



Covid 19 A Glass Half Full: A Dental Impression

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Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Covid-19 is the new pandemic in town whose silent steps took humanity by surprise. Dental fraternity is another one of its victims. Dwindling funds, clinics closure, life panic has been intertwined in life of dentists and been called as the “New Normal”. Some dental professionals have laid their lives in line of duty. To battle this adversity governments across the globe have stepped up and are aiding in revival of health sector with schemes like conferment of MSME status to dental Practices in India. It’s true that every calamity is another opportunity for growth, provided one has the vision for it. Same holds true for this Catastrophe also. It has served as a thread that has tied whole dental fraternity elucidating that “survival of one is dependent on other”. Knowledge sharing has seen a new light in these dark days. Digitalization wind is rampant in dental corridors. Vaccination has been hailed as elixir of life and is being seen as knight in shining armor for all. Dental fraternity is learning to evolve with changing demands and predicaments. “Evolution is necessary for survival” is now not a mere saying but a proven fact.

Keywords: Covid-19, Dentistry, Mucormycosis

Introduction

December 2019 marks as a hallmark month in the history of mankind. Outbreak of covid-demi19 infection shook the world to its very core. Its causative virus SARS-CoV-2 originated in the Wuhan city of China.¹ The World Health Organization (WHO) declared the outbreak as a Public Health Emergency of International Concern (PHEIC) on January 30, 2020.² The first knock of this pandemic in Australia was heard on 25th January 2020 in victoria.³

COVID-19 pandemic had adversely affected all wakes of life of all the individuals in the world. Dentistry is also one of the casualties in its list of victims. With this pandemic continued spread dentistry is facing its darkest hour yet. COVID-19

pandemic had a crippling effect on dental fraternity and society at large over the past year. It has caused long term rippling effects both in the economy and the health care system. In order to mitigate its devastating consequences and curb its transmission all elective and surgical dental procedures had been postponed on 1st may 2020.^{4,5} It did raise some concerns about the ethical issue of providing limited services only to few but the apprehension concerning above were dispelled as providing only emergency treatment is supported by the principle of Beneficence.

Although above did play a vital role in infection control but it was not without its repercussions. Even a transit closure or partial interruption of dental

services poses a cause of concern both for the patient and the dentist. The regular maintenance, rentals, wages of the clinic compounded by no or meagre income puts a huge dent in economic state of the dentist. It is difficult to ascertain the magnitude and severity of long-term impact of this pandemic on dentistry at this critical juncture. But with the ongoing growth curve of the pandemic and its multiple peaks chances of respite are sparse in the near future.

Economic curve

The major challenge for the dentistry is the sustenance of the dental practices in the current scenario. For feasible operation of the practices adequate infection control protocols need to be implemented. But this in turn demands huge investments for procurement of protective gears like PPE kits, air purifiers, HVAC A/C filters, noncontact forehead thermometer or with cameras having infrared thermal sensors.⁶ To maintain proper sterile environment and infection control protocols restructuring of the dental clinic may be required. This may prove to be a complicated and ardent task specially for the newly opened practices which are already short on funds. Such financial constraint had inturn lead to lamb sacrificial of few employees with their job termination by struggling dental practices. In addition to significant monetary investment proper education and training is mandatory both for dentists and staff of the practice to ensure minimal risk to patients and dentists alike. Which again requires proper commitment and dedication on the part of the above.

Heath scare

Apart from economic ramifications this pandemic has far reaching health consequences also. Currently dental health professionals are in high-risk category both at transmission and contraction of the disease. The susceptibility of the dentists can be majorly attributed to the proximity of their work to the patient's oropharyngeal region, exposure to saliva, blood and aerosol generation during majority of dental procedures.^{6,7} Saliva has been recognized as a reservoir of SARS-CoV-2.⁸ Thus, dental procedures performed with high speed handpiece facilitate aerosol formation containing amalgamation of saliva, blood, secretions which in addition to being infectious itself may propagate spread of infection by

contaminating the adjacent surfaces, instruments, apparatuses and surroundings. SARS CoV-2 can remain viable in aerosol and survive up to 3 days on inanimate surfaces at room temperature.⁹ Thus, aerosol have quite a potential in nosocomial spread of infection.⁶

