

SOCIAL DISTANCING DUE TO THE COVID-19 PANDEMIC: EFFECTS OF NON-URGENT EMERGENCY DEPARTMENT VISITS

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Abstract

BACKGROUND: An outbreak of the novel coronavirus (COVID-19) that started in Wuhan, China, has spread quickly, with cases confirmed in 163 countries with broad impact on all health care systems. The previous 1918-19 H1N1 influenza pandemic was the last global emerging infectious disease at such scale to compare with no access to vaccines. In that pandemic as in the current, some communities responded with a variety of non-pharmaceutical interventions, especially social distancing. These types of intervention have a comprehensive effect on health care service consumption.

METHODOLOGY: This study describes and proposes possible explanations for the effects of non-pharmaceutical interventions on Emergency Department (ED) non-urgent visits.

RESULTS: Indirectly, the COVID-19 pandemic has led to a more informed emergency service use that allows ED's to fulfil their defined role, providing urgent service. Currently, this is of utmost importance given the rate of the virus spreading, and rise in the proportion of patients requiring intensive care in the ED. This is undoubtedly a by-product of an international disaster.

CONCLUSION: At the end of the pandemic, similar elements may be implemented to reduce unnecessary ED inquiries.

KEY WORDS: COVID-19, pandemic, emergency department, non-urgent visit

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INTRODUCTION

During 2019 a novel virus (COVID-19) emerged, composed of enveloped non-segmented positive sense ribonucleic acid virus belonging to the family coronaviridae [1]. Although most human coronavirus infections are mild, two recent pandemics of emerging betacoronavirus, severe acute respiratory syndrome (SARS-CoV) and the Middle East Respiratory Syndrome coronavirus (MERS-CoV), have caused approximately 440.000 cases

including 19.700 deaths, with numbers rising exponentially.

Currently, the absence of a COVID-19 vaccine or any definitive medication has led to increased use of non-pharmaceutical interventions (NPIs), aimed at decreasing contact rates in the population and thereby distribution of the virus [2]. Two essential strategies are probable: a) mitigation (home isolation of suspect cases and social distancing), and b) suppression, which aims to restrain epidemic development, decrease case

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numbers to lower levels, and retain that condition indefinitely until treatment or vaccine become accessible.

On 11 March 2020, the World Health Organization (WHO) declared COVID-19 a pandemic. A subsequent literature review found that ideal mitigation strategies, combining mitigation and suppression, might decrease peak healthcare requirement by two-thirds and deaths by half [2].

In this clinical study and review of current information, we describe the effect of optimal mitigation policies on Emergency Department (ED) visits, especially the dramatic decrease in ED visit rate.

Impact of COVID-19 on ED visits at the start of the pandemic

It is important to note the beginning of the outbreak was characterized by a 'wait and see' mode of action in the ED's. As told by Dr Daniele Macchini, Intensive Care Unit physician in Bergamo, a city near Milan, there was a calm period characterized by medical staff uncertainty and slight indifference due to the lower ED arrival rates.

In the ED's, a respite with 50% occupancy was noted during this period.

Trends of the ED calm period during the initial stages of the COVID-19 pandemic has been observed in numerous countries. For example, during March 2020, Rambam Health Care Campus's ED (Haifa, Israel) experienced a smaller number ($n \sim 30$) of patient arrivals throughout the day, compared to hundreds during similar periods in previous years. This dramatic decrease was mostly due to a decline in non-urgent visits, as well as the low number of urgent patients. Furthermore, the Neurology Department was at 50% occupancy with a decrease in the number of patients presenting with stroke, and one neurological division closed for the sole treatment of COVID-19 patients with unchanged mortality rates.

Subsequently, a dramatic increase in visits by patients with COVID-19 was described by Robert Consentini, Head ED at Pope John XXIII Hospital in Bergamo, Italy [3] and others. With the outbreak flooding community services, 60–80 patients with COVID-19 arrived daily at the ED, many of whom required immediate respiratory care. As such, ED policy was forced to undergo major adjustments.

Relationship between ED visit patterns and Covid-19 pandemic

The initial abrupt decrease in ED visits for other causes in such a short period of time raises ques-

tions about the habitual visits of patient to the ED. Non-urgent ED visits are usually defined as 'visits for conditions for which a delay of several hours would not increase the likelihood of an adverse outcome' [3]. The estimated prevalence of non-urgent visits is 37% (range: 8–62%). Evidence indicates that younger age, greater accessibility of the ED compared to other ambulatory care options, referral to the ED by a healthcare provider, and negative experiences of non-ED care locations all play a role in decisions to seek care in the ED for non-urgent problems. Despite widespread interventions to discourage non-urgent ED visits, these kinds of visits have continued to rise [4].

There may be several explanations for the decreased ED visit rate during this pandemic. Firstly, due to state induced quarantine, patients are not allowed to exit their household for non-urgent causes, leading to reorganization in patients' medical priorities. Every year, thousands of people die from hospital acquired infections, yet non-emergency visits remain the same [5]. However, with the current pandemic threat, patients make considerable assessments for risk of infection with the virus and home symptomatic care took priority over ED visit.

Secondly, physiological aspects affect mind-body interactions. When one is in serious stress, as with the COVID-19 pandemic, we enter into a state of survival.

High dynamic environmental demands directly engage the body's stress responses through the stimulation of corticotrophin-releasing factor at the hypothalamus and sympathetic branch of the autonomic nervous system [6]. The previous leads to excretion of adrenocorticotrophic hormone from the pituitary gland, and subsequently to secretion of cortisol from the adrenals into the bloodstream. Further, there is a surge of peripheral catecholamines and activation/deactivation of body organs, according to their relevance in defending the organism. Additional reactions involve a stimulation of brain regions related to perceiving and reacting to threat, in which the brain's noradrenergic system has a pivotal role. All of these cause an increase in adrenaline levels, which then result in a decreased sense of pain and uncomfortable symptoms [6]. This masking effect lowers symptom severity temporarily, leading to lower ED visit rate.

Thirdly, the principle of continuity is maintained in dealing with a disaster at its various stages, as the management and therapeutic efforts aim at preserv-

ing the different continuities in the life of the individual, family, organization, and community, or to restore them: functional continuity, identity continuity, and interpersonal continuity [7]. The isolation strategy forced the closure of all educational centers for all age groups and, therefore, parents are constantly concerned with the wellbeing of their children and less for themselves. Maintaining balance within the home environment took priority over medical conditions as many found themselves in an unexpected new routine. Thus, leading to a decrease in ED visit rate.

Finally, social distancing keeps peoples at home. Consequently, the number of accident and trauma patients decreased automatically.

CONCLUSION

To conclude, indirectly the COVID-19 pandemic has led to a more informed emergency service use that allows the ED's to fulfil their defined role — urgent service. Currently, this is of utmost importance given the rate of virus spreading, and the rise in the proportion of patients requiring intensive care in the ED. This is undoubtedly a by-product of an international disaster. However, at the end of the pandemic, similar elements may be implemented to reduce unnecessary ED inquiries.

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