Pandemic response in Italy and prospects for public health

the perspective of the Italian institute for public health (Istituto Superiore di Sanità)

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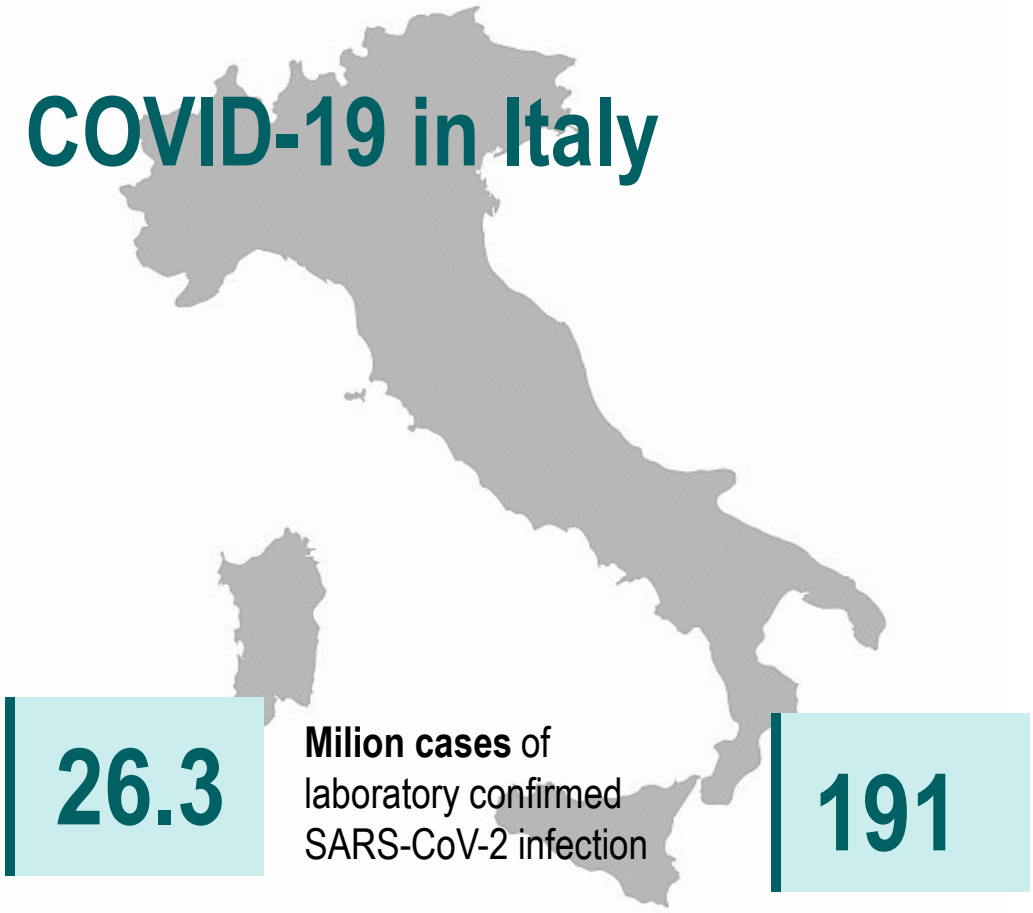
Img Source: https://pixabay.com/vectors/virus-corona-covid-19-coronavirus-5182547/

Buen día, agradezco mucho a los organizadores de esta prestigiosa conferencia por la oportunidad de estar hoy aquí con ustedes para compartir la experiencia del Instituto Superior de Salud de Italia sobre la respuesta a la pandemia en Italia y las perspectivas de la salud pública.

Pido disculpas por el hecho de que no hablo español.

COVID-19 in Italy



26.3 **Milion cases** of laboratory confirmed SARS-CoV-2 infection

191 **Thousand related deaths** (CFR 0.7%)

- The outbreak in Italy started abruptly in a context of widespread local circulation
- First country detecting local transmission in the EU

↓

- Evolving strategies (different response phases) and the role of applied research

↓

What now?

Data updated as of 20 September 2023

First phase – unprecedented impact

The New York Times

Italy's Health Care System Groans Under Coronavirus — a Warning to the World

In less than three weeks, the virus has overloaded hospitals in northern Italy, offering a glimpse of what countries face if they cannot slow the contagion.

CIDRAP Center for Infectious Disease Research and Policy

News & Perspective | Infectious Disease Topics | Antimicrobial Stewardship | Ongoing Progra

FEATURED NEWS TOPICS COVID-19 Ebola MERS-CoV Chronic Wasting Disease

Doctors: COVID-19 pushing Italian ICUs toward collapse

Filed Under: COVID-19

Mary Van Beusekom | News Writer | CIDRAP News | Mar 18, 2020 Share Tweet LinkedIn Email Print & PI

Hospital systems everywhere should activate emergency intensive care unit (ICU) networks and reserve beds to prepare for a "massive" increase in COVID-19 patients, doctors in hard-hit Lombardy, Italy, said in a commentary published on Mar 13 in *JAMA*.

The Milan-based authors used data gathered since Mar 7 to create linear and exponential models to project regional ICU demand to Mar 20. They said that their linear model predicted that 869 patients

THE LOCAL it

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'Hospitals are overwhelmed': Italian doctors describe the struggle of fighting the coronavirus outbreak

The Local
news@thelocal.it
@thelocalitaly
11 March 2020
11:22 CET

Speedtest.nl
PCR-test: nergens goedkoper
OPEN

Coronavirus, Cuba in soccorso dell'Italia: 52 medici e infermieri in arrivo a Crema

Disproportionate impact on HCW

Image sources: RAI news; Huffington Post; Politico

First Acute Phase: Early transmission of COVID-19 in Italy in 2020

No known local SARS-CoV-2 circulation

Undetected local SARS-CoV-2 circulation

Known local SARS-CoV-2 circulation

22/01 Surveillance of COVID-19 among severe cases of acute respiratory infection with epidemiological links Laboratory network with confirmation capacity set up

27/02 Shift to case based enhanced surveillance of all SARS-CoV-2 laboratory confirmed cases

20-21/01
WHO mission to Wuhan suggest for the first time human to human transmission of SARS-CoV-2

ECDC Risk Assessment : low risk of secondary transmission in the EU/EEA

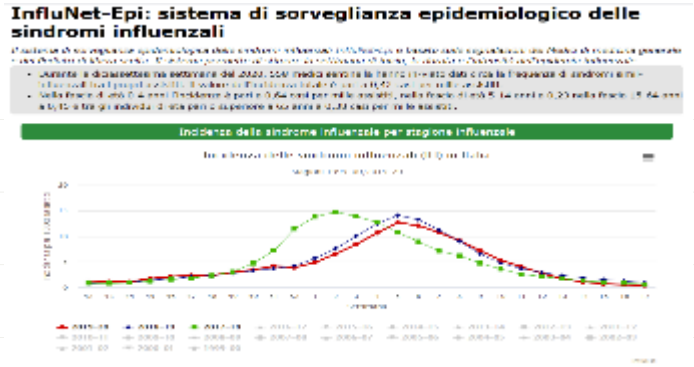
23/01
1st meeting of the COVID-19 IHR Emergency Committee **does NOT declare** a Public Health Emergency of International concern (PHEIC)

22/01 Italy nominated a national task force to address SARS-CoV-2

27/01 Direct flights to and from China suspended

30/01
2nd meeting of the COVID-19 IHR Emergency Committee **declares a PHEIC**

31/01 COVID-19 Italy declared a national health emergency



20/02 Local COVID-19 transmission detected

23/02 Strict physical distancing measures in 11 municipalities in the Lodi province (Red zone)

01/03 Red Zone measures broadened to municipalities in Lombardia and Veneto

04/03 First **national level** strict physical distancing measures including school closures

11/03 first **Lock down**

Progressive **Lock down** tightening

6000
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0

20 gen 21 gen 22 gen 23 gen 24 gen 25 gen 26 gen 27 gen 28 gen 29 gen 30 gen 31 gen 01 feb 02 feb 03 feb 04 feb 05 feb 06 feb 07 feb 08 feb 09 feb 10 feb 11 feb 12 feb 13 feb 14 feb 15 feb 16 feb 17 feb 18 feb 19 feb 20 feb 21 feb 22 feb 23 feb 24 feb 25 feb 26 feb 27 feb 28 feb 29 feb 01 mar 02 mar 03 mar 04 mar 05 mar 06 mar 07 mar 08 mar 09 mar 10 mar 11 mar 12 mar 13 mar 14 mar 15 mar 16 mar 17 mar 18 mar 19 mar 20 mar 21 mar 22 mar 23 mar

Date of diagnosis Date of symptom onset

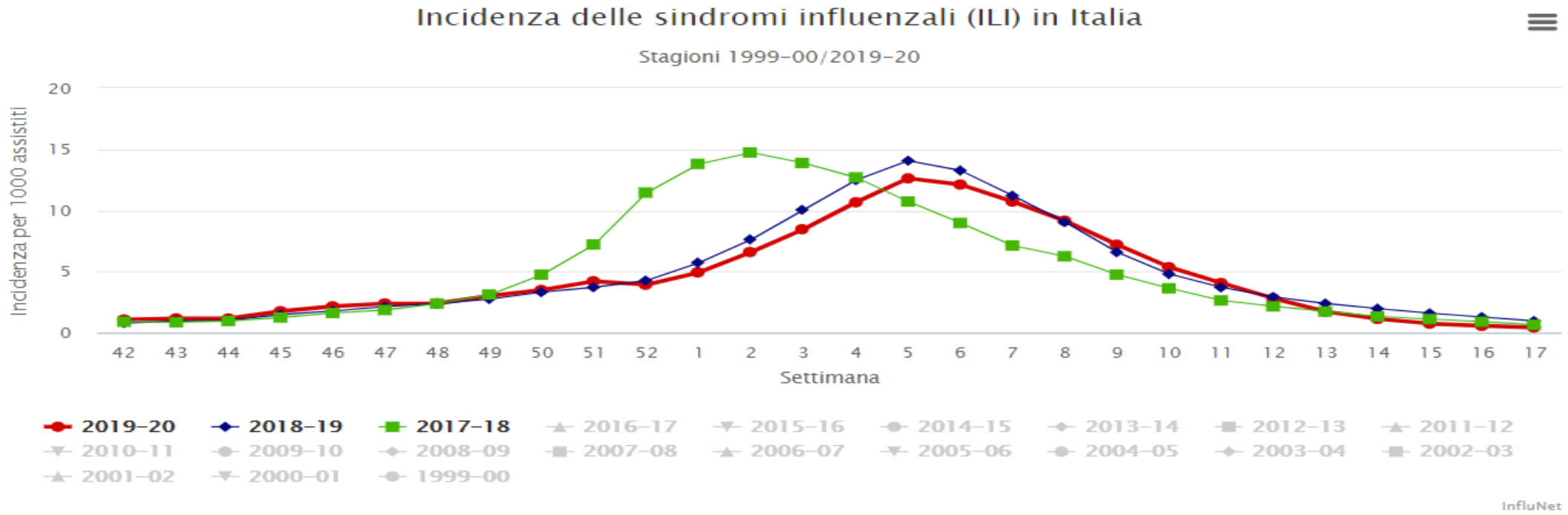
Data Source: Italian National Integrated Surveillance for COVID-19 (period 23 Jan- 23 Mar updated as of 19 May 2020)

InfluNet-Epi: sistema di sorveglianza epidemiologico delle sindromi influenzali

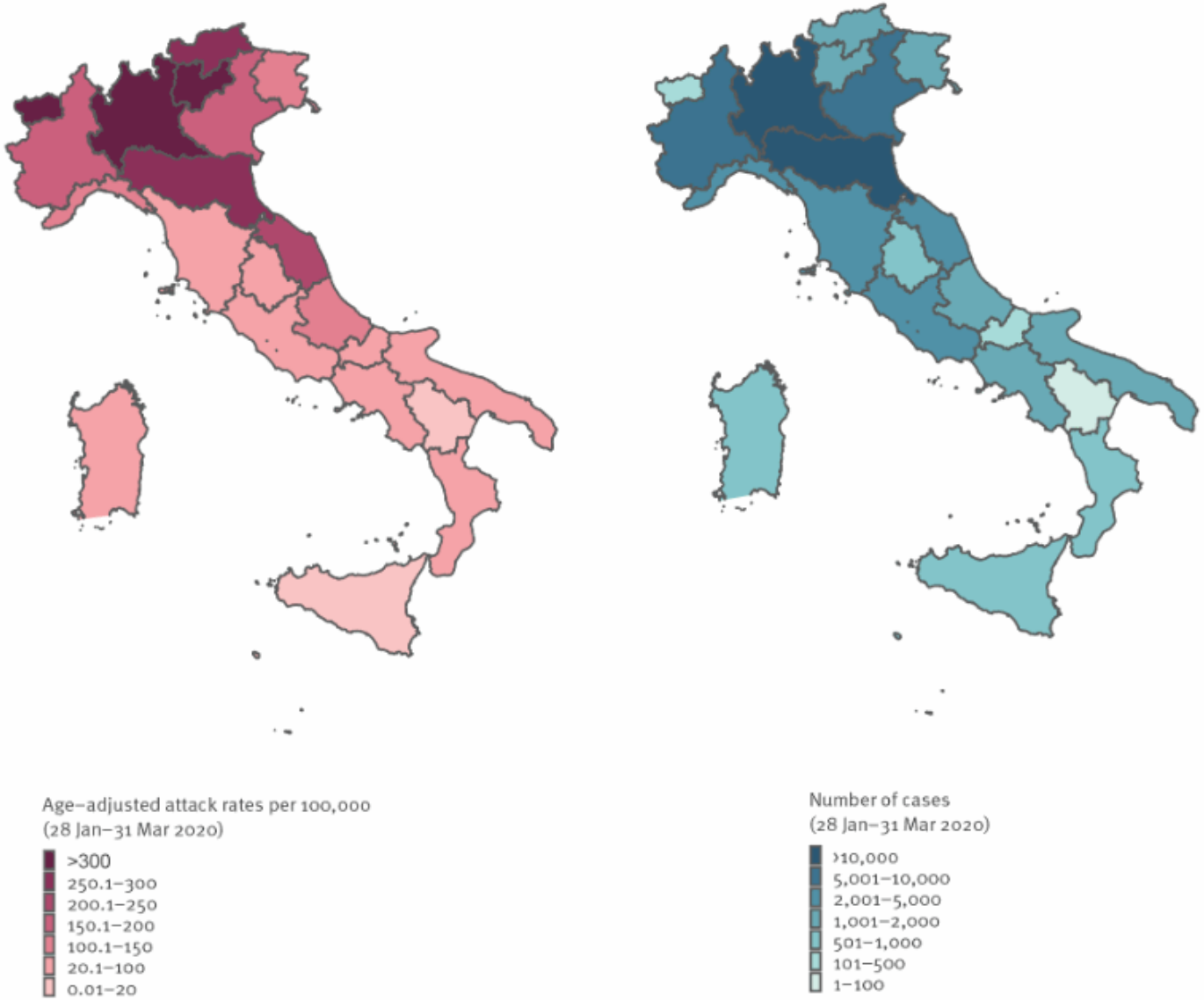
Il sistema di sorveglianza epidemiologica delle sindromi influenzali InfluNet-Epi è basato sulle segnalazioni dei Medici di medicina generale e dei Pediatri di libera scelta. Il sistema permette di stimare la settimana di inizio, la durata e l'intensità dell'epidemia influenzale.

- Durante la diciassettesima settimana del 2020, 558 medici sentinella hanno in-viato dati circa la frequenza di sindromi simil-influenzali tra i propri assistiti. Il valore dell'incidenza totale è pari a 0,42 casi per mille assistiti.
- Nella fascia di età 0-4 anni l'incidenza è pari a 0,64 casi per mille assistiti, nella fascia di età 5-14 anni a 0,23 nella fascia 15-64 anni a 0,45 e tra gli individui di età pari o superiore a 65 anni a 0,38 casi per mille assistiti.