In the current scenario lot of confusion and falsehood is prevalent in the dental fraternity. One of the key concerns is the infectivity of the generated aerosol. Some proponents claim the decrease infection potential of the dental aerosol and support it by suggesting that on the presence of adequate PPE aerosol have little to no history of infectivity.¹⁰ They further substantiate their argument by stating that infection from viral exposure is proportional to the viral load and duration of exposure.¹¹ Since only nasal breathing occurs during dental procedures which have the lowest rate of viral shedding thus they claim that the potential viral dose is already quite low.¹² As with all the arguments, the above argument also needs to be taken with a pinch of salt till the time more substantiate literature resurfaces. Thus, it can be deduced that in absence of proper infection protocol a dental clinic can expose the patients to cross contamination¹³ and therefore implementation of proper hygiene and infection protocol with simultaneous practice of non-aerosol production dentistry is to be advocated.

Bolt from the blue

World has been battling with multiple waves of covid with their ebbs and flows with documented 266,747,613 covid-19 cases and 5,278,526 death toll by 7th December 2021. With the arrival of Omicron, World has entered a new battle stage. US has been the most affected country across the globe and have witnessed 50,149,325 confirmed cases with 810,254 fatalities. India is the second most affected country across the globe with 34,648,383 total positive cases and 473,757 deaths so far.¹⁴

Mucormycosis emerged as a corollary of the covid causing an upheaval across some nations. India was caught off guard with this unheralded emergence of staggering mucormycosis cases. Chaos descended and frantic efforts were made for timely diagnosis and management of the afflicted population. Literature cites a high mortality rate of 54% for mucormycosis¹⁵ **India has been the most affected country by this calamity and has clocked over**

45,374 cases and 4,300 deaths attributed to it until 21st July 2021.¹⁶

There is a need of hour for dental professional specially prosthodontists and oral surgeons with the advent of plethora of unprecedented mucormycosis cases. Survival of the dental fraternity is now more pivotal than ever before.

Dental burden

Responsibility shoulders a heavy burden, elucidation of which is evident with the doctor's lives lost during the line of duty. Demise of 6 dentists in Indonesia¹⁷ and 12 dentists in Italy¹⁸ was already witnessed in early months of 2020. With strong tides of pandemic and maligned documentation, it's an arduous task to envision the imminent unfortunate death rattle.

Mental agony

Various surveys have been conducted across the globe elucidating the psychological stress in dentists. In the surveys, 85.1% Italian¹⁹, 83.3% Indian²⁰ and 11.5% dentist in Israel²¹ were discerned to have heightened fear level which was found to be associated with elevated mental distress. In a survey conducted in UK 77% dentists reported covid 19 attributed financial constrain with the prevalent notion of dentistry being perceived as "Cinderella Service" which had negatively impacted their mental state.²² In a global survey conducted across 28 countries it was elicited 10% of dental academicians suffered from severe COVID-19-induced stress which in addition provoked behaviour changes in the same.²³

In the survey conducted in dental students in Maharashtra, India 86.4% experienced mental distress due loss of clinical teaching and 89.8% were perturbed about higher covid peril among dentists.²⁴ Apprehension about financial strain, contagion of covid 19 to self and their families through them is the crux of angst in dentists.

Thus, mentally perplexed dental students and oral health care professionals need proper counselling and care to aid in swift recovery and to curb triggering of a mental crisis in vulnerable individuals. Formulation of mental health support groups might be the need of the hour.

Patient dilemma

It's not only the dentists that bore the consequences of the lockdown and associated decreased dental services that were rendered to the patient. This pandemic had also impacted the current and the prospective dental patients. The required structural reorganization and ongoing monetary strain on the dental practices will result in exorbitant treatment costs for the patients. The increased prices with the prevalent fear-mongering among patients will deter the patient for procurement of the dental treatment specially the elective procedures which might worsen their dental health. It might also further aggravate the financial plight of dentists. This in turn may prove to be a vicious cycle resulting in termination of few dental practices which are unable to cope up with prevalent bleak reality. Consequently, the conundrum of unemployment of dentists will get further convoluted in the aftermath of COVID-19.

