Analysis of Government website for web-registration to assess pattern of the Covid pandemic

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Abstract

Introduction: Covid-19 is an unprecedented challenge in our times leaving a trail of destruction and mayhem affecting almost all of us during the last 2 years. Various data sources are available around the globe to measure its impact using various yardsticks. **Material and Methods:** By carefully looking at data available at the website maintained by Government of India, we can draw some useful conclusions. **Results:** There is a dip in the number of online registrations at our hospital coinciding with second wave and resultant lockdown. **Conclusion:** Tracing digital footprints of an event as huge as the Covid pandemic may help us for future planning when we learn its lessons well.

Keywords: Covid hospital, mutant virus, novel coronavirus disease, SARS-CoV-2, SARS pandemic, World Health Organization

Introduction

"We welcome the encouraging vaccine news from Pfizer & BioNTech_Group & salute all scientists and partners around the world who are developing new, safe, efficacious tools to beat COVID-19. The world is experiencing unprecedented, scientific innovation and collaboration to end the pandemic."

- Dr Tedros Adhanom Ghebreysus, Director General of World Health Organization, Nov 9, 2020[1]

World Health Organization declared the novel Coronavirus disease as a Public Health Emergency of International Concern on Jan 30, 2020[2,3] and a pandemic on Mar 11, 2020.[4] Following the arrival of the mutant virus at world stage, there has been an epic disruption of almost all walks of our life.[5,6] The way we visit hospital, learn, study, travel, meet or organize conferences has seen an unprecedented turnaround during last 2 years or so. Webinar, lockdown, e-classes,[7] digital technology and infodemic[8] are our new found realities. Since the beginning of year 2020, various data are arriving to assess its mortality (a measure of virulence)[9,10] but because of fear, disruptions of economic, social and educational parameters don't find a parallel in recent memory. Several authors suggest that since World War 2, this is a global disaster of similar magnitude; but others believe that Spanish Flu of 1918 swept the globe in this way and caused mayhem of comparable nature.[11,12]

As patients of the disease and others for non-infectious illnesses visit hospitals, there is a way to analyse electronic records of our hospital to have some estimate of breakdown of routine healthcare services. As our hospital is a teaching Institute that serves—and has been serving—as a Covid Hospital,[13] we found interesting data from publicly available website regarding number of visits of arriving patients, website registrations and OPD attendance.

Access this article online

Quick Response Code:

Website:
www.jfmpc.com

DOI:
10.4103/jfmpc.jfmpc_2185_21

How to cite this article: Gupta H, Verma SK, Gautam M, Kumar S, Patwa AK, Nigam N. Analysis of government website for web-registration to assess pattern of the covid pandemic. J Family Med Prim Care 2022;11:2890-5.

e-Hospital website is managed by Government of India and it has entries for various public, private and autonomous hospitals regarding the number of visits by patients for last few years.[14] We accessed it and looked into various data specifically keeping in mind our Institute so as to make comparison with others. This digital footprint maybe of help when comparing different waves at different space-times.[15] By looking at sizes of different curves, we can assess what sort of restrictions work, which one not and which ones have effects of various dimensions. Hence, we analysed data so as to have an estimate of intensity of wave and its effect on the population. Other researchers are also doing so; one such example is initiative of Oxford University in UK.[16]

Material and Methods

We accessed a website managed by National Informatics Center (NIC), a web portal managed by Ministry of Electronics and Information Technology, Government of India.[17] It works under Union Minister of Communications as well as of Electronics and Information Technology. We analysed its data randomly on Nov 3, 2021. The portal had entries of e-Hospital statistics. It showed 637 hospitals onboard all over India, 40,190 onboard users, 1,75,000 daily average patient visits and 4,50,000 daily average transactions. On the basis of these data collection points, it compiled a huge database spread over the nation, analysed it on a real-time basis and made a picture on Nov 3 so as to have a bird's eye view.

Results

e-Hospital website has two tablets therein. One is e-Hospital dashboard and another one is ORS Dashboard. ORS is Outpatient Registration System and is there for making online registration for facilitating visit to a registered hospital. As the pandemic virus is airborne,[18] gathering of persons at a place for making registration may help in spreading the virus. Therefore, an electronic system was placed for this purpose. Fallout of the system was that OPD registrations can be viewed across the nation daily, in fact without any lag. For the purpose of the study, data was captured on a day in the first week of November 2021.

On this day, the webpage shows two images. Figure 1 has a title of 'Day-wise online appointments' for the state of Uttar Pradesh, a state in northern India. It shows the number of online appointments made during last 29 days, Oct 6–Nov 3. Periodic dips are seen in the graph falling on Sundays although that is not universally true. Figure 2 depicts 'Month-wise online appointments' for the state of Uttar Pradesh at all (registered) hospitals. For the month of October 2021, the figure is 1,43,470 patients.

