reverse zoonosis) to animal species and non-human hosts can function as a source of human infections (zoonosis). Antarctica was the only continent that was expected to be SARS-CoV-2 free until mid-March2020. At least one optimistic tourist SRAS-CoV-2 visited multiple locations in the Antarctic peninsula at the end of the 2019–2020 touristy season in March. This highly mobile occurrence highlights the concerns that this virus may bring humans to the mainland through science or tourism[28–31]. The possible consequences of SARS-CoV-2 in Antarctica include those mostly related to human health and the potential possibility that the virus could be spread to Antarctic animals. In this article, we analyse the possible danger to Antarctic vertebrates from SARS-CoV-2 reverse-zoonotic transfer from humans to other species. In view of the fact that these elements are important for the emergence of SARS-coV-2 in the Angarctic environment we considered available knowledge about human host vulnerability and infection dynamics and risk for possible encounters between human and wild animals. We recognise significant information gaps, prescribe the precautionary principle to restrict SARS-CoV-2 transmission to Antarctic animals and suggest steps to minimise those threats[32–34].

DISCUSSION

Recent interruptions in waste control system have been made and the outbreak of the modern coronavirus has created a very bad problem (COVID-19). For this reason it has been especially important to treat contagious medical wastes as before[35–37]. Thus a novel mixed-integer linear programming (MILP) model was built in this study to formulation of the sustainable multi-trip location-routing issue with time windows in the COVID-19 pandemic (MTLRP-TW). Total travel time, total breach of time windows/service goals, and total infection/environmental risk to people around the disposal sites must be minimised simultaneously as possible. Time windows play an important role here in determining service priority in hospitals with multiple threats. To overcome the complexity, the proposed model is subject to a sparse, chance-controlled programming approach. The efficiency and implementation of the proposed model was analysed in a real case study in Sari city of Iran [38–40]. The municipality thus decides optimum vehicle preparation that takes 19,733 hours to complete processing, transport and disposal processes. In the last study of sensitivity, the conformity of the objective functions against the shifting of managed criteria is analysed and optimal policies are assessed and management observations in various situations are proposed. The new coronavirus outbreak (COVID-19), which presents health risks to the global population, is the current outbringing of an infection which has triggered a pandemic or emergency public health. By the end of March 2020, COVID-19 increasingly spread from Wuhan to other regions and infected 200 countries all over the world. This pandemic is now triggered by the exponential growth in the number of people infected and the inability of world leaders to pay initial attention to the COVID-19 pandemic. And we have had a crucial and difficult time in which the pandemic is regulated and avoided [1,41]. The incubation period which fluctuates from 3 to 14 days is one of the serious concerns about the outbreak of COVID-19. It is evident that an inadequate waste management scheme will increase the distribution of COVID-1 Another important concern is to manage COVID-19-related infectious medical waste generated in diagnosis and care of patients in health facilities, including hospitals and infirmiers, which is important for the supply of medical goods. With the the frequency of reported incidents, the quantity of medical waste in the COVID-19 region is rising substantially (HAZMAT). In other words, the treatment of medical waste is considered an effective means of handling the cause of contamination, strict development and standardisation of COVID-19 waste management. In the other hand, since much of this waste is made of plastic, if it is not handled properly and timely, it will place the atmosphere at risk. Therefore the possibility of an infection in hospitals and in infirmaries should be so closely considered as possible. This research designs a waste management system to handle waste generation, transport and disposal of associated COVID-19 waste at pre-established waste disposal areas effectively [9–14].

REFERENCES:

1. Tirkolaee EB, Abbasian P, Weber G-W. Sustainable fuzzy multi-trip location-routing problem for medical waste management during the COVID-19 outbreak. *Sci Total Environ*. 2021;756. doi:10.1016/j.scitotenv.2020.143607

2. Shen X, Cai C, Yang Q, Anagnostou EN, Li H. The US COVID-19 pandemic in the flood season. *Sci Total Environ*. 2021;755. doi:10.1016/j.scitotenv.2020.142634

3. Urban RC, Nakada LYK. COVID-19 pandemic: Solid waste and environmental impacts in Brazil. *Sci Total Environ*. 2021;755. doi:10.1016/j.scitotenv.2020.142471

4. Barbosa A, Varsani A, Morandini V, et al. Risk assessment of SARS-CoV-2 in Antarctic wildlife. *Sci Total Environ*. 2021;755. doi:10.1016/j.scitotenv.2020.143352

