International Journal of Innovation and Applied Studies
ISSN 2028-9324 Vol. 35 No. 2 Jan. 2022, pp. 205-208

http://www.ijias.issr-journals.org/

A report on incidence of Covid-19 infection in Campania (Region of Southern Italy)

Stefania Pellino[1], Margherita Luciano[1], Rosamaria Luciano[1], Erika Mancini[1], Maria Concetta Conte[2], Gennaro Volpe[3], and Tommaso Zerella[1]

[1]Department of Prevention, Azienda Sanitaria Locale (ASL) Benevento, Benevento, Italy

[2]Health Direction, Azienda Sanitaria Locale (ASL) Benevento, Benevento, Italy

[3]General Direction, Azienda Sanitaria Locale (ASL) Benevento, Benevento, Italy

ABSTRACT: In December 2019 an outbreak of Severe Acute Respiratory Syndrome Coronavirus 2 was first observed in Wuhan, China. The virus has spread rapidly throughout the world creating a pandemic scenario. The incidence of Covid-19 infection is influenced by several factors such as: lockdown, restriction measures, social distancing, use of face masks, environmental temperature and viral load, vaccinations. This study describes the evolution of the incidence of Covid-19 infection in Campania (Region of Southern Italy) from September 2020 to August 2021.

KEYWORDS: Covid-19, SARS-CoV-2, Infection, Report, Campania.

INTRODUCTION

Coronavirus-2 severe acute respiratory syndrome (SARS-CoV-2) is the name given to the disease caused by the new coronavirus of 2019 that had not been identified in humans before December 2019 when it was recognized as the cause of a group of pneumonia cases in Wuhan, a city in China's Hubei province. It spread rapidly, causing an epidemic across China, followed by a global pandemic officially declared by the World Health Organization on March 11, 2020.

Coronaviruses are positive polarity single-stranded RNA viruses. Bats are considered natural hosts of these viruses that circulate among animals and some of them also infect humans. The similarity of the closest RNA sequence is to two bat coronaviruses for which it seems likely that bats are the primary source; it is not known whether the COVID-19 virus is transmitted directly from bats or through some other mechanism (via an intermediate host).

HOW SARS-COV-2 SPREADS

SARS-CoV2 is mainly transmitted via droplets and aerosols from an infected person who sneezes, coughs, speaks or breathes and is in close proximity to other people. The virus has also been isolated from the feces of infected cases, indicating that fecal-oral transmission could also be a route of infection. The droplets can be inhaled or they can rest on surfaces, with which others come into contact and are, therefore, infected by touching the nose, mouth or eyes. The virus can survive on surfaces for a few hours (copper, cardboard) up to a certain number of days (plastic and stainless steel). However, the amount of viable virus decreases over time and may not always be present in sufficient quantities to cause infection.

WHEN A PERSON IS CONTAGIOUS

The incubation period for COVID-19 (i.e. the time between exposure to the virus and the onset of symptoms) is currently estimated to be between one and 14 days.

Corresponding Author: Stefania Pellino

The infectious period may begin a day or two before symptoms appear, but people are likely to be more contagious during the symptomatic period, even if the symptoms are mild and very nonspecific. The infectious period is estimated to last from 8 to 10 days in moderate cases and on average up to two weeks in severe cases.

Infected people can transmit the virus both when they have symptoms and when they are asymptomatic. That is why it is important that all positive people are identified by tests, isolated and, depending on the severity of their disease, receive medical treatment. Confirmed but asymptomatic people also need to be isolated to limit contact with others. These measures break the chain of transmission of the virus.

This is why it is always important to observe the appropriate prevention measures (physical distancing, use of the mask, frequent hand washing).

WHAT ARE THE SYMPTOMS OF A PERSON WITH COVID-19

The symptoms of COVID-19 vary based on the severity of the disease, from the absence of symptoms (the so-called "asymptomatic cases") to presenting with fever, cough, sore throat, weakness, fatigue and muscle pain. Severe cases can present with pneumonia, acute respiratory distress syndrome, and other complications, all of which can be life-threatening. Sudden loss of smell (anosmia) or decreased sense of smell (hyposmia), loss of taste (ageusia) or altered taste (dysgeusia) have been recognized as symptoms of COVID-19. Other less specific symptoms may include headache, chills, myalgia, asthenia, vomiting and/or diarrhea.

WHAT CHANGED ON 12 OCTOBER 2020 IN ITALY

The Circular of the Ministry of Health of 12 October 2020 puts an end to the double negative swab system (negativity to two molecular swabs performed 48 hours apart), up to that moment a necessary condition to declare recovery from the infection, and redefines the criteria for putting an end to isolation/quarantine in consideration of the evolution of the epidemiological situation, new scientific evidence, indications from some international bodies (WHO and ECDC) and the opinion formulated by the Technical Scientific Committee on 11 October 2020.

For the first time there is talk of "Long-term positive cases" to indicate people who, although no longer presenting symptoms, continue to test positive for the molecular test for SARS-CoV-2 even 21 days after the onset of symptoms. In case of absence of symptoms (except for ageusia/dysgeusia and anosmia which can last for some time after healing) for at least a week, according to the Circular of 12/10/2020 these people can interrupt the isolation after 21 days from the onset of symptoms (taking into account the immune status of the persons concerned since, for example, the period of contagiousness can be prolonged in immunosuppressed patients).

