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## A wave of non-communicable diseases following the COVID-19 pandemic



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Patients with chronic diseases who need life-long medications may find it difficult to reach medical services during the coronavirus disease 2019 (COVID-19) pandemic. The problem is more serious in remote areas, where the patients need to travel long distances to receive medical attention and medications. Restrictions on public transportation and the implementation of lockdown hinder the delivery of general and specialized medical services to these patients. Managing COVID-19 cases is still a priority for most healthcare facilities, while medical services for non-emergency cases are often deferred indefinitely. Since patients with advanced age [1] and chronic diseases, such as diabetes, hypertension, chronic respiratory diseases, and cardiovascular and cerebrovascular diseases, have a higher risk for suffering from more severe COVID-19, along with complications, they are urged to stay at home without their routine medical follow-up [2–6]. Confined to homes, they are at risk of worse outcomes if they are physically inactive with reduced mobility and intense fear of the potential impact of COVID-19 on their physical and psychological well-being [7,8]. The duration of lockdown period is directly proportional to uncontrolled glycaemia and diabetes-related complications, which in turn will add extra burdens to the overwhelmed healthcare system [9].

Considering their dependence on these medications, any

terminations can lead to acute and chronic complications. Often, poor drug compliance results in acute crises; for example: forgetting to take insulin, antihypertensive medications, and heart failure medications are among the most common causes of hyperglycaemic crises, hypertensive emergencies, and acutely decompensated heart failure [10,11], respectively. Thrombosis of coronary stents, mechanical valves, or other endovascular devices has a high mortality rate; therefore, discontinuation of certain drugs in such cases can lead to catastrophic events. Moreover, patients with chronic conditions are often found to have comorbidities, which increases the risk of adverse outcomes, if their conditions are not managed properly.

Glucose control may be interrupted in diabetic individuals with COVID-19 [8], leading to hyperglycaemic crises, while uncontrolled blood pressure can result in hypertensive urgencies and emergencies. These clinical events increase the risk of developing complications like cardiovascular and cerebrovascular diseases [12,13]. For patients with atrial fibrillation receiving warfarin, missing their INR monitoring, can be harmful, particularly if they are new to the medication. This may lead to ischemic complications, if the dose is inadequate or bleeding complication should the INR exceeds the optimum range. A drop in the number of patients with acute myocardial infarction may be caused by hospital avoidance [14], leading to an increased incidence of heart failure due to poor management of cardiac health in them. Due to decrease in stroke admissions and the mechanical thrombectomies, the number of stroke-related disabilities is expected to increase [15]. Noncompliance with antiplatelet therapy in patients with coronary stents may lead to stent thrombosis, and inadequate doses of

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anticoagulants in patients with mechanical valves may lead to valve thrombosis, both of which have high mortality rates.

During and after the new normal of COVID-19, physicians should be prepared for a surge in demand for medical attention caused by complications of non-communicable diseases and postponed elective procedures. While the majority of the organizations are focusing on containing COVID-19 and reviving economy, public health authorities should be aware of the consequences of poorly managed chronic diseases. The use of telemedicine for virtual medical consultation and examination, and door-step delivery of the prescribed drugs, are promising options [16,17]. The availability of primary healthcare facilities and general practitioners in remote areas can aid audio-visual medical sessions. The second wave of COVID-19 can be avoided if adequate measures are taken; however, a wave of worsening non-communicable diseases appears inevitable.

### Declaration of competing interest

The authors declare that they possess no commercial or financial relationships that could be construed as a potential conflict of interest.

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