

Prevention and response to Covid19 in ITALY

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New study published about strategy and planning evolution for the autumn and winter transition phase. With the contribution of FBK experts in mathematical models to describe scenarios and contain the spread of the infection, led by Stefano Merler

The document is entitled **“Prevention and response to COVID-19: strategy and planning evolution for the autumn-winter transition phase”** and is a complementary study to the general documents already made public on preparedness, planning and specific contexts.

The **working group at Fondazione Bruno Kessler** includes researchers Stefano Merler, Giorgio Guzzetta, Piero Poletti, Valentina Marziano and Filippo Trentini.

The partners involved are the following:

- **Ministry of Health**
- **Italian National Health Institute (ISS)**
- **National Council of health**
- **Department of Civil Protection**
- **INAIL**
- **Italian State-Regions Conference**
- **AREU 118 Lombardia**
- **AIFA**
- **“Lazzaro Spallanzani” Hospital**
- **Catholic University of Rome**
- **World Health Organization**
- **Special government appointed commissioner office for the implementation and coordination of the COVID-19 epidemiological emergency containment and contrast measures**

In particular, from chapter 3 (page 29 and following), in the light of the existing unknowns, “the possible scenarios that lie ahead for Autumn in the various regions can be summarized as follows:

- **SCENARIO 1**

Situation of localized transmission (outbreaks) substantially unchanged

compared to the July-August 2020 period, with regional R_t above the threshold for limited periods (less than 1 month) and low incidence, in the event that transmissibility does not unrelentingly increase in early autumn, schools have a modest impact on transmissibility and regional health systems are able to trace and control new outbreaks, including school outbreaks.

- **SCENARIO 2**

Situation of sustained and widespread transmissibility manageable by the health system in the short-medium term, with regional R_t values regularly and

significantly between $R_t = 1$ and $R_t = 1.25$ (i.e. with 95% Confidence Interval estimate – IC95 % – for R_t between 1 and 1.25), in the event that new outbreaks, including those in schools, cannot be completely traced, but the transmission potential of SARS-CoV-2 can still be largely limited with regular and special containment/mitigation measures. An epidemic with these transmissibility characteristics could be characterized, in addition to the evident impossibility of containing all outbreaks, by a constant increase in the incidence of cases (at least symptomatic ones; it is in fact possible that a drop in the percentage of asymptomatic cases identified against the total can be observed, given the impossibility of investigating the epidemiology for all new outbreaks), and related increase in hospitalization and admissions to intensive care units rates. However, the growth in the number of cases could be relatively slow, without causing a significant overload of health and welfare services for at least 2-4 months.

- **SCENARIO 3**

Situation of sustained and widespread transmissibility with risks of straining the health system in the medium term, with regional R_t values constantly and

significantly between $R_t = 1.25$ and $R_t = 1.5$ (i.e. with 95% CI estimates of R_t between 1, 25 and 1.5), and in which the transmission potential of SARS-CoV-2 can be limited only modestly with regular and special containment/mitigation measures. An epidemic with these transmissibility characteristics is expected to be characterized by a faster growth in case incidence with respect to scenario 2), failed tracing of infection chains, and initial signs of overload of healthcare services following the increase in highly severe clinical cases (with increased hospital bed occupancy rates – critical and non-critical care areas) attributable to a high or very high risk level based on the weekly monitoring system. The growing number of cases could lead to an overload of healthcare services within 2-3 months. However, it is important to note that if the epidemic were to spread mainly among the younger age groups, as observed in the period July-August 2020, and it were possible to protect the most fragile categories (e.g. older adults), the time frame within which to intervene could be greater.

- **SCENARIO 4**

Situation of uncontrolled transmissibility with a critically strained health

system in the short term, with regional R_t values constantly and significantly higher than 1.5 (i.e. with 95% IC estimates of R_t greater than 1.5). Although an epidemic with these characteristics would lead to more aggressive mitigation and containment measures in the

affected areas, this scenario could quickly lead to a high number of cases and clear signs of overloaded healthcare services, with no possibility of tracing the origin of new cases. The growth in the number of cases could lead to an overload of care services within 1-1.5 months, unless the epidemic spreads predominantly among the younger age groups, as observed in the July-August 2020 period, and managed to protect the most fragile categories (e.g. older adults). In this regard, it should be noted that it appears rather unlikely to be able to protect the most fragile categories in an epidemic characterized by these values of transmissibility. “

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- Articolo pubblicato su quotidianosanita.it: "Covid. Da qui a marzo ecco cosa potrebbe accadere in 4 scenari: dal migliore (dati in linea con quelli dell'estate scorsa), al peggiore (infezioni fuori controllo e servizi sanitari in tilt) che farebbe scattare un nuovo lockdown totale": http://www.quotidianosanita.it/governo-e-parlamento/articolo.php?articolo_id=88715

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