In a cross-sectional study conducted in Japan in 2020, it was elucidated that the financial strain rendered by the pandemic on the people with interplay of factors like psychological distress contributes to decreased immune response, increased periodontal inflammation which might be compounded by detrimental food behaviour, irregular brushing habits leading to deterioration of dental health and dental pain.²⁵

Troubleshooting

With the number of cases on the rise normalization of dental practices seems like a pipe dream in the prevailing scenario. At this precarious time a pinch of prevention is worth a pound of cure. COV-2 virus could have delayed incubation period upto 24 days.²⁶ Thus, only emergency procedures are advised at peak wave time of the pandemic with urgent procedures to be managed only after teleconsultation, tele-triage, informed consent and only through pre-fixed appointment with proper social distancing. (Figure 1)

We are entering a new era of dentistry in this covid phase. In order to tide through these tough time practice of minimally invasive dentistry may be needed which should be supplemented with a transit return to retro era with usage of micromotor and contra-angled handpiece. Minimal usage of ultrasonic instruments, high-speed hand pieces, and 3-way syringes is advised to mitigate risk of contaminated aerosols generation.

Preference of extraoral radiography over intraoral radiography is been encouraged as it alleviates propensity of saliva stimulation and coughing.²⁷

Application of rubber dam which was always quite advocated but was not routinely practiced has now become a necessity in these times. A paradigm shift to preventive dental care might be required for curbing the risk of cross-infection from aerosols and splatter. In this pandemic digital dentistry is also gaining quite a recognition in its role of decreasing infection transmission with simultaneous patient comfort and faster treatment completion.

Educational key

To counteract the ongoing rumours and chaos, communication and education is fundamental. Articulation of knowledge and awareness spread is indispensable for the patients to dispel the fear, panic and rectify erroneous facts imbibed by them. Digital platform plays an integral role in fulfilment of the above as can be witnessed the plethora of webinars surfacing these days.

Rescue aid

To quell the current dismal scenario aid of government is vital. Collaboration between dental fraternity and government may help in addressing this malady by implementation of various measures like fiscal support, easing of taxes for required duration, interest-free loans, government led business insurance plan for dentists and their practicing staff plus inclusion of dental treatment under insurance coverage for the general public. The above will grant much needed investment and revenue injection into dental healthcare. **Government of India introduced Pradhan Mantri Garib Kalyan package on March 26, 2020** which covered Rs 50 lakh insurance cover for frontline health workers battling COVID-19 but it sadly forgot to mention inclusion of dental health professionals in it (O). Fortuitously on 25th June 2020, Government of India conferred MSME status (Micro, Small and Medium Enterprises) to dental practices.²⁸ Similar measures in this direction have been adopted by few other countries as well across globe.

Furloughed workers scheme by the UK government²⁹, Hardship funds in Austria³⁰, 75% compensation of self-employed people in temporary compensation scheme in Denmark³¹, Coronavirus

Aid, Relief and Economic Security Act (CARES Act) in USA³² and \$750 stimulus packages in Australia³³ are some of the precedents.

Silver lining

As it is said a coin has two sides, same can be said for this pandemic also. This adversity has given our fraternity an opportunity to recognize our weakness and is aiding us to become better prepared to overcome this and any future hurdles which we may encounter. This global crisis has paved the way for the entire dental fraternity to come together as one and support and learn from each other. Tele dentistry is a concept whose presence had been felt since decades but it has now finally been given its due. It serves to provide a safer and faster screening and communication with the patients. It can be accessed in any of the two ways, be it “Real-Time consultation” or “Store and Forward method”. This crisis has also created fortuity for new upcoming technologies and ventures which might prove to be a boon for dentistry. In addition, the important role performed by the dentist in these unprecedented times for care of their patients is been quite appreciated and admired all over.

Ray of hope

The hope of ray in midst of this crisis is the nationwide vaccination drive that is being held, so the dental fraternity can work towards recovering. By 7th December 333 Cr world population is fully vaccinated which constitute 42.7 % of the world population. In India 47.7 Cr people are fully vaccinated which constitutes about 34.6 % **of its total population with 128 Cr total doses administered till now.**³⁴

Vaccinated patients curb the fear mongering among the practicing dentists. In addition, as recommended by CDC, administration of RAT and RT-PCR test among patients before inception of treatment is a practice that is being followed widely in practices today.⁵ Thus, making survival of the fraternity not a pipe dream in the current scenario. Since testing can be expensive, concept of pool testing has resurfaced. A study concluded preprocedural pool testing for aerosol generating dental procedures a practical alternative to traditional covid testing when disease prevalence is <10%.³⁵

Dental revolution

Dental fraternity is on a continuously evolving model with needed adaptation in accordance with the prevalent circumstances. This pandemic will revolutionize dentistry as previously had occurred at the time of AIDS pandemic which had ushered in application of “universal precautions” which was quite lacking at the time and faced quite an opposition. Thus, this pandemic can have its merit if it accomplishes in revolutionizing the approach of dentistry from “Reaction to Action”.