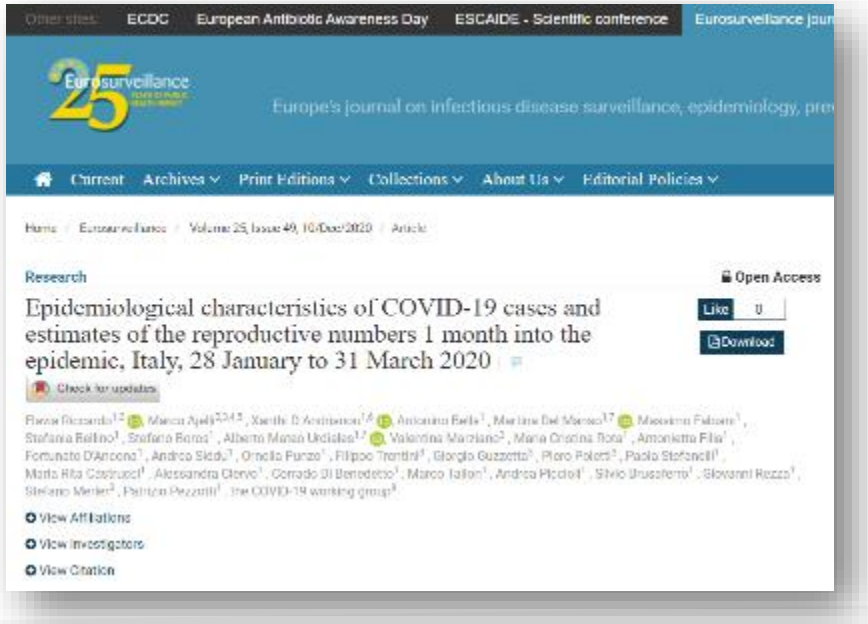
Incidenza della sindrome influenzale per stagione influenzale



First acute phase - different impact in different parts of the country addressed with a national lockdown

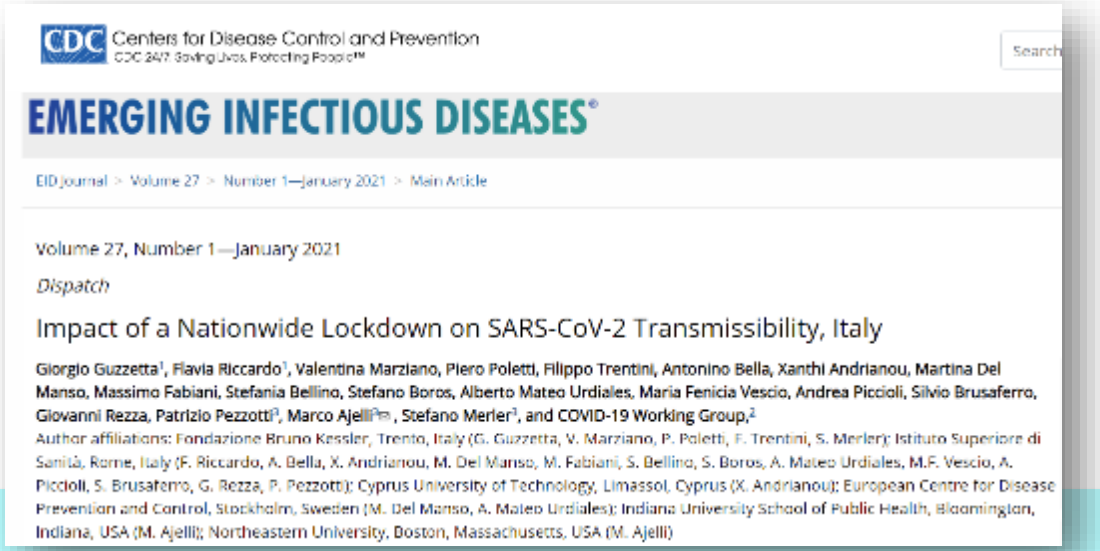


COVID-19 attack rates per 100,000 population (age-adjusted) by region/AP of diagnosis and number of cases by region/AP of diagnosis (n = 98,716), Italy, 28 January–31 March 2020



Impact of early containment efforts on SARS-CoV-2 transmissibility

The national lockdown put in place as of March 11 to limit the spread of SARS CoV-2 in Italy brought Rt below 1 in most regions and provinces within 2 weeks.



CDC Centers for Disease Control and Prevention

EMERGING INFECTIOUS DISEASES®

EID Journal > Volume 27 > Number 1—January 2021 > Main Article

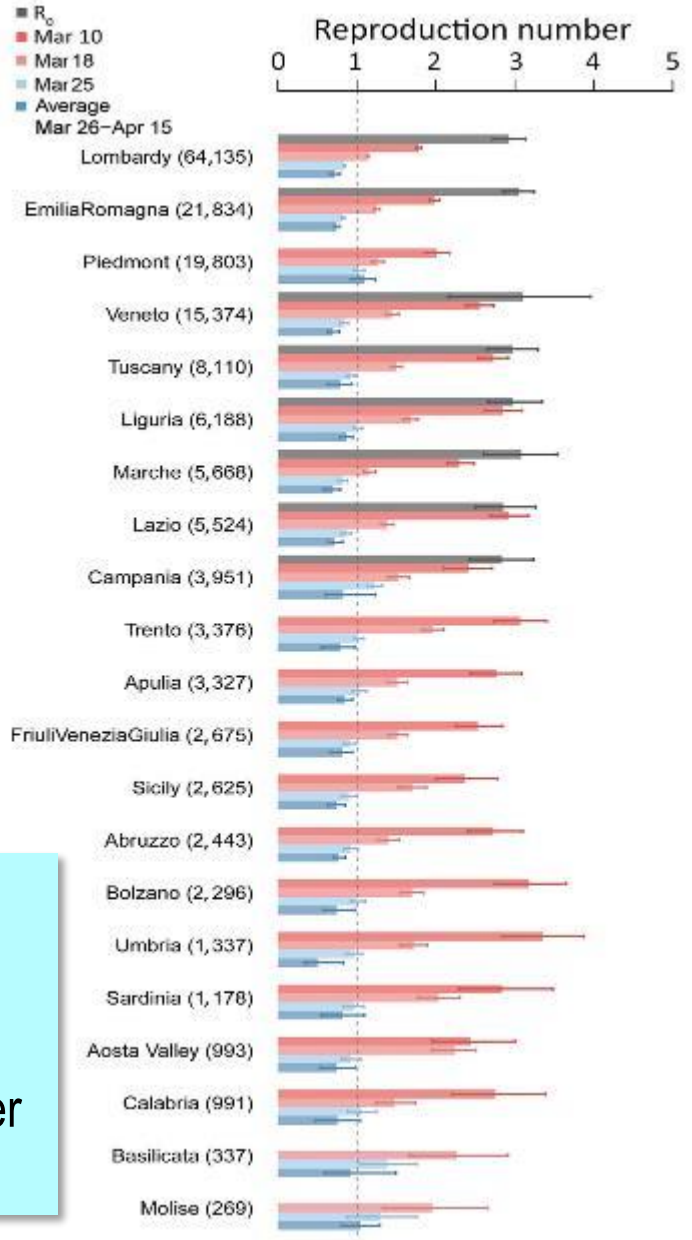
Volume 27, Number 1—January 2021

Dispatch

Impact of a Nationwide Lockdown on SARS-CoV-2 Transmissibility, Italy

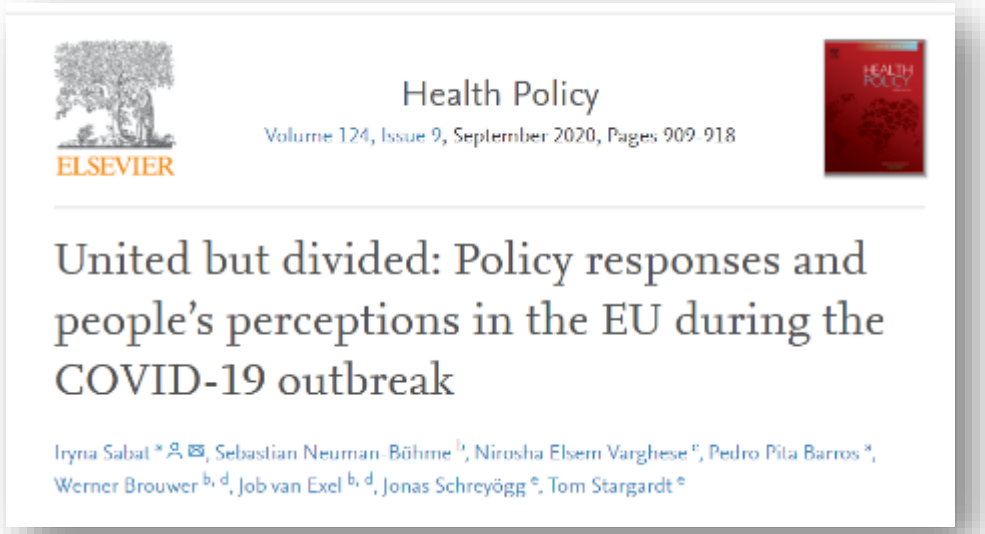
Giorgio Guzzetta[1], Flavia Riccardo[1], Valentina Marziano, Piero Poletti, Filippo Trentini, Antonino Bella, Xanthi Andrianou, Martina Del Manso, Massimo Fabiani, Stefania Bellino, Stefano Boros, Alberto Mateo Urdiales, Maria Fenicia Vescio, Andrea Piccioli, Silvio Brusaferro, Giovanni Rezza, Patrizio Pezzotti[2], Marco Ajelli[2], Stefano Merler[1], and COVID-19 Working Group[2]

Author affiliations: Fondazione Bruno Kessler, Trento, Italy (G. Guzzetta, V. Marziano, P. Poletti, F. Trentini, S. Merler); Istituto Superiore di Sanità, Rome, Italy (F. Riccardo, A. Bella, X. Andrianou, M. Del Manso, M. Fabiani, S. Bellino, S. Boros, A. Mateo Urdiales, M.F. Vescio, A. Piccioli, S. Brusaferro, G. Rezza, P. Pezzotti); Cyprus University of Technology, Limassol, Cyprus (X. Andrianou); European Centre for Disease Prevention and Control, Stockholm, Sweden (M. Del Manso, A. Mateo Urdiales); Indiana University School of Public Health, Bloomington, Indiana, USA (M. Ajelli); Northeastern University, Boston, Massachusetts, USA (M. Ajelli)



> “Lockdown was fundamental to prevent an explosion in the number of cases in other regions in which transmission had started weeks later compared with the outbreak epicenter (Lombardy, Veneto, Emilia Romagna).

Impact of early containment efforts - acceptability



ELSEVIER

Health Policy

Volume 124, Issue 9, September 2020, Pages 909-918

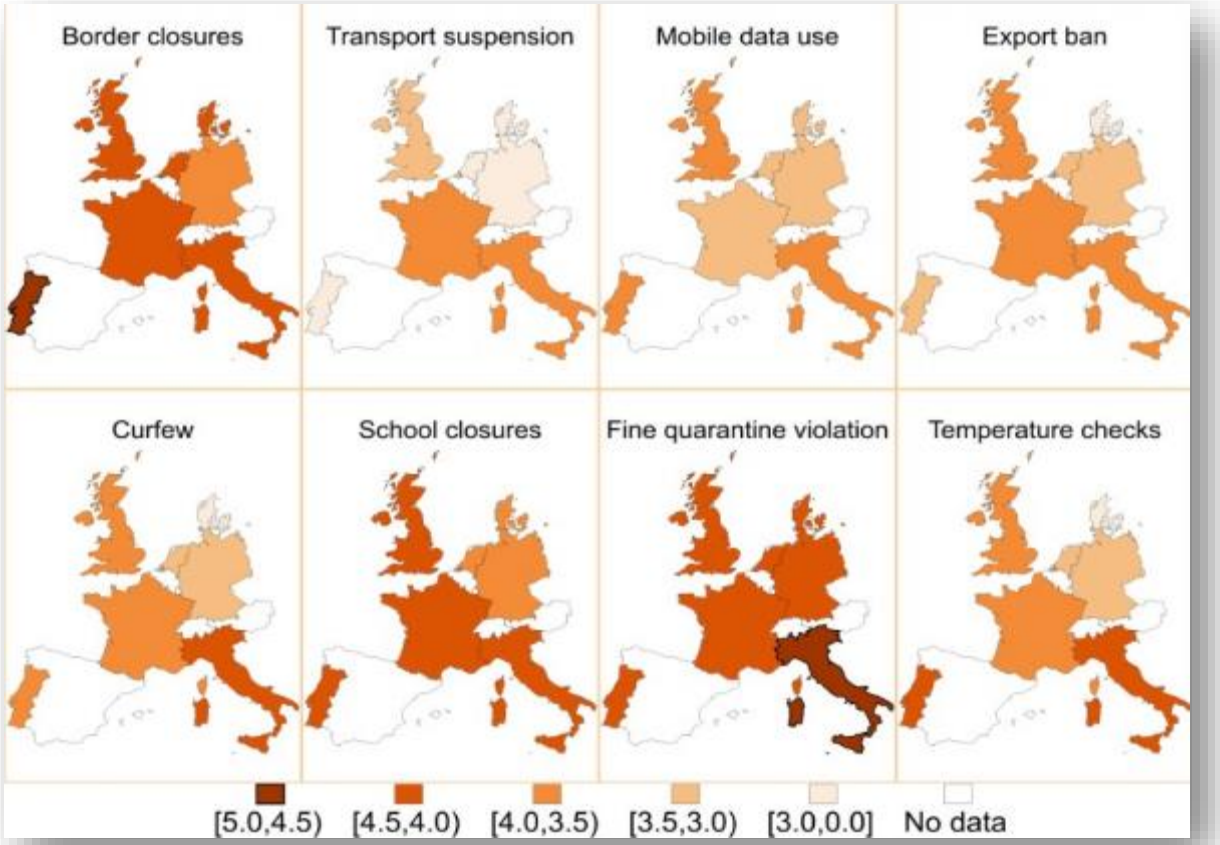
United but divided: Policy responses and people's perceptions in the EU during the COVID-19 outbreak

Iryna Sabat [a], Sebastian Neuman-Böhme [b], Nirosha Elsem Varghese [c], Pedro Pita Barros [a], Werner Brouwer [b, d], Job van Exel [b, d], Jonas Schreyögg [e], Tom Stargardt [e]

First two weeks of April 2020 (Italy was in full lock-down)

Grade of approval of specific measures in 7 EU countries (Likert scale from 1-strongly disagree to 5 strongly agree).

Darker colours show higher consensus



The study team did not find significant differences in policy support between Lombardy and the rest of Italy.

https://www.sciencedirect.com/science/article/pii/S0168851020301639

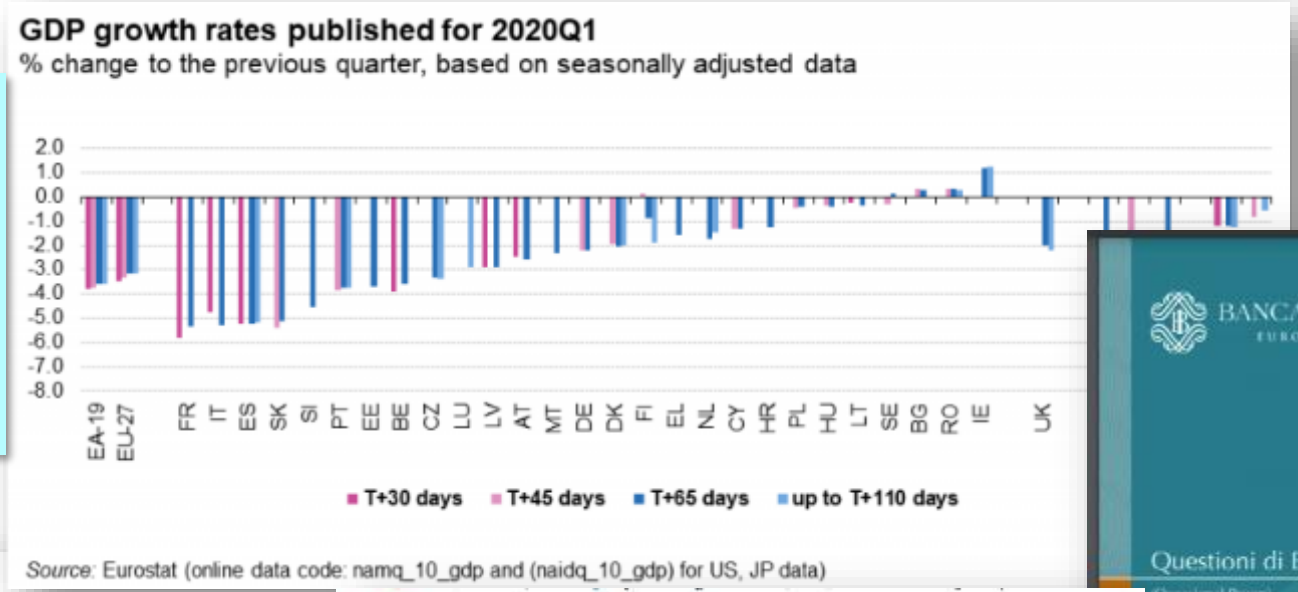
WHO

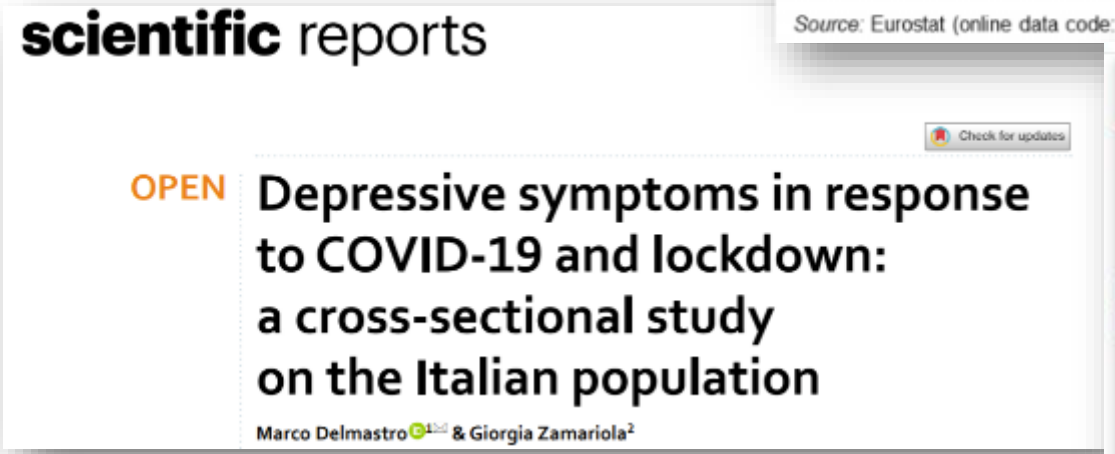
- Need to be «Icebreakers»
- Proof of concept
- Institutional synergy
- Strong, fast coherent response
- Population and context resilience
  - Acceptability

https://www.youtube.com/watch?v=oDeSCVGi-pM

Some negative impact dimensions of early containment efforts

> “
>
> …the impact of COVID-19 was largest in France and Italy (-5.3%), followed by Spain and Slovakia (-5.2%).
>
> Source: EUROSTAT