5. Zaneti RN, Girardi V, Spilki FR, et al. Quantitative microbial risk assessment of SARS-CoV-2 for workers in wastewater treatment plants. *Sci Total Environ*. 2021;754. doi:10.1016/j.scitotenv.2020.142163

6. Wan B, Zhang X, Luo D, et al. On-site analysis of COVID-19 on the surfaces in wards. *Sci Total Environ*. 2021;753. doi:10.1016/j.scitotenv.2020.141758

7. Ding Z, Qian H, Xu B, et al. Toilets dominate environmental detection of severe acute respiratory syndrome coronavirus 2 in a hospital. *Sci Total Environ*. 2021;753. doi:10.1016/j.scitotenv.2020.141710

8. Sugg MM, Spaulding TJ, Lane SJ, et al. Mapping community-level determinants of COVID-19 transmission in nursing homes: A multi-scale approach. *Sci Total Environ*. 2021;752. doi:10.1016/j.scitotenv.2020.141946

9. Yao Y, Pan J, Liu Z, et al. Ambient nitrogen dioxide pollution and spreadability of COVID-19 in Chinese cities. *Ecotoxicol Environ Saf*. 2021;208. doi:10.1016/j.ecoenv.2020.111421

10. Rowan NJ, Laffey JG. Unlocking the surge in demand for personal and protective equipment (PPE) and improvised face coverings arising from coronavirus disease (COVID-19) pandemic – Implications for efficacy, re-use and sustainable waste management. *Sci Total Environ*. 2021;752. doi:10.1016/j.scitotenv.2020.142259

11. Zhang S, Ai Z, Lin Z. Occupancy-aided ventilation for both airborne infection risk

control and work productivity. *Build Environ*. 2021;188. doi:10.1016/j.buildenv.2020.107506

12. Shakoor H, Feehan J, Al Dhaheri AS, et al. Immune-boosting role of vitamins D, C, E, zinc, selenium and omega-3 fatty acids: Could they help against COVID-19? *Maturitas*. 2021;143:1-9. doi:10.1016/j.maturitas.2020.08.003

13. Hughto JMW, Peterson L, Perry NS, et al. The provision of counseling to patients receiving medications for opioid use disorder: Telehealth innovations and challenges in the age of COVID-19. *J Subst Abuse Treat*. 2021;120. doi:10.1016/j.jsat.2020.108163

14. Allen J, Scully T. The cumulative risk of acquiring COVID-19 in outpatient pediatric practice. *Pediatr Pulmonol*. 2021;56(1):19-20. doi:10.1002/ppul.25144

15. Sakanashi D, Asai N, Nakamura A, et al. Comparative evaluation of nasopharyngeal swab and saliva specimens for the molecular detection of SARS-CoV-2 RNA in Japanese patients with COVID-19. *J Infect Chemother*. 2021;27(1):126-129. doi:10.1016/j.jiac.2020.09.027

16. Torrinhas RS, Calder PC, Lemos GO, Waitzberg DL. Parenteral fish oil: An adjuvant pharmacotherapy for coronavirus disease 2019? *Nutrition*. 2021;81. doi:10.1016/j.nut.2020.110900

17. Dehingia N, Raj A. Sex differences in COVID-19 case fatality: do we know enough? *Lancet Glob Heal*. 2021;9(1):e14-e15. doi:10.1016/S2214-109X(20)30464-2

18. Lee SJ, Kim J, Chae YS. Clinical Outcome of Breast Cancer Patients on Chemotherapy during the COVID-19 Pandemic in South Korea. *Clin Oncol*. 2021;33(1):e85-e86. doi:10.1016/j.clon.2020.07.018

19. Morgante G, Troìa L, De Leo V. Coronavirus Disease 2019 (SARS-CoV-2) and polycystic ovarian disease: Is there a higher risk for these women? *J Steroid Biochem Mol Biol*. 2021;205. doi:10.1016/j.jsbmb.2020.105770

20. Zou X, Fang Z, Xiong S. A discrete particle swarm optimization method for assignment of supermarket resources to urban residential communities under the situation of epidemic control. *Appl Soft Comput*. 2021;98. doi:10.1016/j.asoc.2020.106832

21. He R, Gao L, Trifonov M, Hong J. Aerosol generation from different wind instruments. *J Aerosol Sci*. 2021;151. doi:10.1016/j.jaerosci.2020.105669

22. Sun X, Xiao Y, Ji X. When to lift the lockdown in Hubei province during COVID-19 epidemic? An insight from a patch model and multiple source data. *J Theor Biol*. 2020;507. doi:10.1016/j.jtbi.2020.110469

