Journal of Statistics on Health Decision

EXTENDED ABSTRACT

A31 Study of COVID-19 surveillance time using a Primary Health Care Grouping of Porto Region dataset

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Introduction

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which cause COVID-19 disease, was declared a pandemic on 11 March 2020 [1]. The first case of COVID-19 was confirmed in Portugal on March 3, 2020, in Porto [2].

To control the epidemiological situation in Portugal, General Directorate of Health (DGS) published on March 23, 2020, guideline n. º 004/2020 - Patient Approach with Suspected or Confirmed COVID-19. Also, Trace COVID-19 platform was created to support the approach of outpatients with suspected and confirmed infection of COVID-19 by the health care system.

The first release of the guideline (March 2020) stipulated that COVID-19 cases with conditions to self-care at home should repeat test if asymptomatic ten to fourteen days after the begging of the symptoms or positive real-time polymerase chain reaction (RT-PCR) if symptoms were absent during all disease course. Two consecutive negative RT-PCR tests, with a difference of at least 24 hours, were needed to end isolation and vigilance [3]. On August 31, this guideline was updated: one negative RT-PCR test (made 14 days after the beginning of symptoms or positive RT-PCR/ diagnosis) was enough [4].

This study aims to analyse the impact of the first update of the DGS guideline nº 004/2020 in the surveillance time (ST) of COVID-19 patients using a Primary Health Care Grouping of Porto Region dataset.

Methods

Initial treatment of dataset from a Primary Health Care Grouping of Porto Region

To analyse the dataset, we used R code (version 4.0.3) though the RStudio using ggplot2, dplyr, broom, ggpubr, readxl and dplyr packages. Initial data included 1177 patients with a positive RT-PCR to SARS-CoV-2 test among March 2020 to October 14, 2020. Patients were divided in two groups: (i) March release group and (ii) August release group (figure 1). Since the dates corresponding to the beginning and end of the surveillance are registered manually and patients may have been followed again after the medical discharge, patients with a ST greater than 100 days and a period between begin vigilance date and confirmation test date greater than –15 and 15 days were excluded. [5,6]

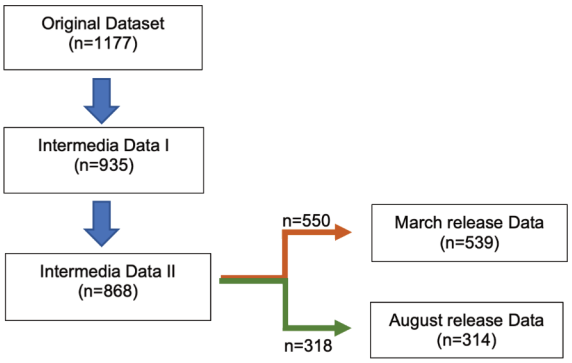

Figure 1 - Diagram of treatment of the dataset. We considerate only patients with confirmation test and begin vigilance date between 11/03/2020 and 14/10/2020. Intermedia Data I was created after excluding patients who had an address different than the two cities studied. From those only patients with positive RT-PCR test, surveillance time < 101 and waiting period ∈ [-15,15] were used to create Intermedia Data II. Patients with confirmation test and begin vigilance date between 11/3/2020 and 8/31/2020 were included in the "March release Data" group. The other patients were included in the "August release data" group (01/09/2020 to 10/14/2020).

Keywords:
COVID-19, SARS-CoV-2 infection, Surveillance time, data analysis

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Supplementary material:
Available online: Link
(S1, table 1), (S1, table 2) (S1, figure 1) (S1, figure 2)

Conflict of interest:
The authors declare no conflict of interests.

First published: 22JUN2021

Analysis of surveillance time in March and August release data

We studied ST and its correlation with age by spearman coefficient, correlation test and scatter plot. We also compared Municipality and Gender variables by Wilcoxon Rank Sum tests and boxplot representations. The difference between March and August release ST was evaluated by Wilcoxon Rank Sum Test. We performed the same analysis considering Age, Gender and Municipality variables. Statistical hypothesis tests with P value less than 0.05 were considered significant.

Results

Surveillance time

We found a significative difference (p-value= 2.2e-6) in ST between March and August release (figure 2). In March release, the differences in Gender or Municipalities were not significant. In August release, the Municipalities shown significant differences (p-value=0.024, city 1 median = 18 days vs city 2 median = 16.5) (S1, table 1). In both releases, the correlation between Age and ST was not significant (S1, table 2).

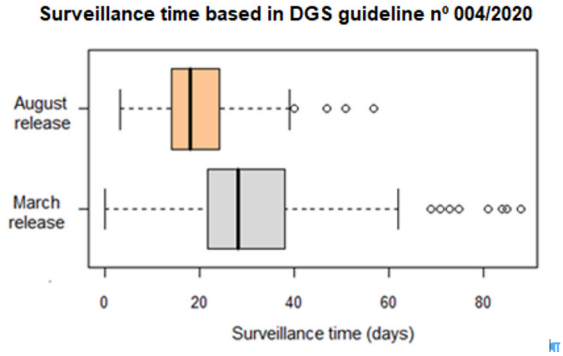

Figure 2 - Surveillance time based in DGS guideline nº 004/2020: first release (23/03/2020) and first revision (31/08/2020). In March release (n= 539), surveillance time is 28.00 days (median) with interquartile range of 16.75; in August release (n= 314), surveillance time is 18.00 (median) with interquartile range of 10.00. Significative difference between March and August release surveillance time (p-value = 2.2e-6).

Waiting period

We found that patients wait a median of 2 days in both groups to start vigilance after confirmation test (S1, figure 1). In March release, 61,77% waited 0 to 5 days to start vigilance, 8,83% waited more than 5 days and 19,40% started vigilance before confirmation test. In August release, 79,03 % waited 0 to 5 days; 9,68% waited more than 5 days and 11,29% started before confirmation test. (S1, figure 2).

Discussion

The present study showed a significative difference between the median ST of the two groups of patients (March and August releases). This difference was expected, since there was a reduction of the number of laboratorial tests needed to end isolation and vigilance. The update of the guidelines provided a median time of vigilance and isolation at home of COVID-19 cases of less ten days with the consequent reduction of the burden to health and negative social impact.

Both groups had a similar waiting time until the beginning of the vigilance, that may be related to the delays in the integration of the information from SINAVE in the Trace COVID-19 platform. However, the proportion of patients that started the vigilance before having a positive test was lower in the second group (August release), reflecting an increase of screening tests.

Despite these findings, we only analysed data from a Primary Health Care Group in the Porto Region, considering the old guidelines. Once these guidelines have been updated again, new studies with more representative samples are needed to extrapolate these findings to the national reality.

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