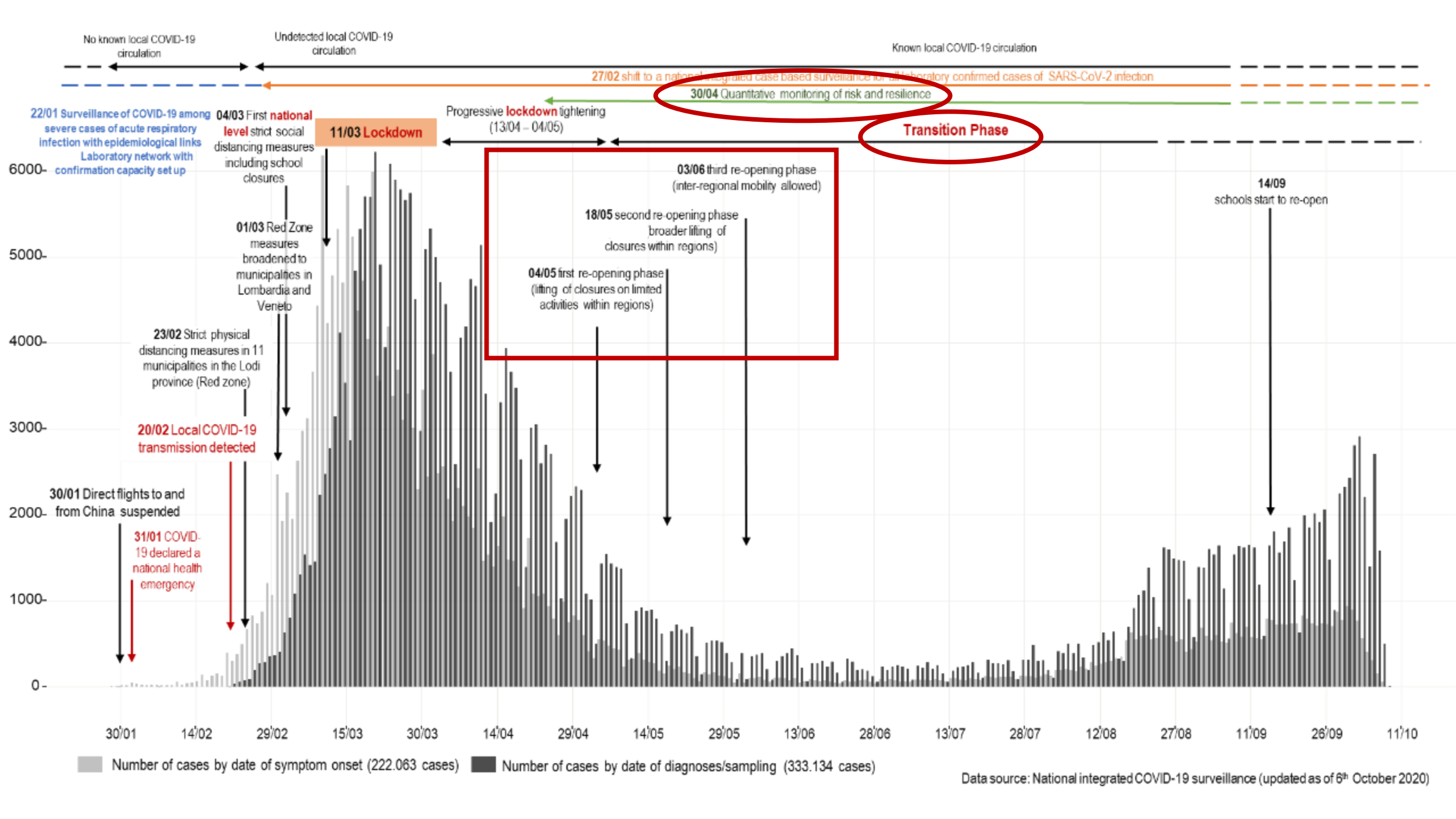




Collateral damage

UN report finds COVID-19 is reversing decades of progress on poverty, healthcare and education

https://www.un.org/es/desa/un-report-finds-covid-19-reversing-decades-progress-poverty-healthcare-and


No known local COVID-19 circulation
Undetected local COVID-19 circulation
Known local COVID-19 circulation
27/02 shift to a national integrated case based surveillance for all laboratory confirmed cases of SARS-CoV-2 infection
30/04 Quantitative monitoring of risk and resilience
Transition Phase
22/01 Surveillance of COVID-19 among severe cases of acute respiratory infection with epidemiological links Laboratory network with confirmation capacity set up
04/03 First national level strict social distancing measures including school closures
11/03 Lockdown
Progressive lockdown tightening (13/04 – 04/05)
03/06 third re-opening phase (inter-regional mobility allowed)
18/05 second re-opening phase broader lifting of closures within regions)
04/05 first re-opening phase (lifting of closures on limited activities within regions)
14/09 schools start to re-open
01/03 Red Zone measures broadened to municipalities in Lombardia and Veneto
23/02 Strict physical distancing measures in 11 municipalities in the Lodi province (Red zone)
20/02 Local COVID-19 transmission detected
30/01 Direct flights to and from China suspended
31/01 COVID-19 declared a national health emergency
6000
5000
4000
3000
2000
1000
0
30/01
14/02
29/02
15/03
30/03
14/04
29/04
14/05
29/05
13/06
28/06
13/07
28/07
12/08
27/08
11/09
26/09
11/10
Number of cases by date of symptom onset (222.063 cases)
Number of cases by date of diagnoses/sampling (333.134 cases)
Data source: National integrated COVID-19 surveillance (updated as of 6th October 2020)

First acute phase: take-home points

- **Re-modelling of health care system**
- **Unsustainability of prolonged national lockdown policies**


LA STAMPA

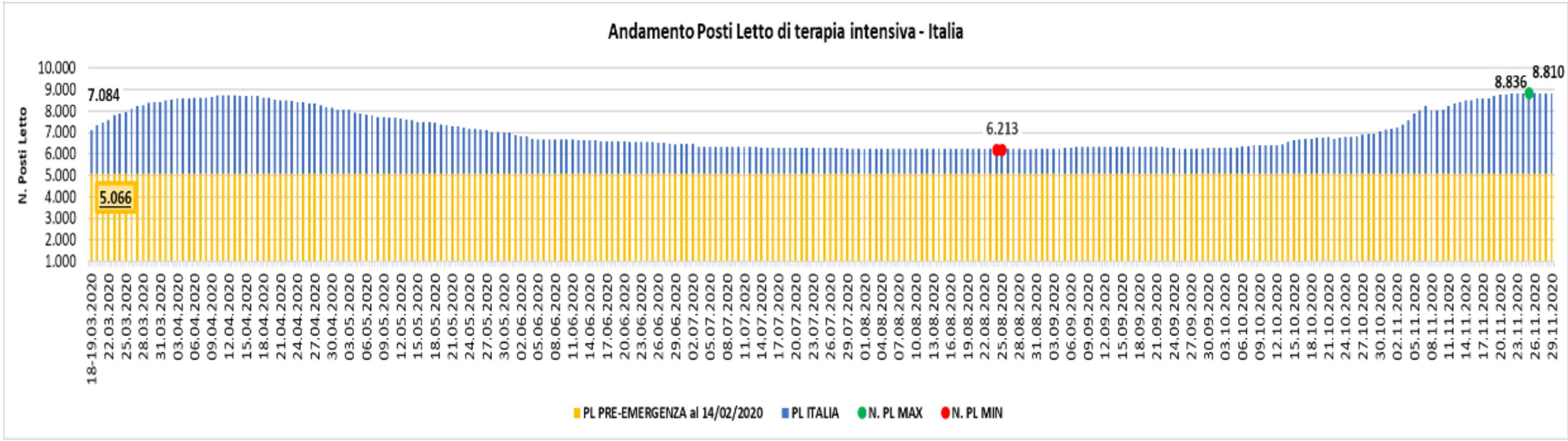
Coronavirus, Conte: "Non ci sono le condizioni per un nuovo lockdown"

Il premier a tutto tondo su Alitalia, autostrade e 007. Infine sul Capo dello Stato: «Mattarella bis? Lo vedrei benissimo». Sugli stadi: «Inopportuna riaprirli»

FACEBOOK

https://www.lastampa.it/politica/2020/09/05/news/coronavirus-conte-non-ci-sono-le-condizioni-per-un-nuovo-lockdown-1.39270348

Flexible emergency increase hospital bed availability - ICU



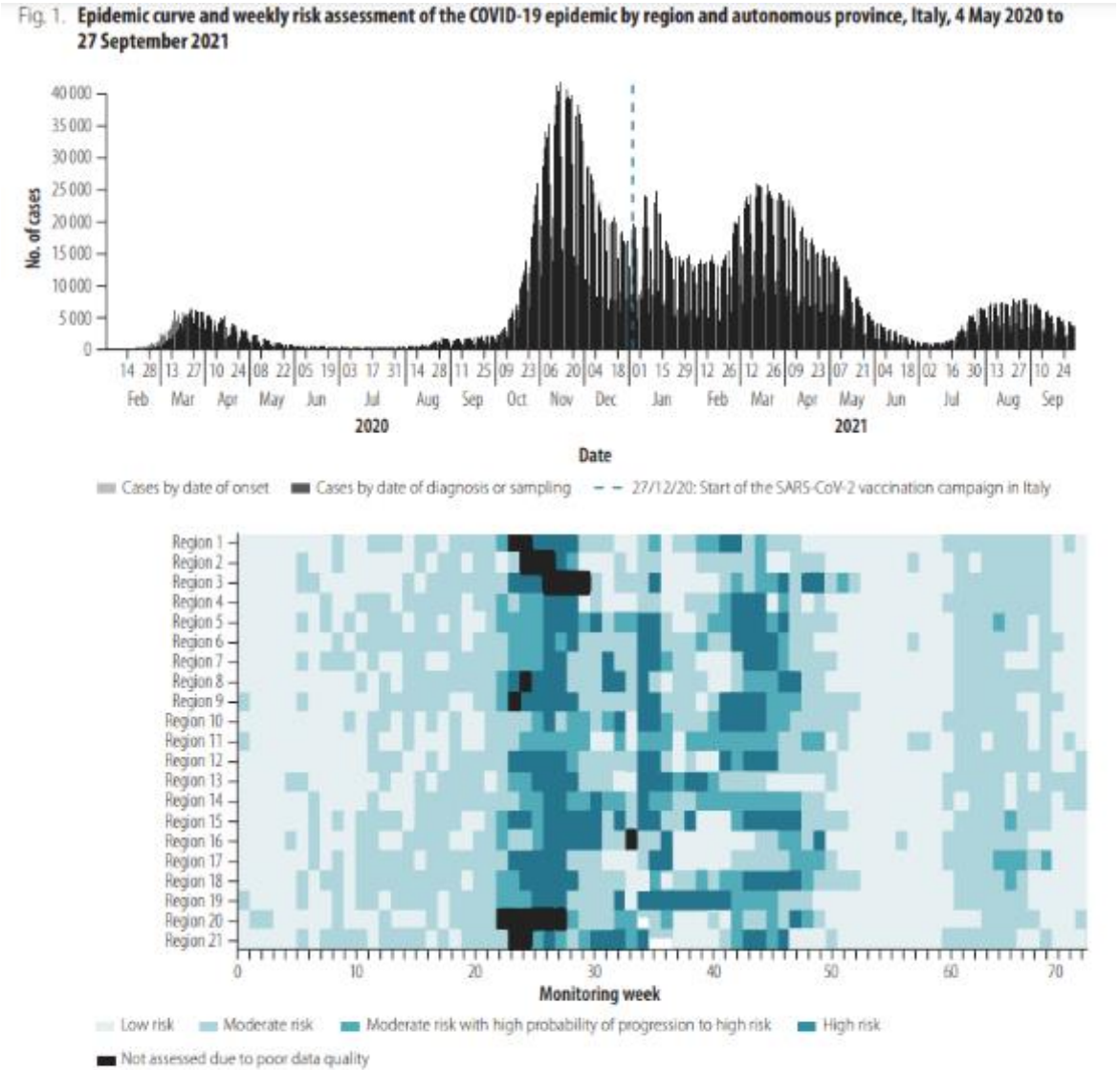
Source: MoH "COVID-19 Rilevazione giornaliera posti letto attivati"

Early warning function of risk assessment Innovative approach

› Bull World Health Organ. 2022 Feb 1;100(2):161-167. doi: 10.2471/BLT.21.286317. Epub 2021 Nov 25.

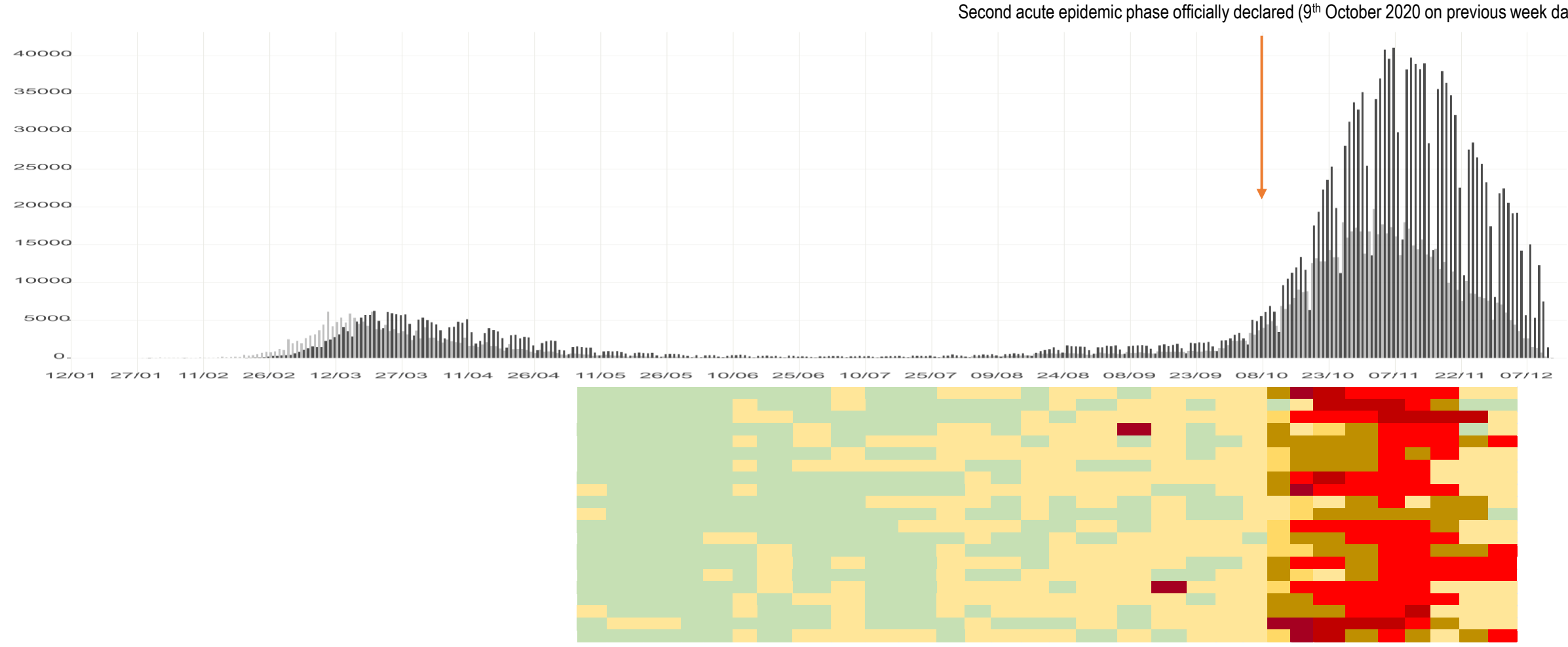
COVID-19 response: effectiveness of weekly rapid risk assessments, Italy

- Mixed method epidemic intelligence approach (IBS and EBS)
- Continuous and timely (looking at data from the previous week)
- **Reliable anticipation of severe outcomes (> incidence of hospitalization and death) in the three following weeks if no additional measures were taken**
- Resource intensive