This conclusion was reached after noting that the viral load is very high immediately before and in the first days following the onset of symptoms, after which it gradually tends to decrease until it is almost no longer detectable by day 21. This also applies to those who are fresh from a severe form of Covid-19, which required hospitalization. On the other hand, the decision taken by the Ministry of Health takes into account the update of the criteria for the interruption of the isolation of patients with Sars-CoV-2 infection completed by the World Health Organization and the conclusions of a Chinese study published in the Journal Nature Medicine and confirmed by another work that appeared in The Lancet Microbe.

Not knowing with certainty the duration of the contagious period of a subject with Covid-19, the risk of transmission of the infection exists even beyond three weeks from the onset of symptoms but respecting the distance and always using the mask, this risk is considered very low.

WHAT ARE THE FACTORS THAT INFLUENCED THE INCIDENCE OF COVID-19 INFECTION IN CAMPANIA

On 9 March 2020, following the high contagiousness and especially mortality of Covid-19, a total lockdown was declared in Italy. At the end of May 2020 there is the gradual reopening of Italy, which will allow us to move even outside the national territory. This restart, even if in part, of normal activity and the spread of variants of SARS-Covid-19, determines an increase in infections, with the need to impose further restrictions in the following months. However, there isn't the blockade of the entire national, but the definition of a low risk area (yellow-area), moderate risk area (orange-area) and high risk area (red-area).

The definition of the risk is based on the Rt index (transmissibility index). Rt indicates how many people can be infected by a single person on average and in a certain period of time. This index has currently been replaced by hospital Rt (the number of beds occupied) plus the incidence rate.

In these months, school attendance has been almost nil throughout the national territory. On September 24, in Campania, the schools opens with presence but only for children from 0 to 6 years.

The Circular of the Ministry of Health of 12 October 2020 release the asymptomatics positives after 21 days by their infections.

Various suspensions occur due to the increase in infections and hospitalizations until mid-March 2021 where Campania returns to the red zone. The reopening of public offices, non-food shops and restaurants was also slow and difficult. An almost total reopening, though with distancing and use of DPI, in Campania took place at the beginning of June 2021: the wedding sector, fairs and festivals until now blocked, has restarted.

Furthermore, Campania is one of the few Italian regions where the obligation to wear a mask also remains outdoors, if distance cannot be guaranteed. Starting from summer 2021, the incidence of positivity has suffered a sharp decline. Certainly thanks to the optimal climatic conditions, the absence of overlapping seasonal co-infections such as influenza, the introduction of the anti-Covid19 vaccination (starting from December 2020) and the introduction of the Green Pass. Incidence of Covid-19 infections is shown in Table 1.

Table 1. Incidence of Covid-19 infection in the five provinces (Napoli, Caserta, Salerno, Avellino, Benevento) of Campania from September 2020 to August 2021

	Napoli	Caserta	Salerno	Avellino	Benevento
September 2020	0,13%	0,10%	0,04%	0,05%	0,06%
October 2020	0,92%	0,83%	0,39%	0,48%	0,24%
November 2020	1,95%	2,12%	1,25%	1,05%	0,66%
December 2020	0,62%	0,61%	0,56%	0,39%	0,64%
January 2021	0,65%	0,46%	0,54%	0,27%	0,39%
February 2021	0,78%	0,55%	0,84%	0,42%	0,44%
March 2021	1,23%	0,99%	1,30%	0,90%	0,65%
April 2021	1,06%	0,88%	0,75%	0,67%	0,99%
May 2021	0,54%	0,44%	0,37%	0,40%	0,32%
June 2021	0,10%	0,04%	0,08%	0,08%	0,07%
July 2021	0,15%	0,09%	0,08%	0,05%	0,06%
August 2021	0,31%	0,16%	0,22%	0,12%	0,13%

CONCLUSIONS

The incidence of Covid-19 infection is influenced by several factors such as: lockdown, restriction measures, social distancing, use of face masks, environmental temperature and viral load, vaccinations. Prevention measures can be applied to reduce the incidence of Covid-19 infection.

CONFLICT OF INTEREST STATEMENT

The authors declare they have no competing interests that could have influenced the work.

REFERENCES

[1] Holmes E. Initial genome release of novel coronavirus 2020. http://virological.org/t/initial-genome-release-ofnovel-coronavirus/319.

[2] Zhou P, Yang XL, Wang XG, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. Nature 2020; 579: 270.

[3] Lu R, Zhao X, et al. Genomic characterisation and epidemiology of 2019 novel coronavirus: implications for virus origins and receptor binding. Lancet 2020; DOI: 10.1016/S0140-6736 (20) 30251-8.

[4] https://www.who.int/en/activities/tracking-SARS-CoV-2-variants/ (Accessed on June 07, 2021).

[5] Report of the WHO-China Joint Mission on Coronavirus DIsease 2019 (COVID-2019). February 16-24, 2020. http://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf (Accessed on March 04, 2020).