This road to recovery might prove to be painful and arduous. Therefore, proper planning, execution, determination and patience is needed to overcome this predicament and to be prepared for the next hurdle. To conclude, survival of dentistry rests on our unity as We and not I.

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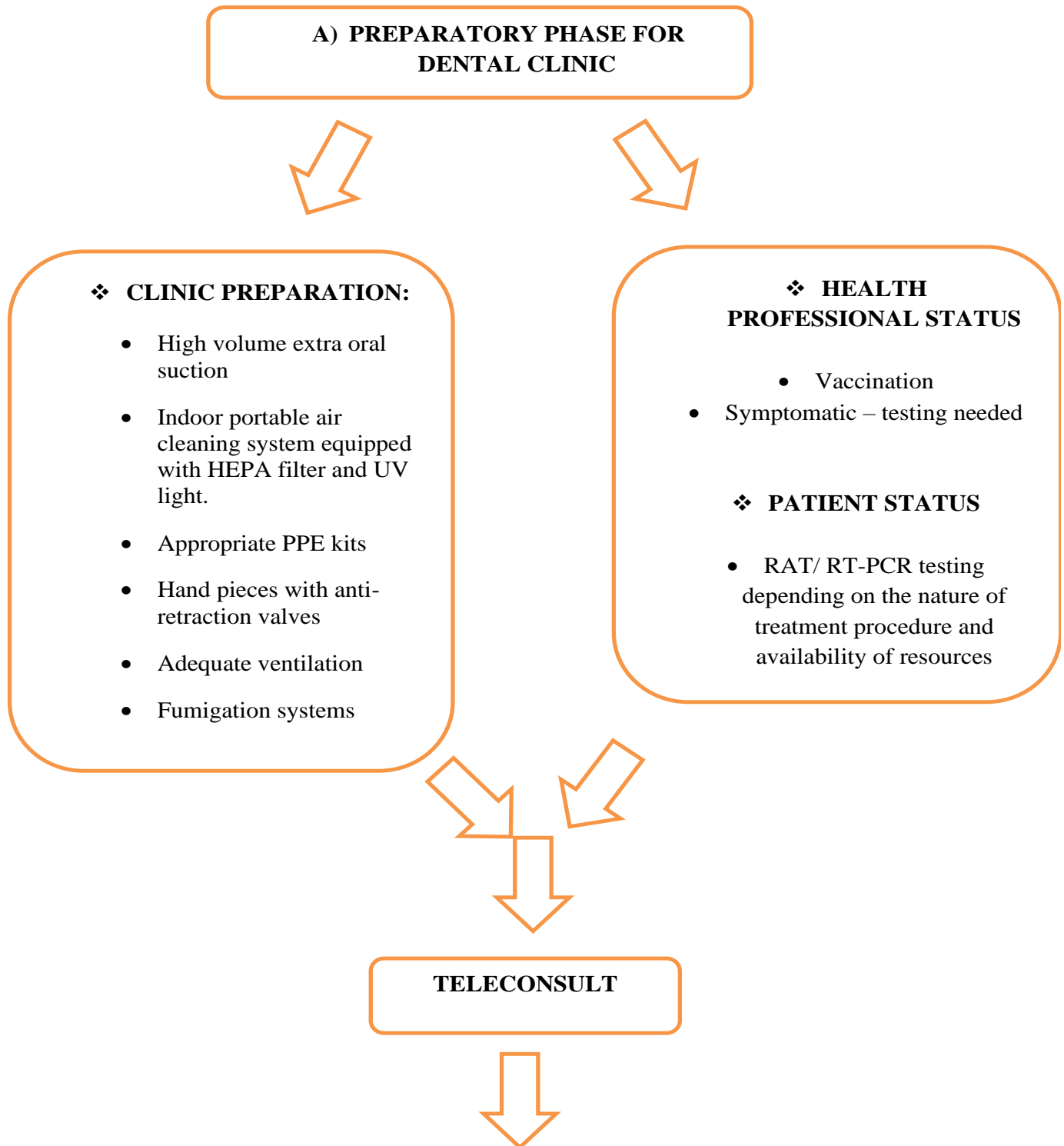