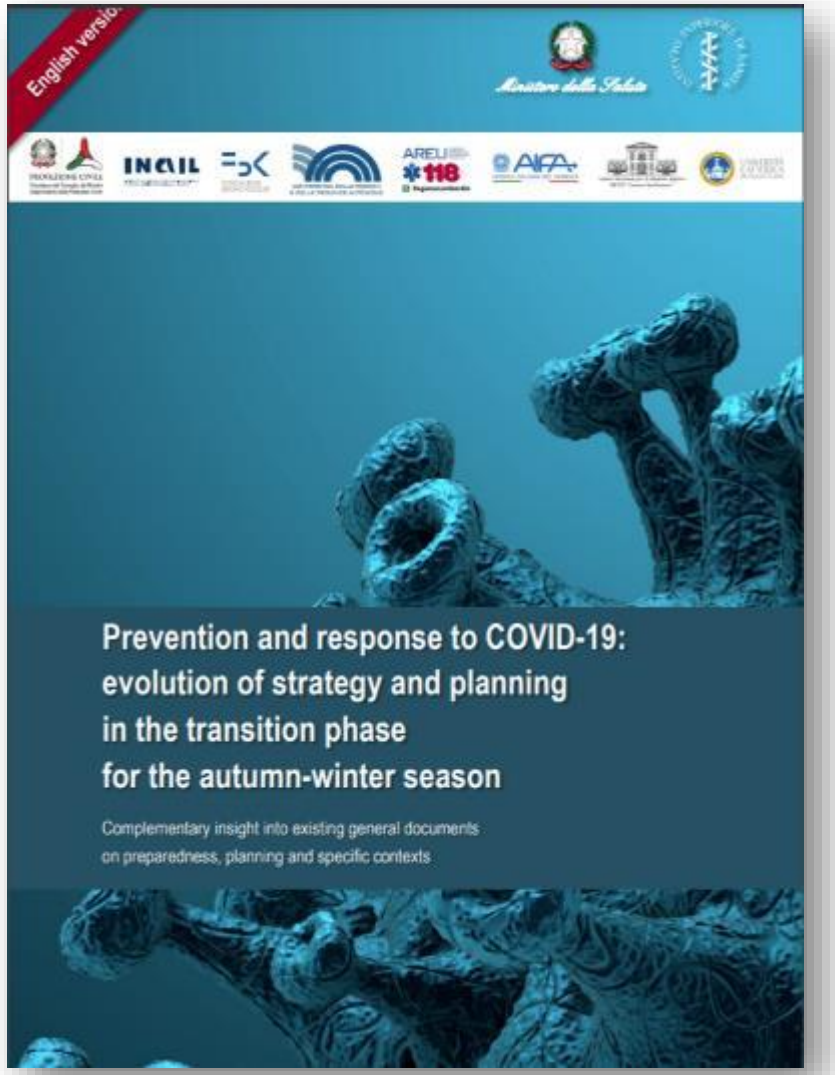
Riccardo F et al. COVID-19 response: effectiveness of weekly rapid risk assessments, Italy. Bull World Health Organ. 2022 Feb 1;100(2):161-167. doi: 10.2471/BLT.21.286317. Epub 2021 Nov 25. PMID: 35125541; PMCID: PMC8795855. Supplementary materials with in depth data in https://zenodo.org/record/5638454#.Yg_FnOiZM2w

Official declaration of the second acute epidemic phase with increased epidemic risk in Italy



Low risk | Moderate risk | Moderate risk with high probability of progression to high risk | High risk | Not assessed due to poor data quality

Readiness (early October 2020)



Actions identified depending on ILI expected prevalence by COVID-19 scenario and regional risk level

[Available online]

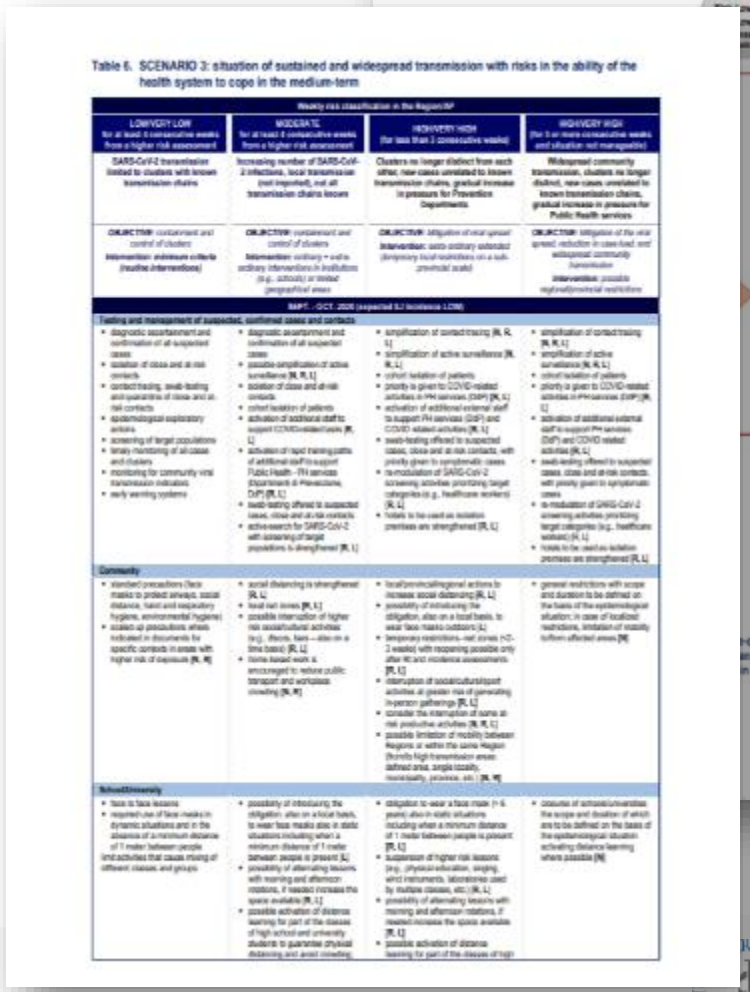
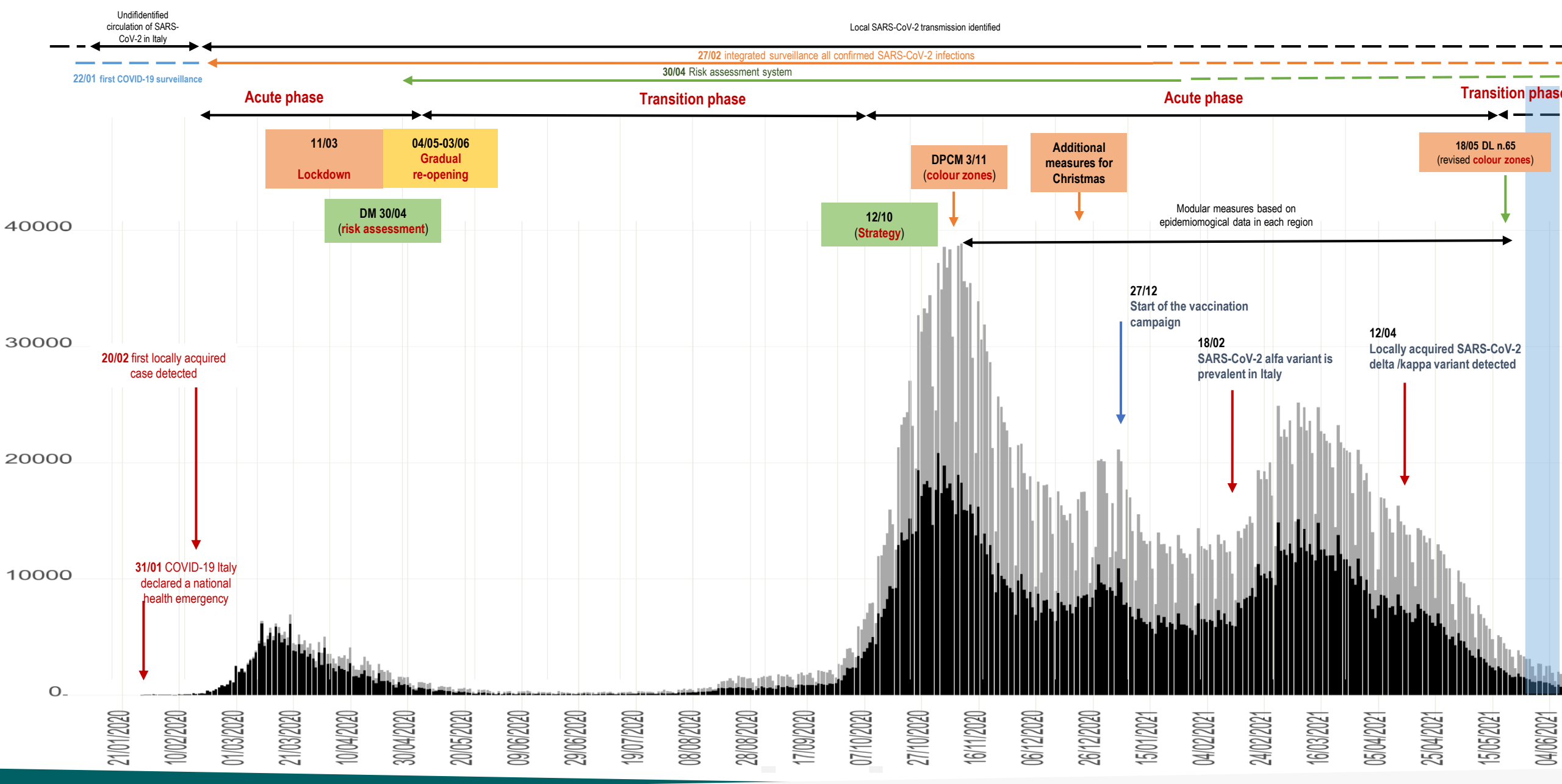


Table 6. SCENARIO 3: situation of sustained and widespread transmission with risks in the ability of the health system to cope in the medium-term

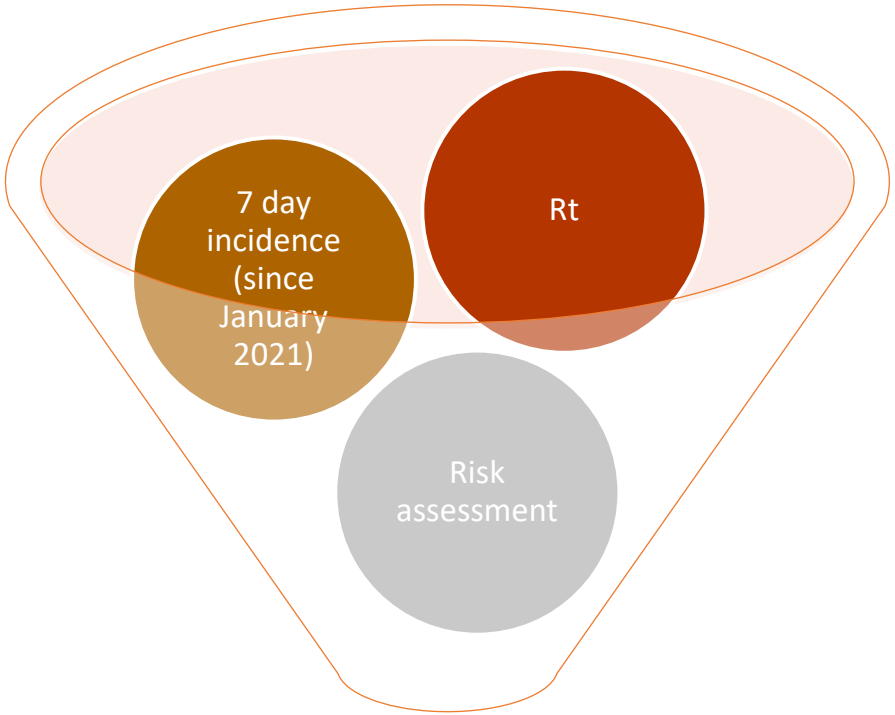
Weekly risk classification in the Region/AP			
LOW/VERY LOW for at least 3 consecutive weeks from a higher risk assessment	MODERATE for at least 3 consecutive weeks from a higher risk assessment	HIGH/VERY HIGH (for less than 3 consecutive weeks)	HIGH/VERY HIGH (for 3 or more consecutive weeks and situation not manageable)
SARS-CoV-2 transmission limited to clusters with known transmission chains	Increasing number of SARS-CoV-2 infections, local transmission (not imported), not all transmission chains known	Clusters no longer distinct from each other, new cases unrelated to known transmission chains, gradual increase in pressure for Prevention Departments	Widespread community transmission, clusters no longer distinct, new cases unrelated to known transmission chains, gradual increase in pressure for Public Health services
OBJECTIVE: containment and control of clusters **Intervention:** minimum criteria (routine interventions)	**OBJECTIVE:** containment and control of clusters **Intervention:** ordinary + soft ordinary interventions in institutions (e.g., schools) or limited geographical areas	**OBJECTIVE:** Mitigation of viral spread **Intervention:** extra-ordinary extended (temporary local restrictions on a sub-provincial scale)	**OBJECTIVE:** Mitigation of the viral spread, reduction in case-load, and widespread community transmission **Intervention:** possible regional/provincial restrictions
SEPT. - OCT. 2020 (expected ILI incidence LOW)			
Testing and management of suspected, confirmed cases and contacts			
• diagnostic ascertainment and confirmation of all suspected cases • isolation of close and at-risk contacts • contact tracing, swab-testing and quarantine of close and at-risk contacts • epidemiological exploratory actions • screening of target populations • timely monitoring of all cases and clusters • monitoring for community viral transmission indicators • early warning systems	• diagnostic ascertainment and confirmation of all suspected cases • possible simplification of active surveillance [R, R, L] • isolation of close and at-risk contacts • cohort isolation of patients • activation of additional staff to support COVID-related cases [R, L] • activation of rapid training paths of additional staff to support Public Health - PH services (Department & Prevention, DoP) [R, L] • swab-testing offered to suspected cases, close and at-risk contacts • active-search for SARS-CoV-2 with screening of target populations is strengthened [R, L]	• simplification of contact tracing [R, R, L] • simplification of active surveillance [R, R, L] • cohort isolation of patients • priority is given to COVID-related activities in PH services (DoP) [R, L] • activation of additional external staff to support PH services (DoP) and COVID related activities [R, L] • swab-testing offered to suspected cases, close and at-risk contacts, with priority given to symptomatic cases • re-modulation of SARS-CoV-2 screening activities prioritising target categories (e.g., healthcare workers) [R, L] • hotels to be used as isolation premises are strengthened [R, L]	• simplification of contact tracing [R, R, L] • simplification of active surveillance [R, R, L] • cohort isolation of patients • priority is given to COVID-related activities in PH services (DoP) [R, L] • activation of additional external staff to support PH services (DoP) and COVID related activities [R, L] • swab-testing offered to suspected cases, close and at-risk contacts, with priority given to symptomatic cases • re-modulation of SARS-CoV-2 screening activities prioritising target categories (e.g., healthcare workers) [R, L] • hotels to be used as isolation premises are strengthened [R, L]
Community			
• standard precautions (face masks to protect airways, social distance, hand and respiratory hygiene, environmental hygiene) • scaled-up precautions where indicated in documents for specific contexts in areas with higher risk of exposure [R, R]	• social distancing is strengthened [R, L] • local red zones [R, L] • possible interruption of higher risk social/cultural activities (e.g., theatre, bars – also on a time basis) [R, L] • home-based work is encouraged to reduce public transport and workplace crowding [R, R]	• local/provincial/regional actions to increase social distancing [R, L] • possibility of introducing the obligation, also on a local basis, to wear face masks outdoors [L] • temporary restrictions - red zones (>0-2 weeks) with reopening possible only after RE and incidence assessments [R, L] • interruption of social/cultural/sport activities at greater risk of generating in-person gatherings [R, L] • consider the interruption of some at-risk productive activities [R, R, L] • possible limitation of mobility between Regions or within the same Region (from/to high transmission areas: defined area, single locality, municipality, province, etc.) [R, R]	• general restrictions with scope and duration to be defined on the basis of the epidemiological situation; in case of localized restrictions, limitation of mobility to/from affected areas [R]
School/University			
• face to face lessons • required use of face masks in dynamic situations and in the absence of a minimum distance of 1 meter between people and activities that cause mixing of different classes and groups	• possibility of introducing the obligation, also on a local basis, to wear face masks also in static situations including when a minimum distance of 1 meter between people is present [L] • possibility of alternating lessons with morning and afternoon rotations, if needed increase the space available [R, L] • possible activation of distance learning for part of the classes of high school and university students to guarantee physical distancing and avoid crowding	• obligation to wear a face mask (>6 years) also in static situations including when a minimum distance of 1 meter between people is present [R, L] • suspension of higher risk lessons (e.g., physical education, singing, wind instruments, laboratories used by multiple classes, etc.) [R, L] • possibility of alternating lessons with morning and afternoon rotations, if needed increase the space available [R, L] • possible activation of distance learning for part of the classes of high	• closures of schools/universities the scope and duration of which are to be defined on the basis of the epidemiological situation, activating distance learning where possible [R]