[6] Zou L, Ruan F, Huang M, et al. SARS-CoV-2 Viral Load in Upper Respiratory Specimens of Infected Patients. N Engl J Med 2020; 382: 1177.

[7] To KK, Tsang OT, Leung WS, et al. Temporal profiles of viral load in posterior oropharyngeal saliva samples and serum antibody responses during infection by SARS-CoV-2: an observational cohort study. Lancet Infect Dis 2020; 20: 565.

[8] Wölfel R, Corman VM, Guggemos W, et al. Virological assessment of hospitalized patients with COVID-2019. Nature 2020; 581: 465.
[9] He X, Lau EHY, Wu P, et al. Temporal dynamics in viral shedding and transmissibility of COVID-19. Nat Med 2020; 26: 672.
[10] COVID-19 Investigation Team. Clinical and virologic characteristics of the first 12 patients with coronavirus disease 2019 (COVID-19) in the United States. Nat Med 2020; 26: 861.
[11] Jones TC, Biele G, Mühlemann B, et al. Estimating infectiousness throughout SARS-CoV-2 infection course. Science 2021; 373.
[12] Cevik M, Marcus JL, Buckee C, Smith TC. Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Transmission Dynamics Should Inform Policy. Clin Infect Dis 2021; 73: S170.
[13] Fung HF, Martinez L, Alarid-Escudero F, et al. The Household Secondary Attack Rate of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2): A Rapid Review. Clin Infect Dis 2021; 73: S138.
[14] Madewell ZJ, Yang Y, Longini IM Jr, et al. Household Transmission of SARS-CoV-2: A Systematic Review and Meta-analysis. JAMA Netw Open 2020; 3: e2031756.
[15] Wang D, Hu B, Hu C, et al. Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus-Infected Pneumonia in Wuhan, China. JAMA 2020; 323: 1061.
[16] McMichael TM, Clark S, Pogosjans S, et al. COVID-19 in a Long-Term Care Facility - King County, Washington, February 27-March 9, 2020. MMWR Morb Mortal Wkly Rep 2020; 69: 339.
[17] Ghinai I, Woods S, Ritger KA, et al. Community Transmission of SARS-CoV-2 at Two Family Gatherings - Chicago, Illinois, February-March 2020. MMWR Morb Mortal Wkly Rep 2020; 69: 446.
[18] Rothe C, Schunk M, Sothmann P, et al. Transmission of 2019-nCoV Infection from an Asymptomatic Contact in Germany. N Engl J Med 2020; 382: 970.
[19] Yu P, Zhu J, Zhang Z, Han Y. A Familial Cluster of Infection Associated With the 2019 Novel Coronavirus Indicating Possible Person-to-Person Transmission During the Incubation Period. J Infect Dis 2020; 221: 1757.
[20] Bai Y, Yao L, Wei T, et al. Presumed Asymptomatic Carrier Transmission of COVID-19. JAMA 2020; 323: 1406.
[21] Hu Z, Song C, Xu C, et al. Clinical characteristics of 24 asymptomatic infections with COVID-19 screened among close contacts in Nanjing, China. Sci China Life Sci 2020; 63: 706.
[22] Qian G, Yang N, Ma AHY, et al. COVID-19 Transmission Within a Family Cluster by Presymptomatic Carriers in China. Clin Infect Dis 2020; 71: 861.
[23] Böhmer MM, Buchholz U, Corman VM, et al. Investigation of a COVID-19 outbreak in Germany resulting from a single travel-associated primary case: a case series. Lancet Infect Dis 2020; 20: 920.
[24] Wang Y, He Y, Tong J, et al. Caratterizzazione di una coorte asintomatica di individui infetti da coronavirus 2 (SARS-CoV-2) con sindrome respiratoria acuta grave al di fuori di Wuhan, in Cina. Clin Infect Dis 2020; 71: 2132.
[25] Madewell ZJ, Yang Y, Longini IM Jr, et al. Household Transmission of SARS-CoV-2: A Systematic Review and Meta-analysis. JAMA Netw Open 2020; 3: e2031756.
[26] Li F, Li YY, Liu MJ, et al. Household transmission of SARS-CoV-2 and risk factors for susceptibility and infectivity in Wuhan: a retrospective observational study. Lancet Infect Dis 2021; 21: 617.
[27] World Health Organization. Director-General's remarks at the media briefing on 2019-nCoV on 11 February 2020. http://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020 (Accessed on February 12, 2020).
[28] Perlman S. Another Decade, Another Coronavirus. N Engl J Med 2020; 382: 760.
[29] Case definition for coronavirus disease 2019 (COVID-19), as of 3 December 2020 https://www.ecdc.europa.eu/en/covid-19/surveillance/case-definition
[30] https://www.salute.gov.it/portale/nuovocoronavirus/dettaglioNotizieNuovoCoronavirus.jsp?lingua=italiano&id=5117.
[31] https://www.fondazioneveronesi.it/magazine/articoli/lesperto-risponde/se-il-tampone-e-positivo-perche-dopo-21-giorni-si-e-definiti-guariti.