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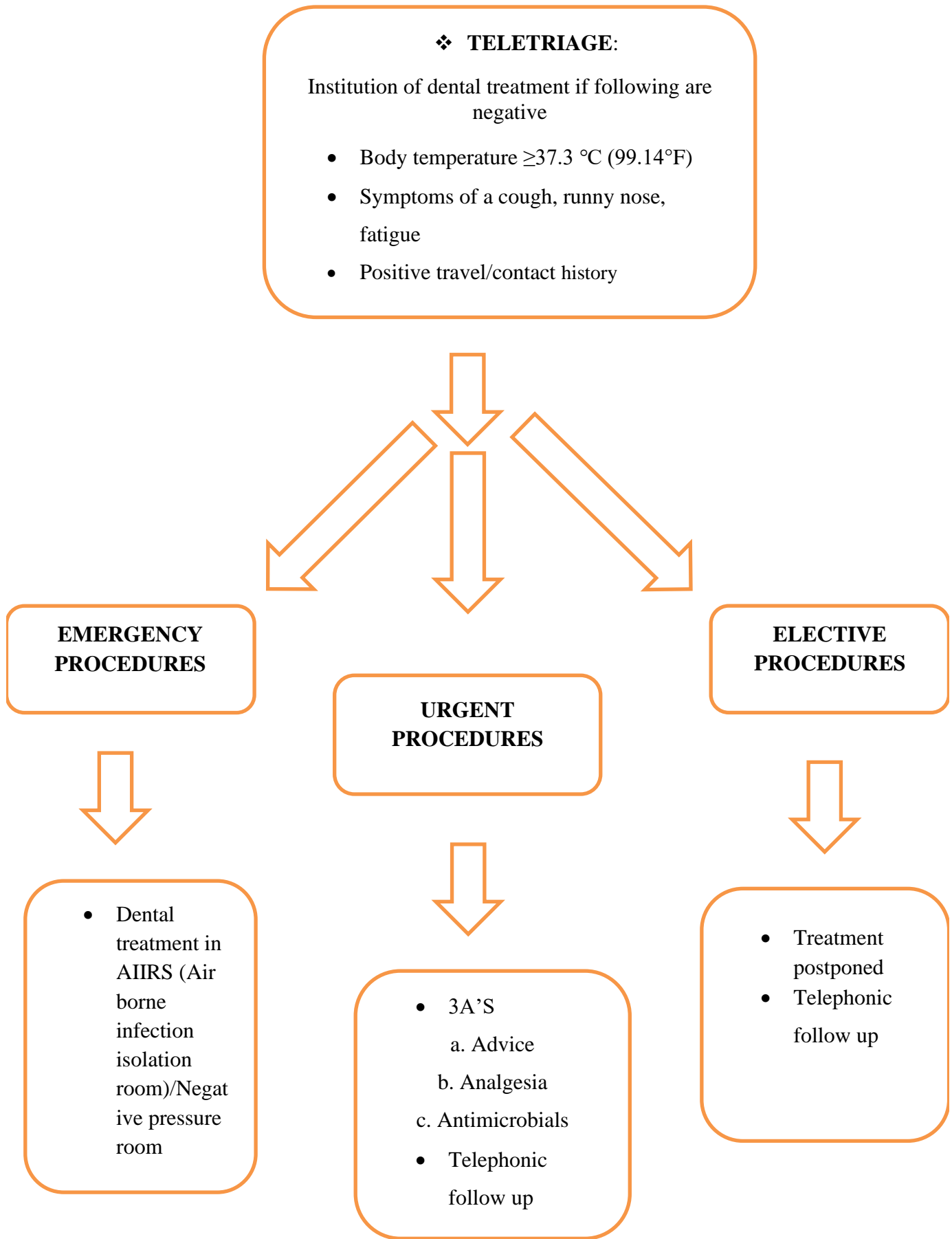
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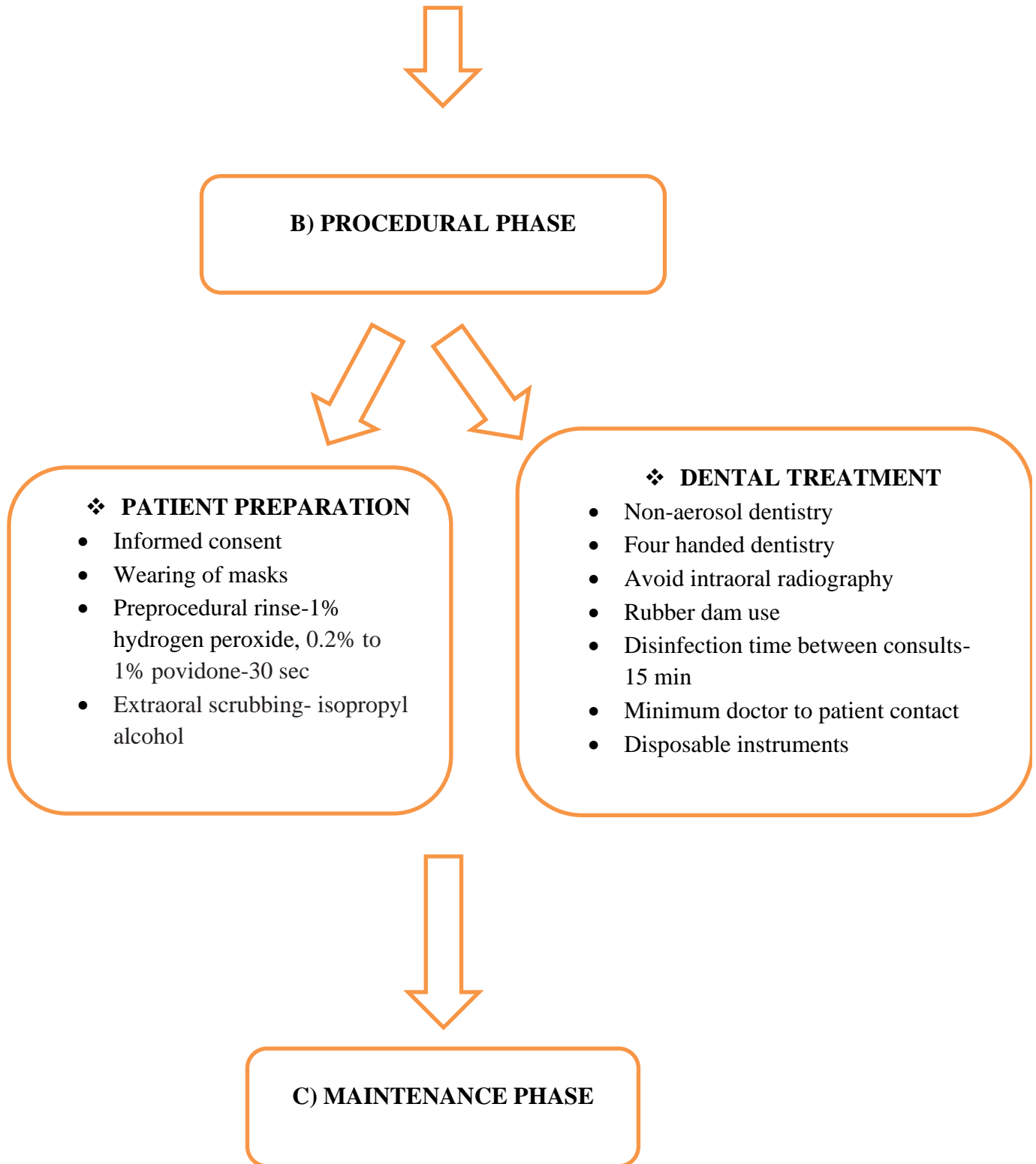
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FIGURE 1: PROTOCOL FOR REOPENING OF DENTAL PRACTICE

(Based on guidelines of ADA⁴, CDC⁵)









- Floors: 2 Step Cleaning Procedure (Detergent + 1 % sodium hypochlorite-10 minutes)
- Rest of the surfaces: 1 % sodium hypochlorite-10 min
- Fumigation: Daily basis in clinical areas and biweekly in non-clinical area
- Dental unit waterlines (DUWL) and suction pumps- flushed, disinfected