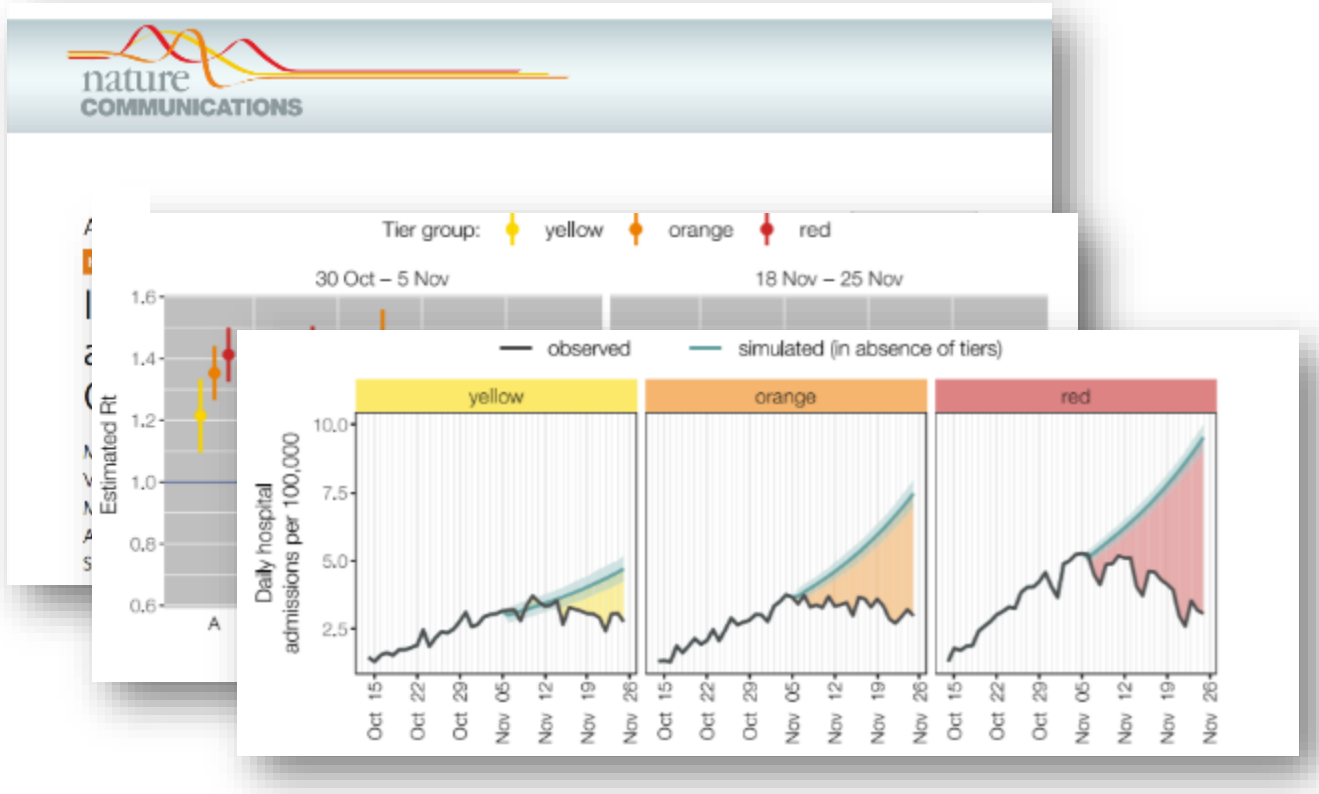
Source: Sorveglianza nazionale integrata per COVID-19 (updated 23 June 2021)

Cases by date of symptom onset ■ Cases by date of diagnoses/testing ■

Change in strategy → the «colour zone» system for suppression

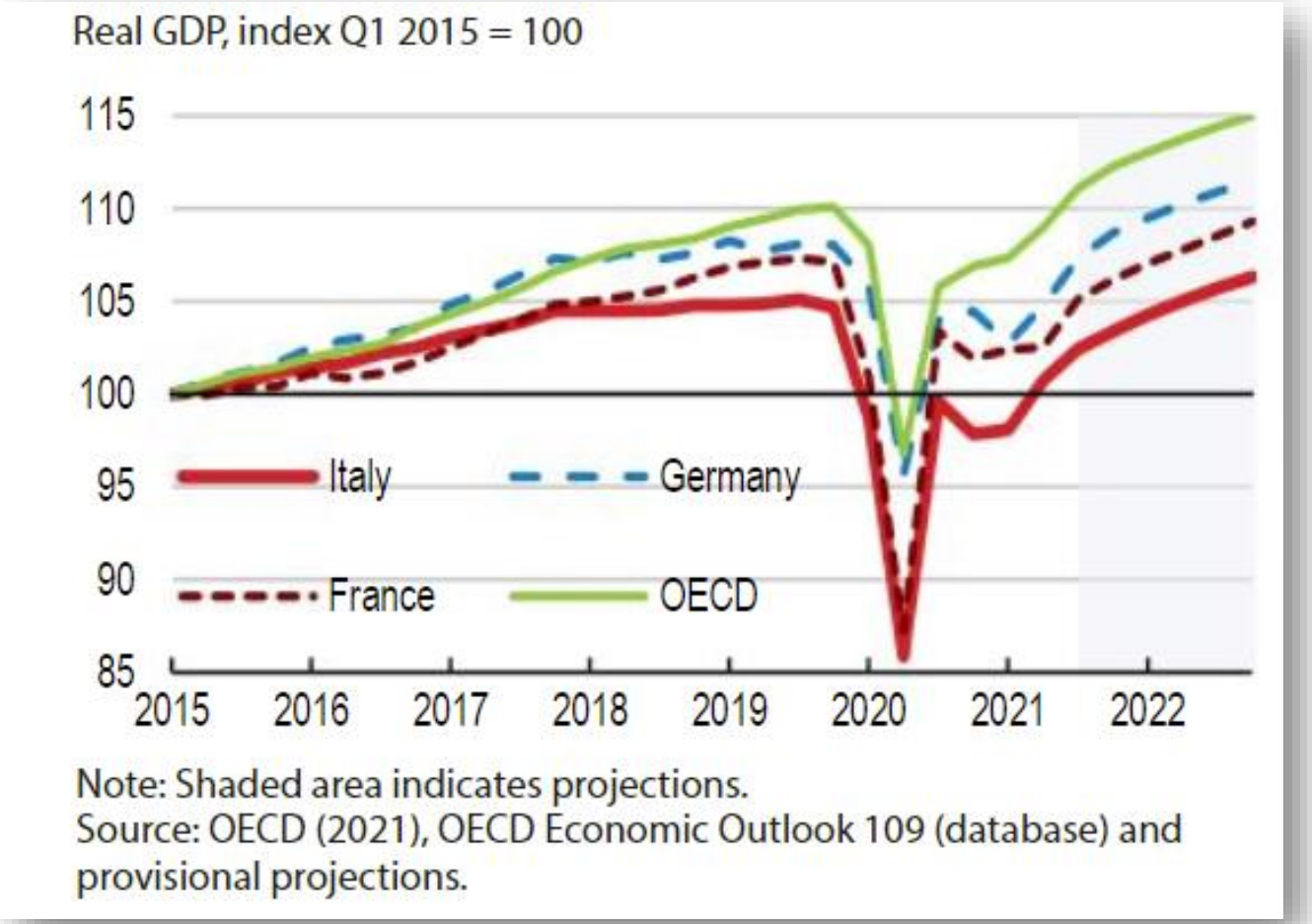


«colour code» of measures (yellow, orange red) from 5 November 2020 – 17 May 2021



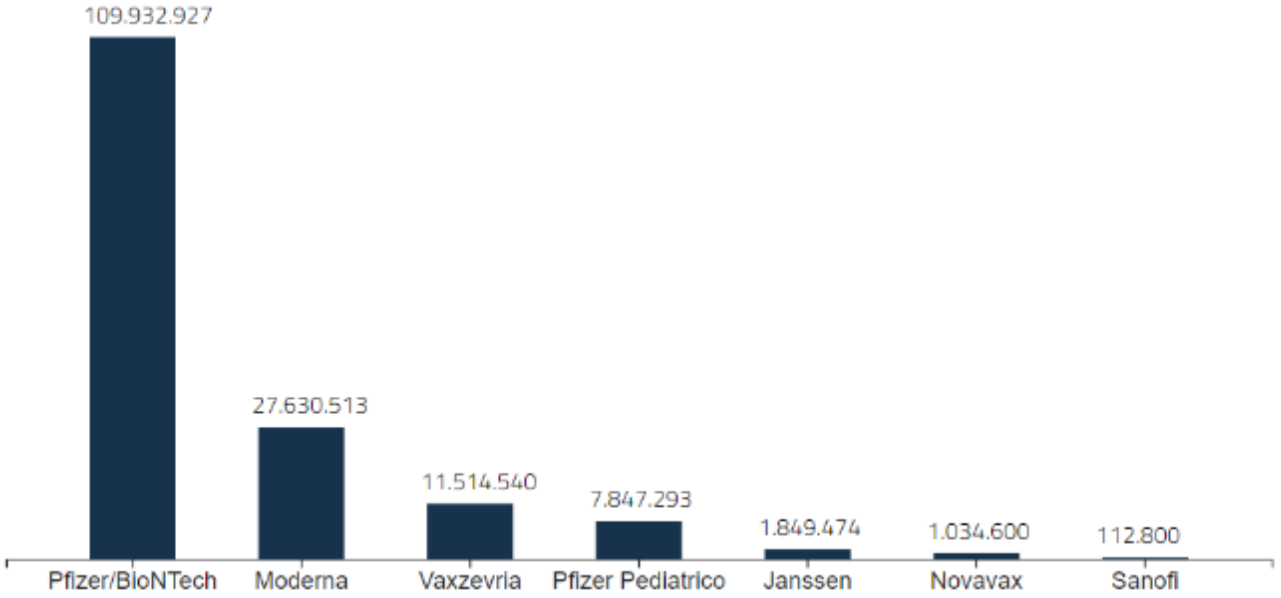
«…the activity reduction in all locations outside of the home was far from that observed during the nationwide lockdown imposed to counter the first wave, even in the strictest tier where a stay-home mandate was in place.

Mitigated negative impact on GDP (OECD, 2021)



https://www.oecd.org/economy/italy-economic-snapshot/

Vaccination as an epidemiological game-changer



Con almeno una dose

49.556.896

91,78 % della popolazione over 12

(persone con almeno una somministrazione)

Ciclo vaccinale

48.729.558

90,25 % della popolazione over 12

(persone che hanno completato il ciclo vaccinale)

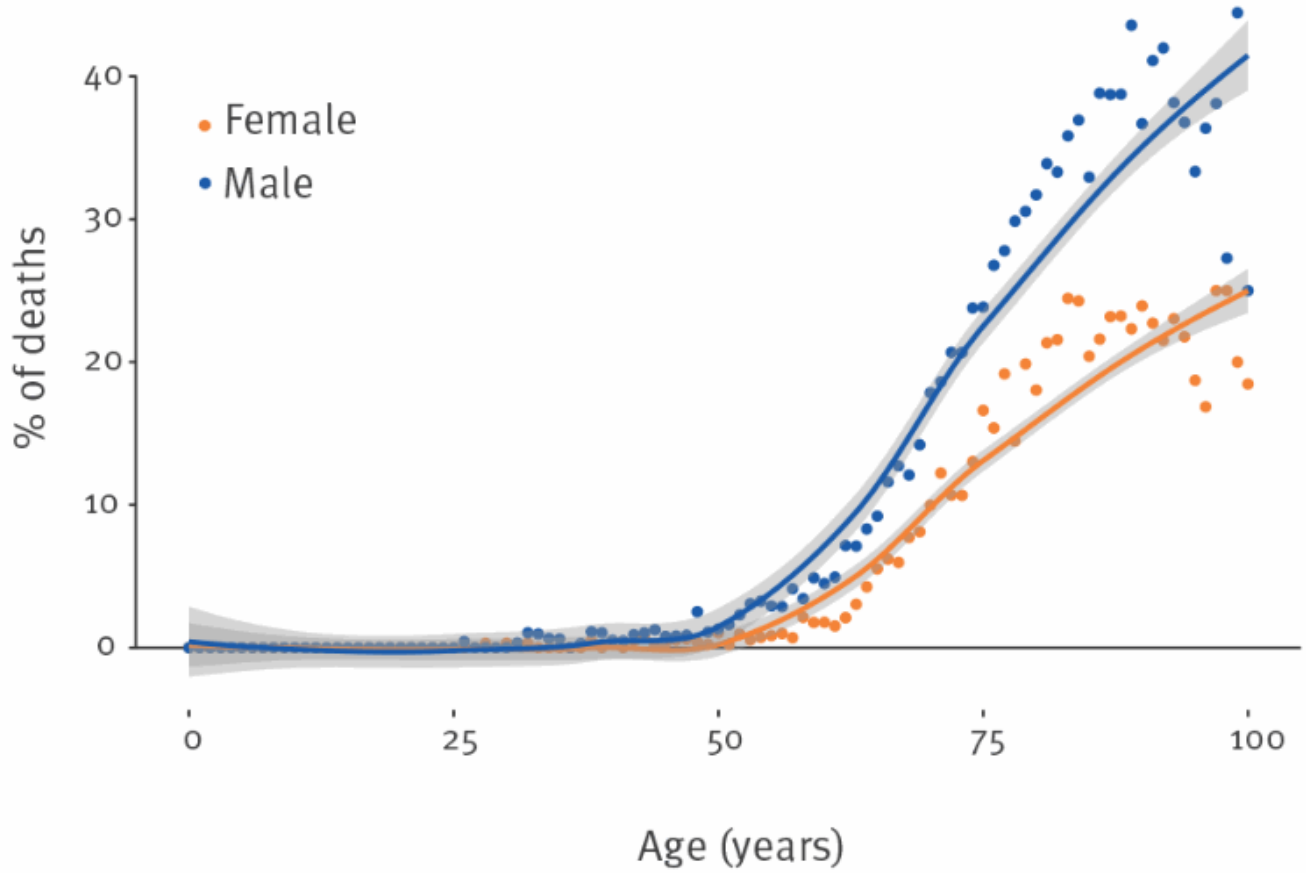
Dose addizionale/richiamo (booster)

40.492.537

84,88 % della popolazione potenzialmente oggetto di dose addizionale o booster che ha ultimato il ciclo vaccinale da almeno 4 mesi

https://www.governo.it/it/cscovid19/report-vaccini/

COVID-19 case fatality ratio by age at diagnosis and sex, Italy, 28 January–31 March 2020 (n = 10,940)



Riccardo et al. Epidemiological characteristics of COVID-19 cases and estimates of the reproductive numbers 1 month into the epidemic, Italy, 28 January to 31 March 2020. Euro Surveill. 2020 Dec;25(49):2000790. doi: 10.2807/1560-7917.ES.2020.25.49.2000790. PMID: 33303064; PMCID: PMC7730489.

Deaths averted thanks to vaccination: a measure of impact

- Between **53.209–148.756 avoided hospitalization**
- Between **6.434–16.276 avoided ICU admissions**
- Between **13.571–48.026 avoided deaths**

Italy, population aged >12yrs, Jan-Sept 2021

> “A new study by the WHO Regional Office for Europe and the European Centre for Disease Prevention and Control (ECDC) published in Eurosurveillance estimates that 470 000 lives have been saved among those aged 60 years and over since the start of COVID-19 vaccination rollout in 33 countries across the WHO European Region. (WHO-EURO)


WHO Regional Office for Europe: Nearly half a million lives saved by COVID-19 vaccination in less than a year

33

Copenhagen, 25 November 2021

A new study by the WHO Regional Office for Europe and the European Centre for Disease Prevention and Control (ECDC) published in Eurosurveillance estimates that 470 000 lives have been saved among those aged 60 years and over since the start of COVID-19 vaccination rollout in 33 countries across the WHO European Region.

This estimate does not include lives saved by vaccinating people under 60 nor lives saved from the indirect effect of vaccination because of a reduction in transmission.

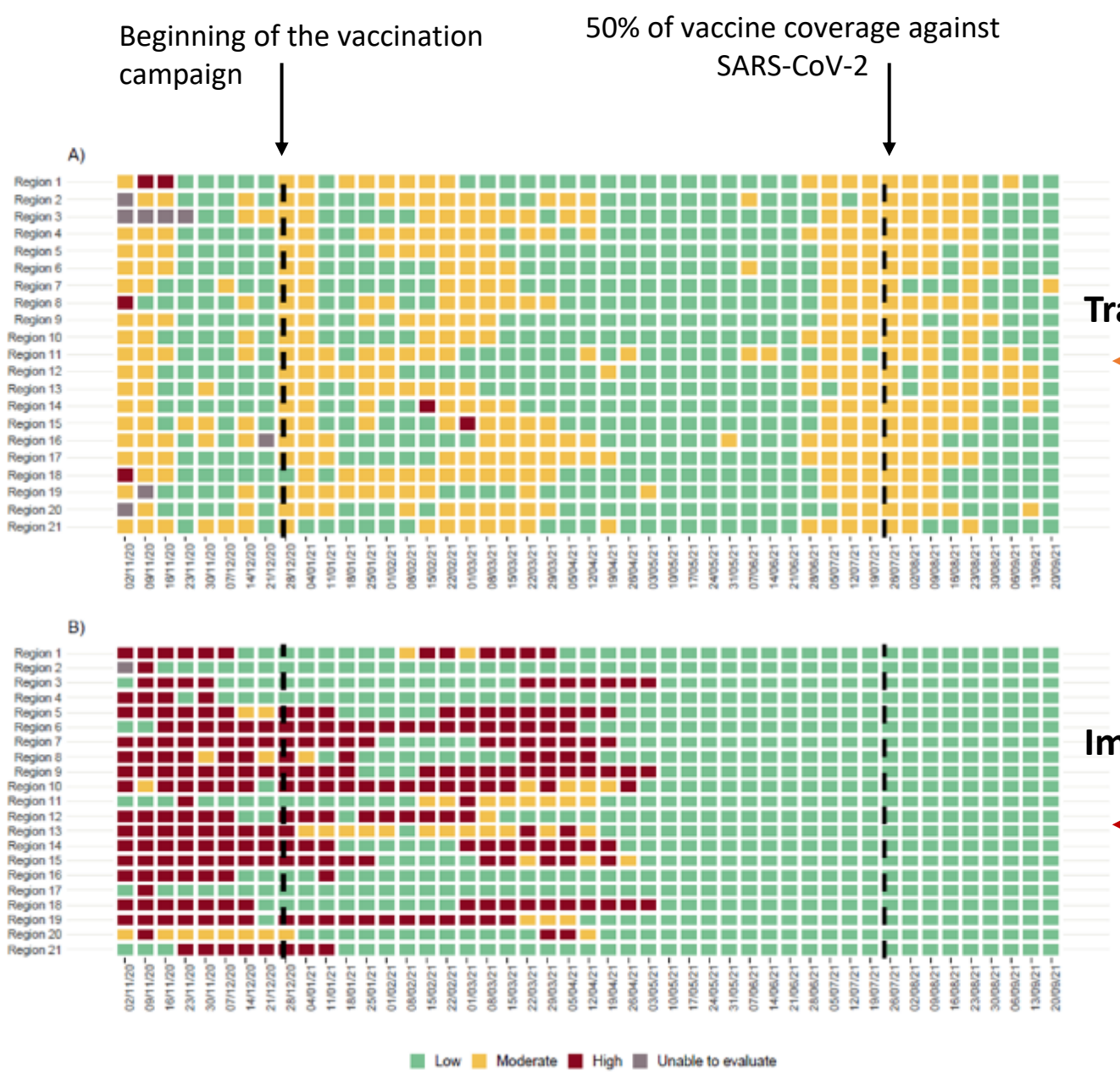
Dr Hans Henri P. Kluge, WHO Regional Director for Europe says, "COVID-19 has exacted a devastating death toll in our region, but we can

Video: Lives saved by COVID-19 vaccination

For further information, contact:

Bhanu Bhatnagar
Press and Media Relations Officer

What changed with mass vaccination?