The website allows users to scroll all the government Medical Colleges and Autonomous Institutions. Any user can look at the statistics of patients visiting these facilities and draw one's own conclusions. Our Medical College lies amongst the group of government-run Medical Institution. It has data of e-Hospital
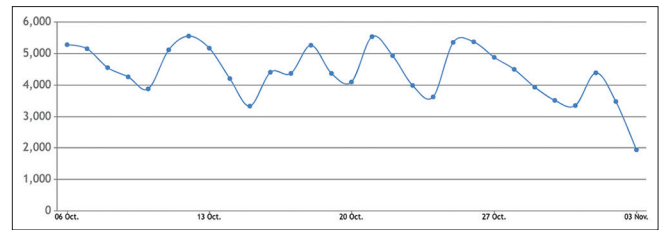

Figure 1: Day wise online appointments for the State of Uttar Pradesh

transactions for the state of Uttar Pradesh since Sep '15. Its number is 6303755. This number is the highest in the group. This is 13.30% of all the transactions with a daily average of 4133 and number of days since inception is 1525. Next in the group is Civil Hospital, Lucknow, which is a District Hospital and makes almost half of the number of transactions.[Supplementary Files]

Discussion

Although the pandemic produced a huge challenge for the mankind, it also handed us opportunities as never before. When we faced the biggest natural challenge of our life time, human ingenuity, creativity, perseverance, feeling of belonging, camaraderie, mutual cooperation at global scale and alternative thinking too found new meaning. What we can decipher from the graph is that as the pandemic surged in Apr–May 2021,[19] lockdown orders were imposed forcing shutting down of the business and economic standstill along with routine OPD services.[20] Nevertheless, still ways were discovered to keep essential ones running. When physical visits by the patients were getting difficult, administrators devised electronic pathways to make it feasible to visit their doctors using existing infrastructure.

'Month wise patient registration' bar chart indicates that when a huge second wave made a landfall in our nation, number of registrations saw a corresponding dip. The reason is that due to lockdown, routine patients were unable to make their scheduled visit. Still attempts were made to provide telemedicine services, community visits by Accredited Social Health Activists (ASHA workers), and by hiring contractual staff and providing incentives to regular staff.[21-23]

At an increasing frequency, mother nature is throwing us challenges in the form of epidemics and pandemics.[24] The 21st Century saw 2003 SARS pandemic, 2009 Swine flu and polar march of Dengue, 2014 Ebola, 2015 Zika and now SARS-CoV-2. While much is needed from human species to understand the causes of such phenomena, we also need to learn how to react when an outbreak occurs. This study hopes to sensitize primary care physicians about such a possibility of an outbreak keeping in mind its almost regular occurrence, put their guards on for such an eventuality, look at the pandemic by different angles and double down our efforts to report such a matter if one gets a chance when observing a patient. If a family physician at a periphery reports a matter to authorities early on, the pandemic may take a different course rather than when the cases pile up in
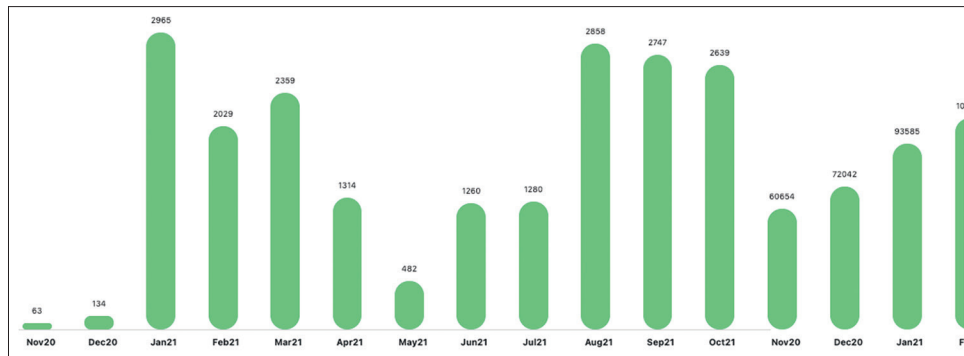
Figure 2: Month wise patient registration for the State of Uttar Pradesh, all the hospitals

Metro. Later on, when a large number of cases overwhelms our hospitals, primary care physicians shoulder responsibility to care for manageable cases and refer them when warning signs appear.

While nowadays several studies are available analysing data of developed economies in high- impact journals, there is dearth of analysis of widely available statistics of low- and middle- income countries. To the best of our knowledge and belief, this is the first study of its kind, which analyses, try to interpret and draw some conclusions of the data generated by website of Government of India in relation to our State. We need more such studies looking at other aspects related to sister specialities so as to generate more meaningful interpretation.

When the virus does not differentiate between people, why should we!

Conclusions

By vaccination and development of hybrid immunity, India is getting some relief at present from the pandemic; but in some parts of the world including Hong Kong, Soth Korea, New Zealand it is still running amok portending uncertainty for our shared future. Although predicting future has its risks, we can learn some lessons from analysing its data, which are publicly available at State-run website. But while making such an attempt, we need to remember that the pandemic is adept at showering surprises, making unexpected alterations, suddenly changing its course and generating variants-of-concern, preceded by variants-of-interest. The purpose of the study is to remain prepared for such surprises while trying to draw some lessons from visualizing its travelled course. If knowledge makes us wiser, we should leave no stone unturned to gather every piece of information so as to prepare better for a brighter future.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Ethical clearance

As this article uses publicly available data, there is no need of ethical clearance.

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