23. Gómez J, Albaiceta GM, García-Clemente M, et al. Angiotensin-converting enzymes (ACE, ACE2) gene variants and COVID-19 outcome. *Gene*. 2020;762. doi:10.1016/j.gene.2020.145102

24. Experts Discuss COVID-19: Vaccine Allocation, Placebo Groups, and More. *JAMA - J Am Med Assoc*. 2020;324(23):2354-2355. doi:10.1001/jama.2020.24075

25. Shen C, Li Q, Wei Y, Li Y, Li J, Tao J. Management of immune checkpoint therapy for patients with cancer in the face of COVID-19. *J Immunother Cancer*. 2020;8(2). doi:10.1136/jitc-2020-001593

26. Kuehn BM. Pulmonary Fungal Infections Affect Patients with COVID-19. *JAMA - J Am Med Assoc*. 2020;324(22):2248. doi:10.1001/jama.2020.22914

27. Lancet T. An African plan to control COVID-19 is urgently needed. *Lancet*. 2020;396(10265):1777. doi:10.1016/S0140-6736(20)32580-0

28. Hutter H-P, Poteser M, Moshammer H, et al. Air pollution is associated with covid-19 incidence and mortality in Vienna, Austria. *Int J Environ Res Public Health*. 2020;17(24):1-11. doi:10.3390/ijerph17249275

29. Sm-Rahman A, Lo CH, Ramic A, Jahan Y. Home-based care for people with alzheimer's disease and related dementias (Adrd) during covid-19 pandemic: From challenges to solutions. *Int J Environ Res Public Health*. 2020;17(24):1-11. doi:10.3390/ijerph17249303

30. Ge J, He D, Lin Z, Zhu H, Zhuang Z. Four-tier response system and spatial propagation of COVID-19 in China by a network model. *Math Biosci*. 2020;330. doi:10.1016/j.mbs.2020.108484

31. Connor J, Madhavan S, Mokashi M, et al. Health risks and outcomes that disproportionately affect women during the Covid-19 pandemic: A review. *Soc Sci Med*. 2020;266. doi:10.1016/j.socscimed.2020.113364

32. Palaskas NL, Koutroumpakis E, Deswal A. COVID-19 and Cardiovascular Health Among Patients with Cancer. *Curr Cardiol Rep*. 2020;22(12). doi:10.1007/s11886-020-01421-y

33. AbdelMassih AF, Mahrous R, Taha A, et al. The potential use of ABO blood group system for risk stratification of COVID-19. *Med Hypotheses*. 2020;145. doi:10.1016/j.mehy.2020.110343

34. Wei Y, Yu C, Zhao TX, et al. The impact of the COVID-19 pandemic on pediatric operations: a retrospective study of Chinese children. *Ital J Pediatr*. 2020;46(1). doi:10.1186/s13052-020-00915-3

35. Vitiello A, Ferrara F. Pharmacological agents to therapeutic treatment of cardiac injury caused by Covid-19. *Life Sci*. 2020;262. doi:10.1016/j.lfs.2020.118510

36. Ranaweera P, Wickremasinghe R, Mendis K. Preventing the re-establishment of malaria in Sri Lanka amidst the COVID-19 pandemic. *Malar J*. 2020;19(1). doi:10.1186/s12936-020-03465-5

37. MacKinnon L, Socías ME, Bardwell G. COVID-19 and overdose prevention: Challenges and opportunities for clinical practice in housing settings. *J Subst Abuse Treat*. 2020;119. doi:10.1016/j.jsat.2020.108153

38. Pirnia B, Dezhakam H, Pirnia K, Malekanmehr P, Rezaeian M. Grief of COVID-19 is a mental contagion, first family suicide in Iran. *Asian J Psychiatr*. 2020;54. doi:10.1016/j.ajp.2020.102340

39. Safavi F, Nourbakhsh B, Azimi AR. B-cell depleting therapies may affect susceptibility to acute respiratory illness among patients with multiple sclerosis during the early COVID-19 epidemic in Iran. *Mult Scler Relat Disord*. 2020;43. doi:10.1016/j.msard.2020.102195

40. Taher M, Miroliaee A, Daryani NE, et al. Management of patients with liver transplant and chronic liver diseases during covid-19 pandemic: A brief review. *Arch Iran Med*. 2020;23(10):713-717. doi:10.34172/aim.2020.92

41. Kara M, Ekiz T, Ricci V, Kara O, Chang K-V, Özçakar L. “Scientific Strabismus” or two related pandemics: Coronavirus disease and vitamin D deficiency. *Br J Nutr*. 2020;124(7):736-741. doi:10.1017/S0007114520001749