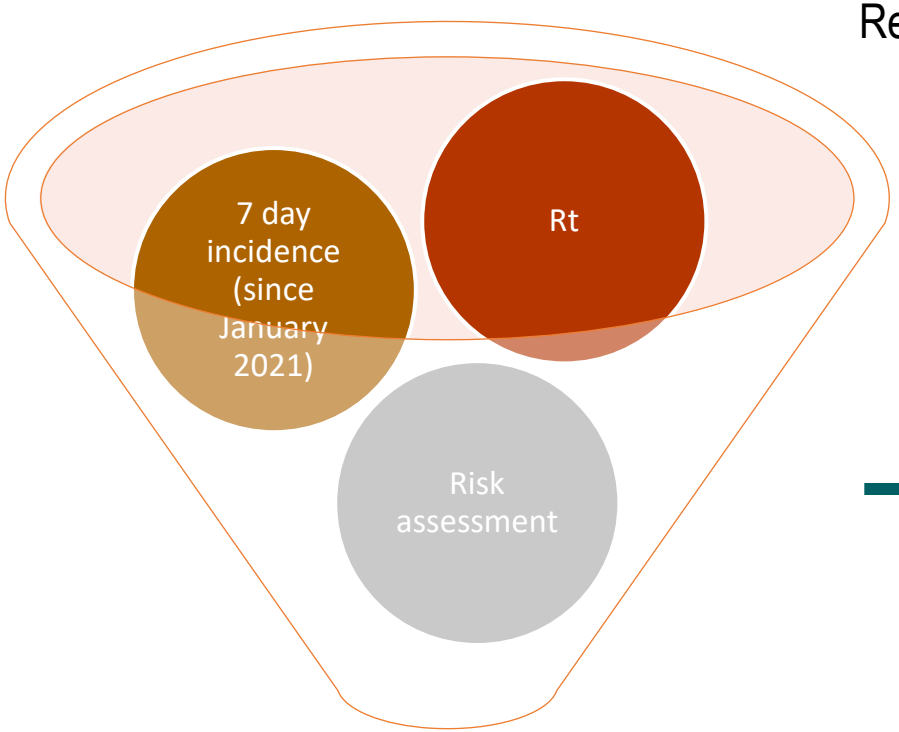
Transmission indicators (number of new cases, Rt, clusters)

Impact indicators (hospital overload)

Riccardo F et al. Bull World Health Organ. 2022 Feb 1;100(2):161-167. doi: 10.2471/BLT.21.286317. Epub 2021 Nov 25. PMID: 35125541; PMCID: PMC8795855. Supplementary materials with in depth data in https://zenodo.org/record/5638454#.Yg_FnOiZM2w

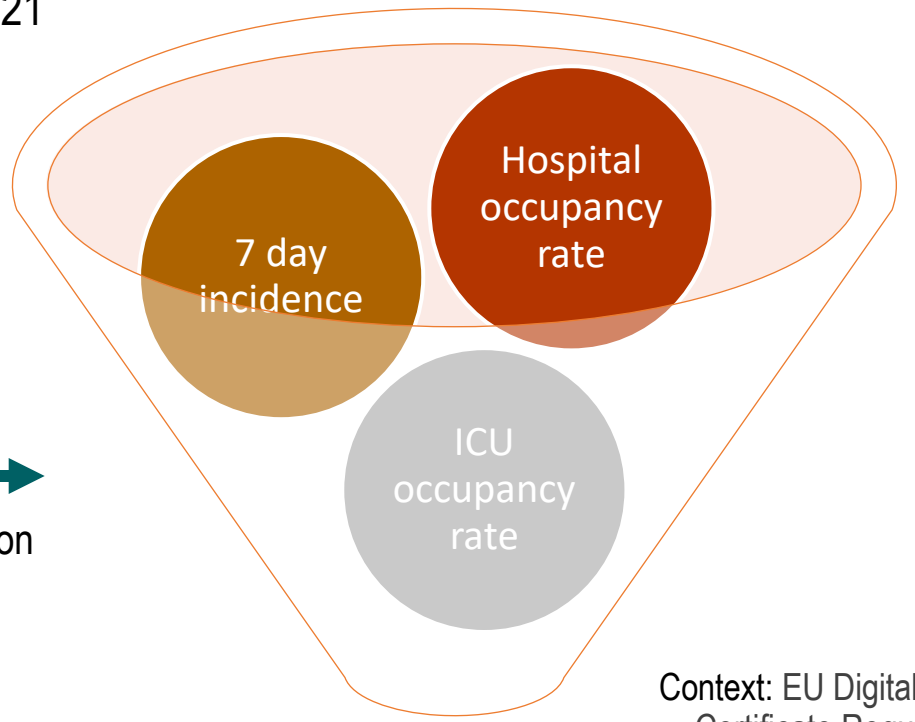
Change in strategy → the «colour zone» system for mitigation

Reopening strategy 2021



Vaccination

Viral variant circulation

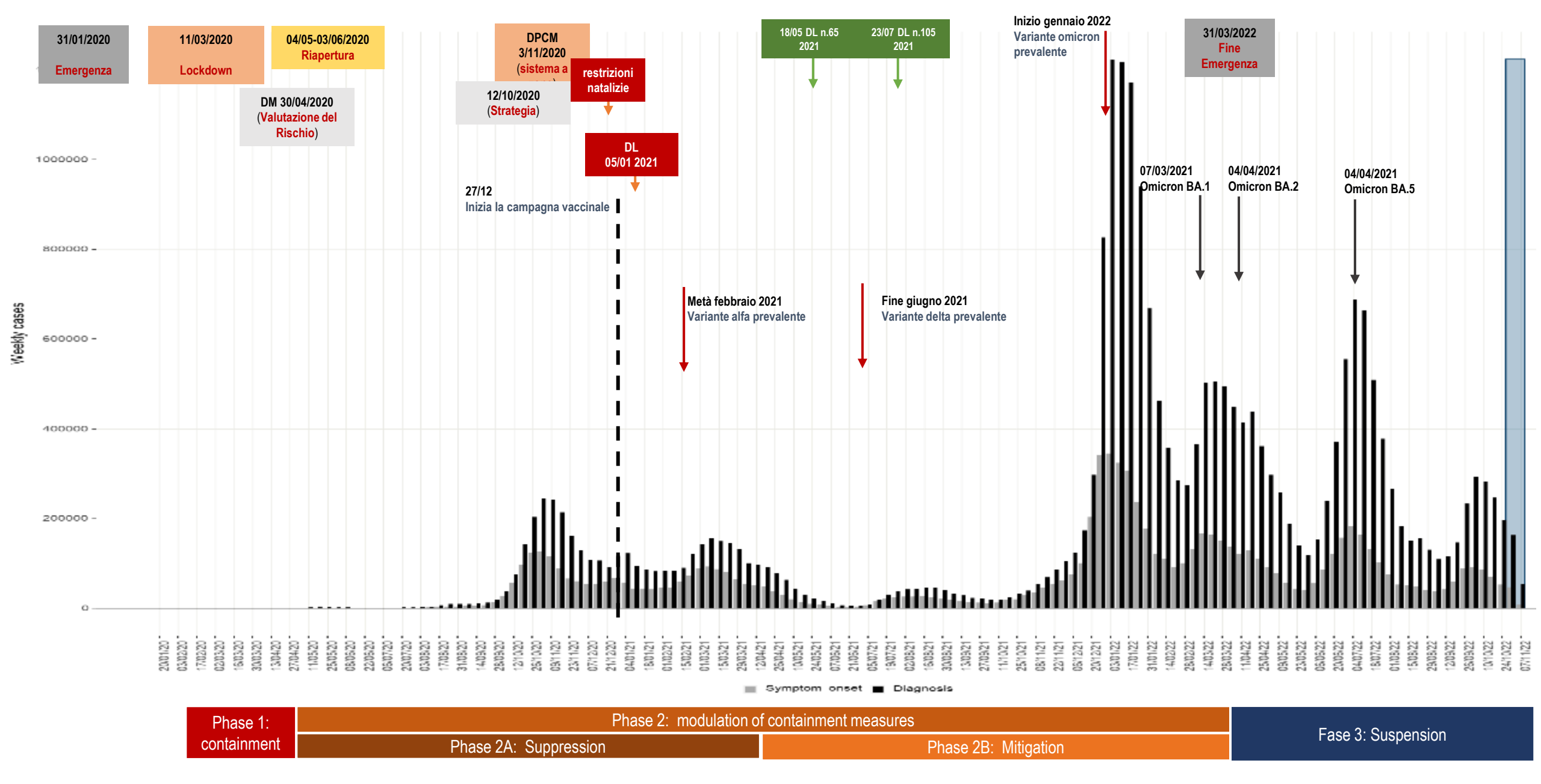


«colour code» of measures (yellow, orange, red) from 5 November 2020 – 17 May 2021

Context: Pandemic fatigue

Context: EU Digital COVID Certificate Regulation (01 July 2021)

«colour code» of measures (white,yellow, orange, red) from 18 May 2021


31/01/2020
Emergenza
11/03/2020
Lockdown
04/05-03/06/2020
Riapertura
DM 30/04/2020
(Valutazione del Rischio)
DPCM 3/11/2020
(sistema a
12/10/2020
(Strategia)
restrizioni natalizie
DL 05/01 2021
27/12
Inizia la campagna vaccinale
18/05 DL n.65 2021
23/07 DL n.105 2021
Inizio gennaio 2022
Variante omicron prevalente
31/03/2022
Fine Emergenza
07/03/2021
Omicron BA.1
04/04/2021
Omicron BA.2
04/04/2021
Omicron BA.5
Metà febbraio 2021
Variante alfa prevalente
Fine giugno 2021
Variante delta prevalente
Weekly cases
1000000
800000
600000
400000
200000
0
Symptom onset
Diagnosis
Phase 1: containment
Phase 2: modulation of containment measures
Phase 2A: Suppression
Phase 2B: Mitigation
Fase 3: Suspension
Increased restrictions
Reduced restrictions
Prevalence of a new more transmissible viral variant
Prevalence of a new sub-variant

«Conceptual framework for understanding pandemics»

Four kinds of COVID-19 control regime:

- **Uncontrolled scenario**: no control measures transmission levels similar to R0.
- **Mitigation strategy**: limited control with transmission reduced compared with *R*0 but still above 1 (exponential growth but less rapid that in the absence of measures). During the COVID-19 pandemic, this strategy was often referred to as flattening the curve of the epidemic.
- **Suppression strategy**: through the implementation of combinations of layered control measures R decreases to less than 1, so the epidemic declines, but transmission is not completely eliminated
- **Containment strategy**: by means of aggressive testing, contact tracing, and isolating, R is kept near 0 (known in China as a zero-COVID strategy)

The Lancet Commissions

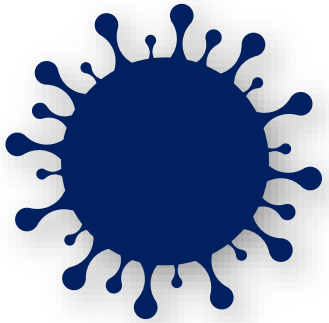
14 September 2022

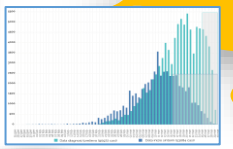
The *Lancet* Commission on lessons for the future from the COVID-19 pandemic

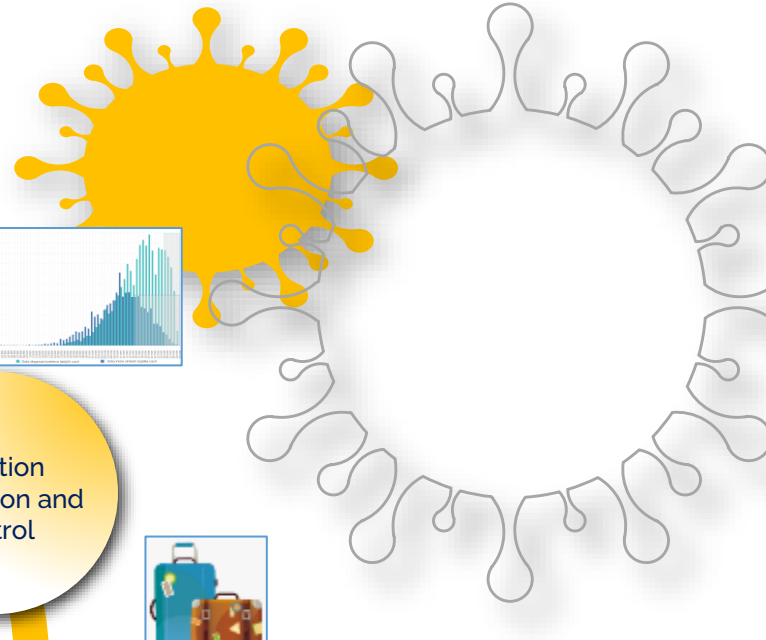
Jeffrey D Sachs, Salim S Abdool Karim, Lara Aknin, Joseph Allen, Kirsten Brosbøl, Francesca Colombo, Gabriela Cuevas Barron, Maria Fernanda Espinosa, Vitor Gaspar, Alejandro Gaviria, Andy Haines, Peter J Hotez, Phoebe Koundouri, Felipe Larrain Bascuñán, Jong-Koo Lee, Muhammad Ali Pate, Gabriela Ramos, K Srinath Reddy, Ismail Serageldin, John Thwaites, Vaira Vike-Freiberga, Chen Wang, Miriam Khamadi Were, Lan Xue, Chandrika Bahadur, Maria Elena Bottazzi, Chris Bullen, George Laryea-Adjei, Yanis Ben Amor, Ozge Karadag, Guillaume Lafortune, Emma Torres, Lauren Barredo, Juliana G F Bartels, Neena Joshi, Margaret Helfand, Uyen Kim Huynh, Shweta Khandelwal, Jeffrey V Lazarus, Susan Michie

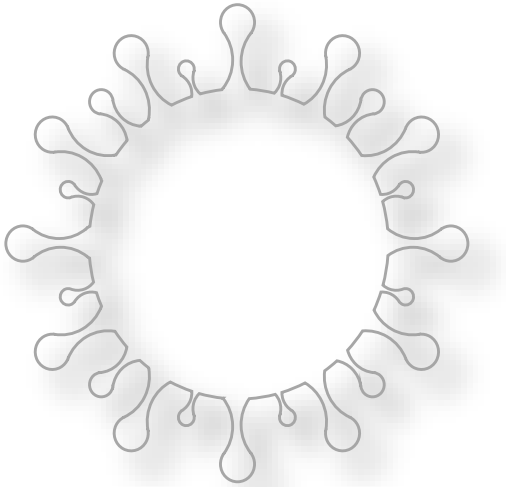
Stratified implementation of non-pharmaceutical measures: widespread testing, contact tracing, and isolating; proper use of face masks; physical distancing; limitations on mass gatherings; and improved ventilation systems at workplaces

ISS Activities to face COVID-19 pandemic









- Monitoring of epidemic risk
- Epidemiological and microbiological surveillance
- Infection prevention and control
- Scientific communication
- Scientific publications and technical reports
- Face masks authorization in derogation
- Distance learning
- National and international collaborations
- Research and development in One Health perspective
- Support to vaccination control and distribution

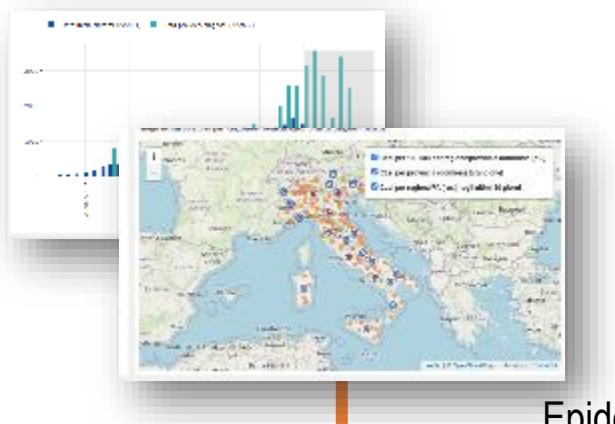
ISS

ESSENTIAL PUBLIC SERVICE

Member of the
Scientific and Technical Committee
(Decree of the Civil Protection Department, no. 371 February 5, 2020)

and of the Control Room
(Ministerial Decree April 30, 2020)

Response pillars – data for action



• Wastewater surveillance

Epidemiological and microbiological data
on all laboratory confirmed SARS.CoV-2 cases of infection

VoC/VoI

COVID-19 laboratory network

All SARS-CoV-2 sequences

• Integrated surveillance (case-based data)

• Genomic surveillance and analysis platform (I-Co-Gen)

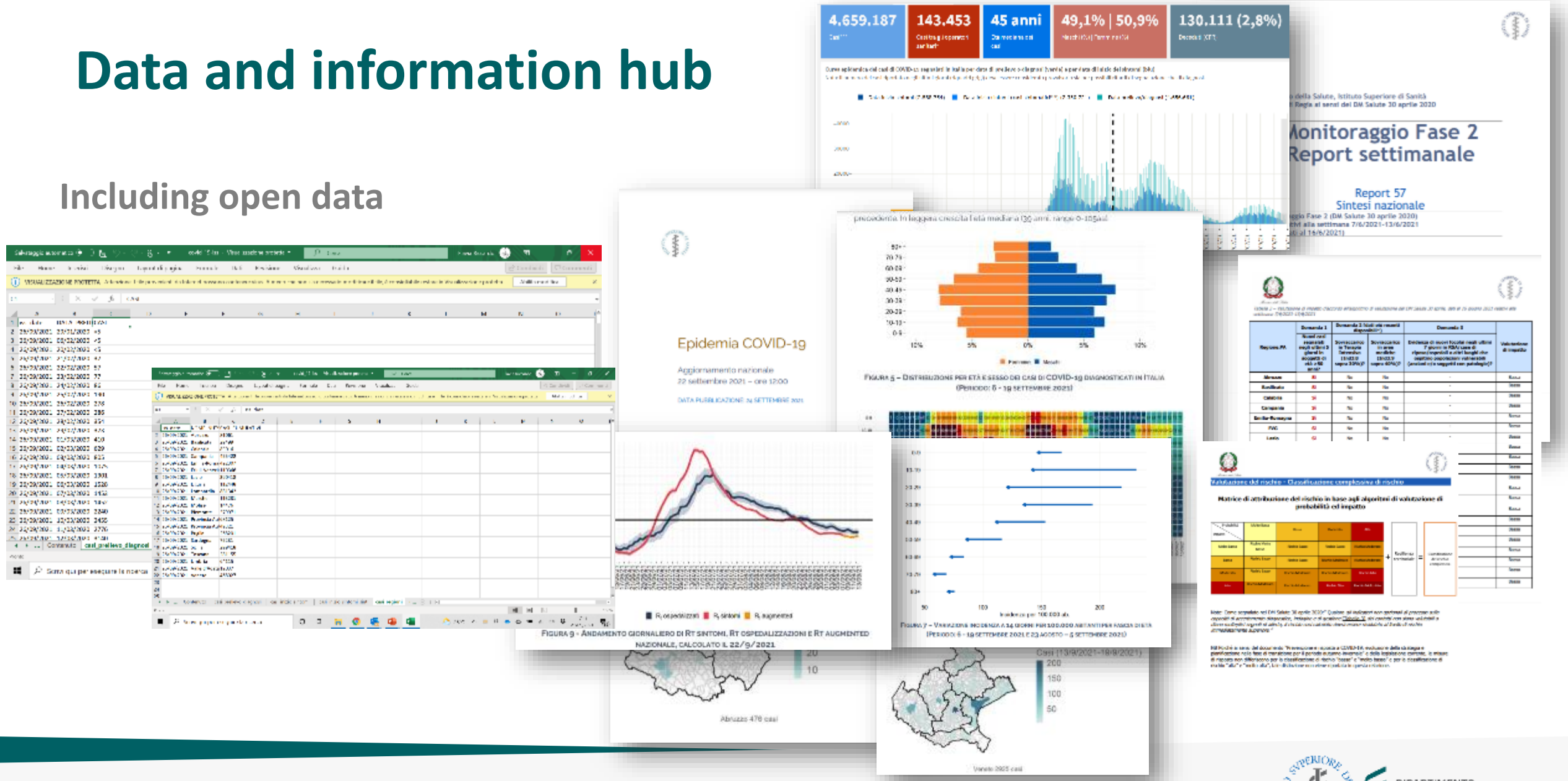
• National vaccination repository

GISAID

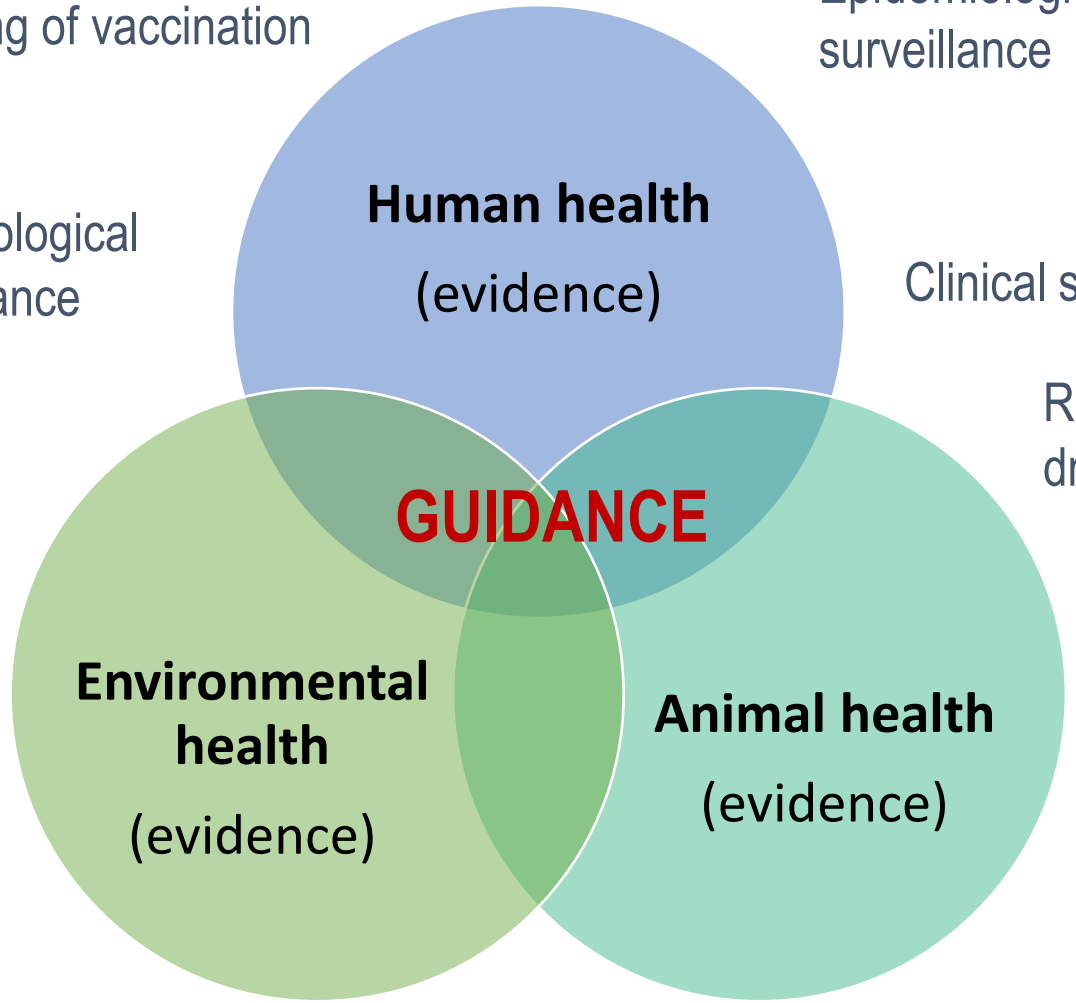
Image source: CDC

Data and information hub

Including open data



Multi-disciplinary research collaborations



Research and monitoring of vaccination impact

Epidemiological surveillance

Social and economic impact research

Microbiological surveillance

Clinical surveillance

Research and Development of drugs and vaccines

Analysis of determinants

Pandemic Origin research

Surveillance of wastewaters

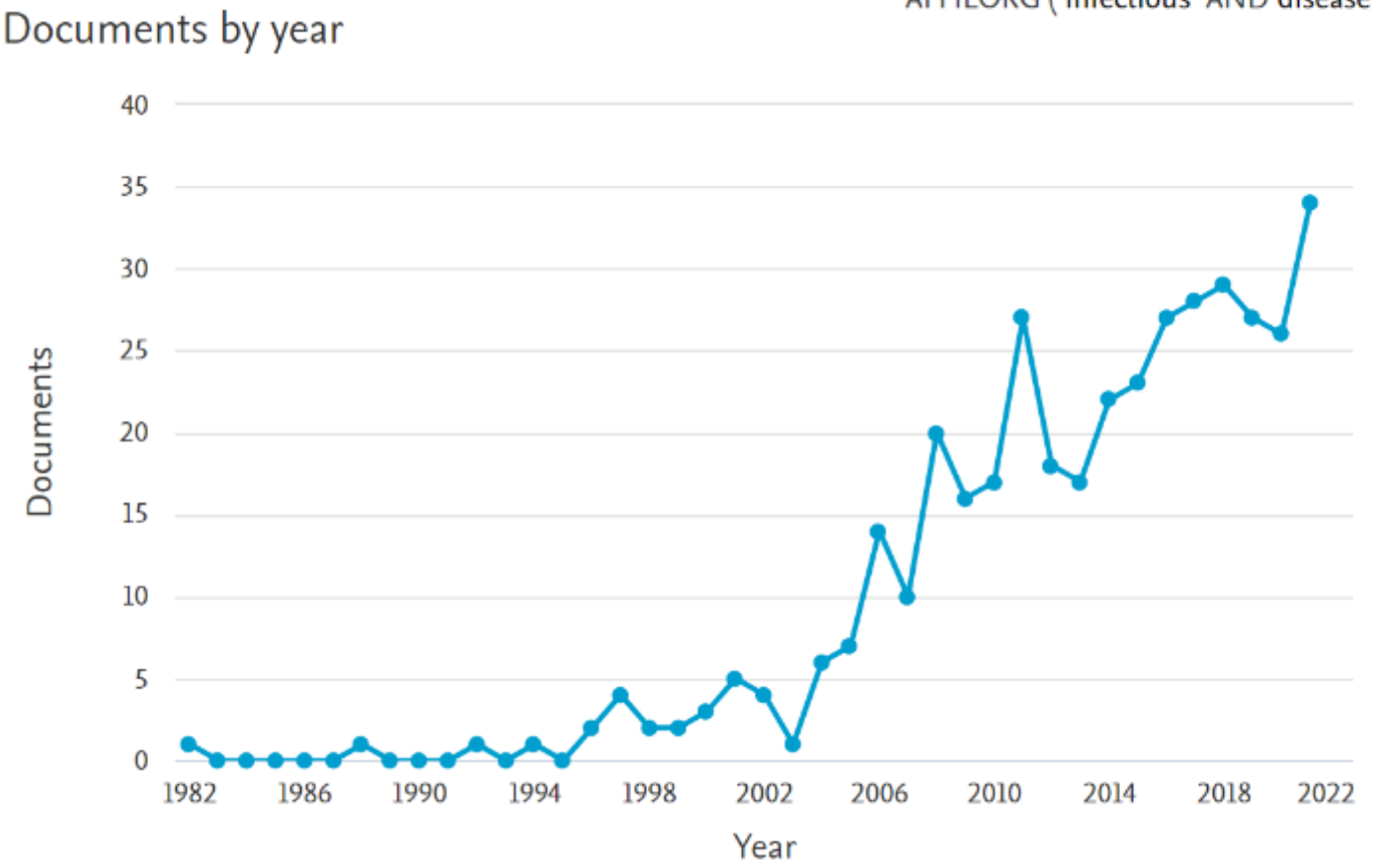
Research on impact on wild and domestic animals

>1000 scientific papers published in the past 5 years in th Department of ID alone (PubMED)

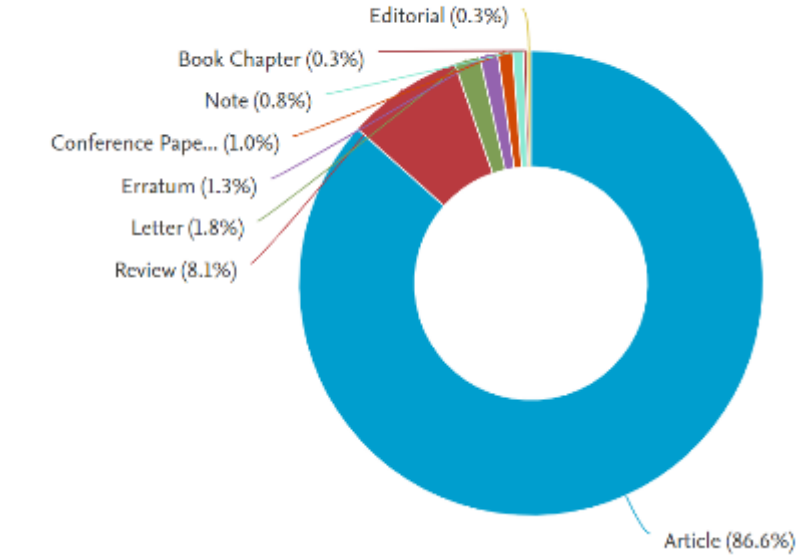
A growing scientific effort

Trend of publication in a subset of 395 publications (Scopus)

AFFILORG (infectious AND disease AND department AND istituto AND superiore AND di AND sanità)

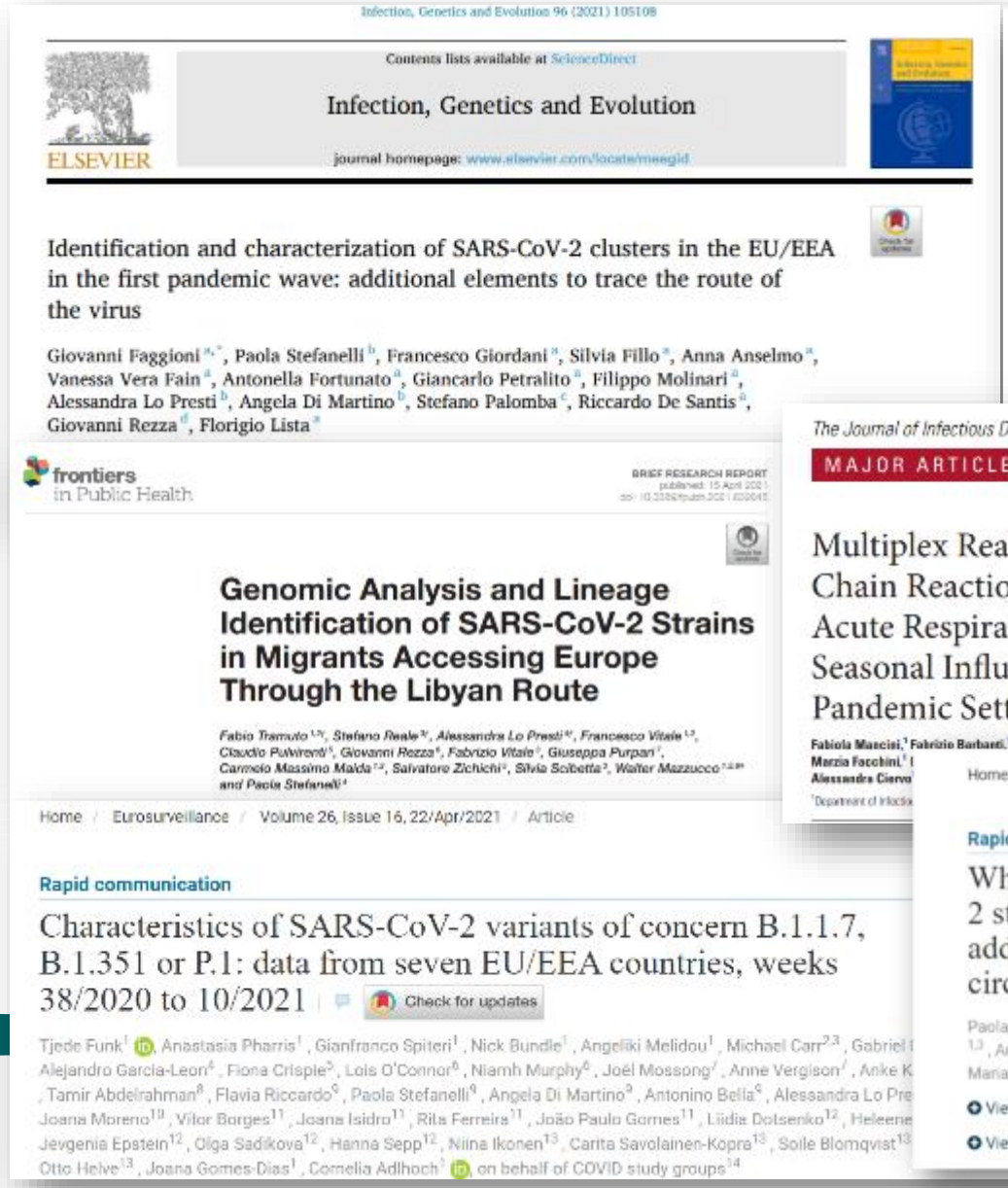


Scopus



COVID-19 related research

Studies characterizing the virus and its diagnostic tools



ISTITUTO SUPERIORE DI SANITÀ
DIPARTIMENTO MALATTIE INFETTIVE

COVID-19 related research

Immunological studies

International Journal of *Molecular Sciences*

MDPI

Review

Innate Immune Response to SARS-CoV-2 Infection: From Cells to Soluble Mediators

Daniela Ricci †, Marilena Paola Etna †, Fabiana Rizzo, Silvia Sandini, Martina Severa and Eliana Marina Coccia *

PLOS PATHOGENS

RESEARCH ARTICLE

Differential plasmacytoid dendritic cell phenotype and type I Interferon response in asymptomatic and severe COVID-19 infection

Martina Severa[1☯], Roberta A. Diotti[2☯], Marilena P. Etna[1☯], Fabiana Rizzo[1], Stefano Fiore[1], Daniela Ricci[1], Marco Iannetta[3], Alessandro Sinigaglia[4], Alessandra Lodi[3], Nicasio Mancini[2], Elena Criscuolo[2], Massimo Clementi[2], Massimo Andreoni[3], Stefano Balducci[5], Luisa Barzon[4], Paola Stefanelli[1], Nicola Clementi[2‡], Eliana M. Coccia[1‡*]

1 Department of Infectious Diseases, Istituto Superiore di Sanità, Rome, Italy, 2 Laboratory of Medical Microbiology and Virology, Vita-Salute San Raffaele University, Milan, Italy, 3 Infectious Disease Clinic, Policlinico Tor Vergata, Rome, Italy, 4 Department of Molecular Medicine, University of Padova, Padua, Italy, 5 Metabolic Fitness Association, Monterotondo, Rome, Italy

☯ These authors contributed equally to this work.

Diagnostic Microbiology and Infectious Disease 105 (2023) 115539

Contents lists available at ScienceDirect

Diagnostic Microbiology and Infectious Disease

journal homepage: www.elsevier.com/locate/diagmicrobio

ELSEVIER

Original Article

Early IgG / IgA response in hospitalized COVID-19 patients is associated with a less severe disease

Giorgio Fedele[a,*,1], Gianluca Russo[c,1], Ilaria Schiavoni[a], Pasqualina Leone[a], Eleonora Olivetta[b], Valentina Perri[c], Maria Antonella Zingaropoli[c], Maria Rosa Ciardi[c], Patrizia Pasculli[c], Claudio Maria Mastroianni[c], Paola Stefanelli[a]

[a] Department Infectious Diseases, Istituto Superiore di Sanità, Italy
[b] National Centre for Global Health, Istituto Superiore di Sanità, Italy
[c] Department of Public Health and Infectious Diseases, Sapienza University of Rome, Rome, Italy

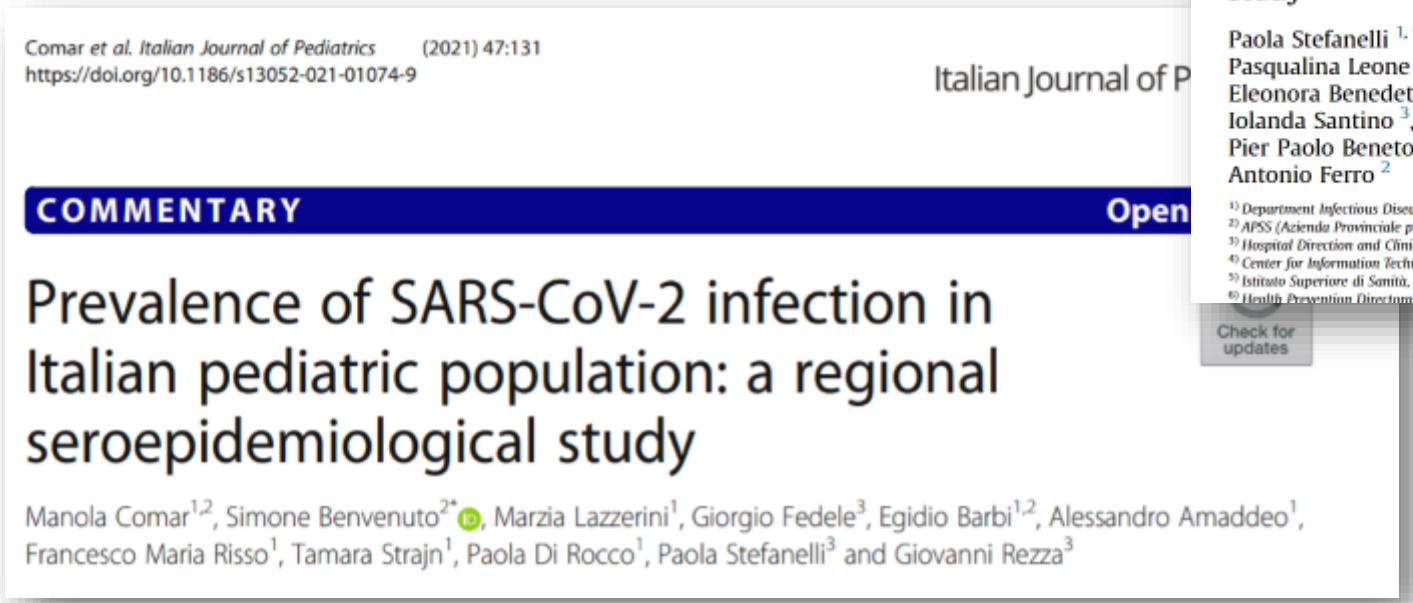
Clin Infect Dis. 2021 Jan 4 : ciaa1933. PMCID: PMC7799260
Published online 2021 Jan 4. doi: 10.1093/cid/ciaa1933 PMID: 33395482

SARS-CoV-2 encephalitis is a cytokine release syndrome: evidences from cerebrospinal fluid analyses

Andrea Pilotto, MD,[1,2] Stefano Masciocchi, MD,[1] Irene Volonghi, MD,[1] Valeria De Giuli, MD,[3] Francesca Caprioli, MD,[3] Sara Mariotto, MD,[4] Sergio Ferrari, MD,[4] Silvia Bozzetti, MD,[4] Alberto Imarisio, MD,[1] Barbara Risi, MD,[1] Enrico Premi, MD,[1] Alberto Benussi, MD,[1] Emanuele Focà, MD PhD,[5] Francesco Castelli, MD PhD,[5] Gianluigi Zanusso, MD PhD,[4] Salvatore Monaco, MD PhD,[4] Paola Stefanelli, MD,[6] Roberto Gasparotti, MD,[7] Anastasia Zekeridou, MD, PhD,[8] Andrew McKeon, MD,[9] Nicholas J Ashton, PhD,[9,10,11,12] Kaj Blennow, MD PhD,[9,13] Henrik Zetterberg, MD PhD,[9,13,14,15] and Alessandro Padovani, MD PhD[1]

COVID-19 related research

Sero-epidemiology studies



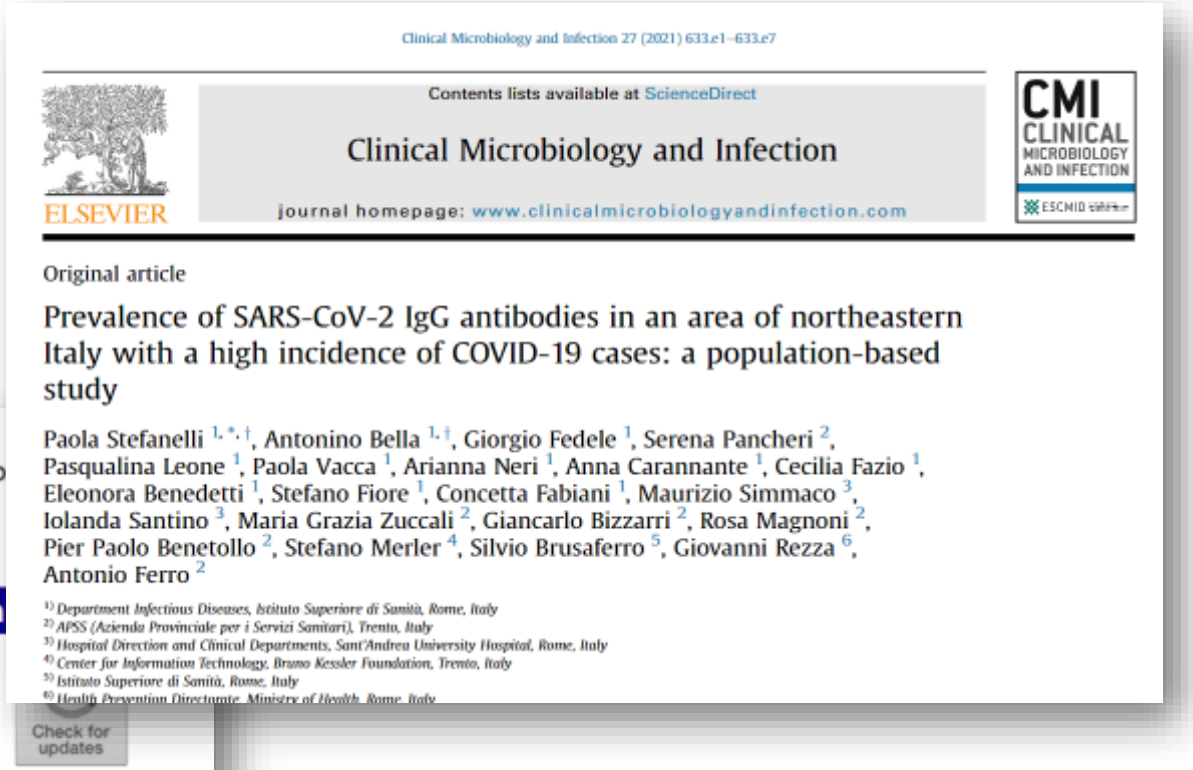
Comar et al. Italian Journal of Pediatrics (2021) 47:131
https://doi.org/10.1186/s13052-021-01074-9

Italian Journal of P

COMMENTARY Open

Prevalence of SARS-CoV-2 infection in Italian pediatric population: a regional seroepidemiological study

Manola Comar[1,2], Simone Benvenuto[2*], Marzia Lazzerini[1], Giorgio Fedele[3], Egidio Barbi[1,2], Alessandro Amaddeo[1], Francesco Maria Risso[1], Tamara Strajn[1], Paola Di Rocco[1], Paola Stefanelli[3] and Giovanni Rezza[3]



Clinical Microbiology and Infection 27 (2021) 633.e1–633.e7

Contents lists available at ScienceDirect

Clinical Microbiology and Infection

journal homepage: www.clinicalmicrobiologyandinfection.com

Original article

Prevalence of SARS-CoV-2 IgG antibodies in an area of northeastern Italy with a high incidence of COVID-19 cases: a population-based study

Paola Stefanelli [1,*,†], Antonino Bella [1,†], Giorgio Fedele [1], Serena Pancheri [2], Pasqualina Leone [1], Paola Vacca [1], Arianna Neri [1], Anna Carannante [1], Cecilia Fazio [1], Eleonora Benedetti [1], Stefano Fiore [1], Concetta Fabiani [1], Maurizio Simmaco [3], Iolanda Santino [3], Maria Grazia Zuccali [2], Giancarlo Bizzarri [2], Rosa Magnoni [2], Pier Paolo Benetollo [2], Stefano Merler [4], Silvio Brusaferro [5], Giovanni Rezza [6], Antonio Ferro [2]

[1] Department Infectious Diseases, Istituto Superiore di Sanità, Rome, Italy
[2] APSS (Azienda Provinciale per i Servizi Sanitari), Trento, Italy
[3] Hospital Direction and Clinical Departments, Sant'Andrea University Hospital, Rome, Italy
[4] Center for Information Technology, Bruno Kessler Foundation, Trento, Italy
[5] Istituto Superiore di Sanità, Rome, Italy
[6] Health Prevention Directorate, Ministry of Health, Rome, Italy

Check for updates

COVID-19 related research

Epidemiology

Health & Place 71 (2021) 102642

Contents lists available at ScienceDirect

Health and Place

journal homepage: www.elsevier.com/locate/healthplace

ELSEVIER

HEALTH & PLACE

Socioeconomic patterns and COVID-19 outcomes before, during and after the lockdown in Italy (2020)

Alberto Mateo-Urdiales [a,b], Massimo Fabiani [a], Aldo Rosano [c], Maria Fenicia Vescio [a], Martina Del Manso [a,b], Antonino Bella [a], Flavia Riccardo [a], Patrizio Pezzotti [a],

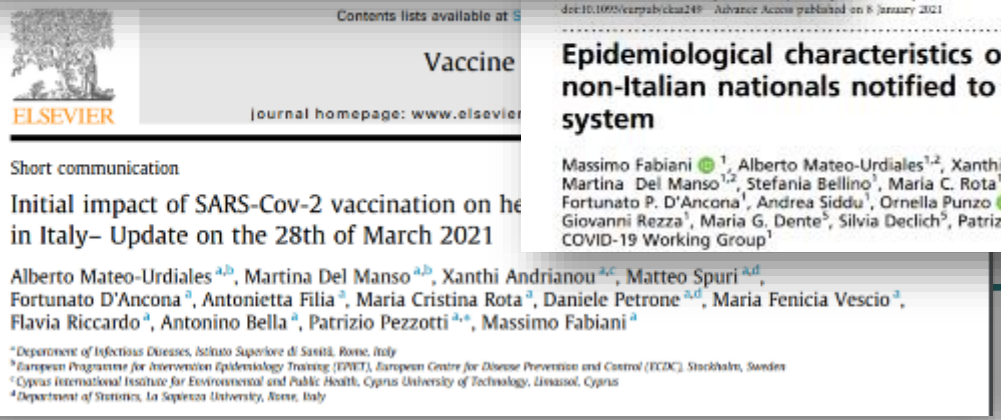
Clinical Epidemiology

Dovepress

ORIGINAL RESEARCH

Survival of Hospitalized COVID-19 Patients in Northern Italy: A Population-Based Cohort Study by the ITA-COVID-19 Network

This article was published in the following Dove Press journal:
Clinical Epidemiology



Contents lists available at S

Vaccine

ELSEVIER

journal homepage: www.elsevier

Short communication

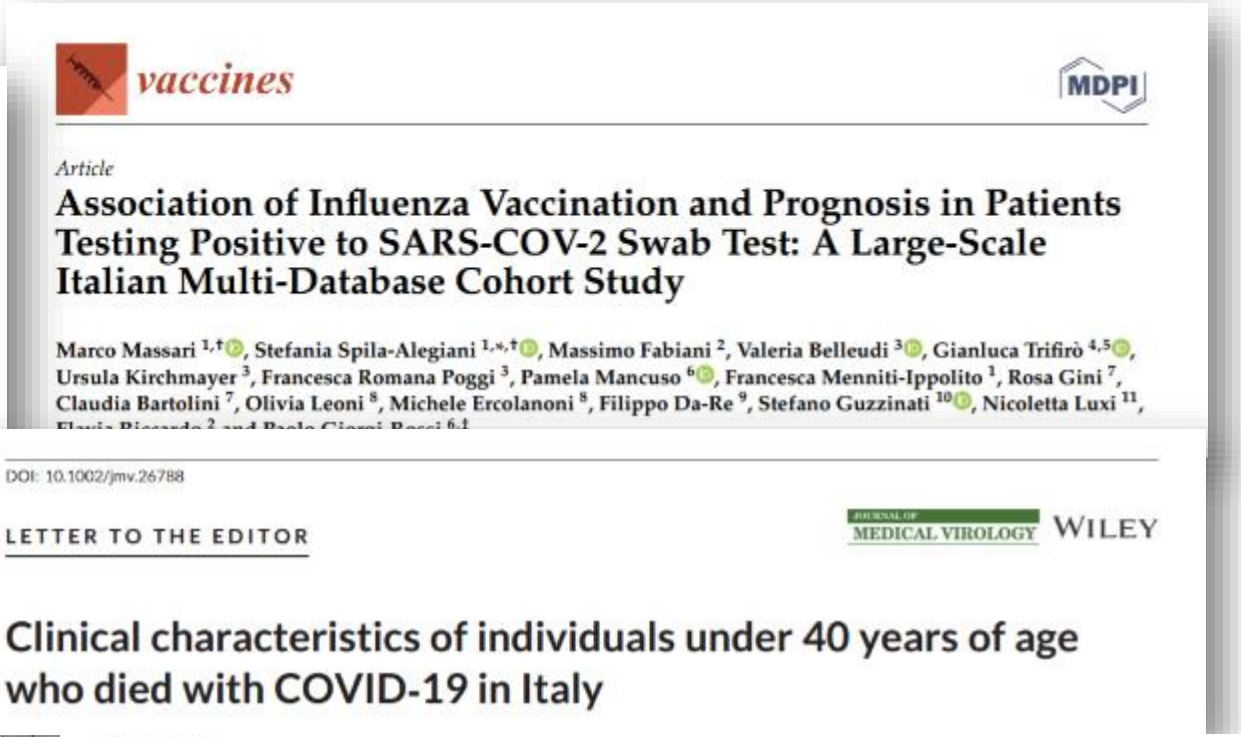
Initial impact of SARS-Cov-2 vaccination on he in Italy– Update on the 28th of March 2021

Alberto Mateo-Urdiales [a,b], Martina Del Manso [a,b], Xanthi Andrianou [a,c], Matteo Spuri [a,d], Fortunato D'Ancona [a], Antonietta Filia [a], Maria Cristina Rota [a], Daniele Petrone [a,d], Maria Fenicia Vescio [a], Flavia Riccardo [a], Antonino Bella [a], Patrizio Pezzotti [a,*], Massimo Fabiani [a]

[a] Department of Infectious Diseases, Istituto Superiore di Sanità, Rome, Italy
[b] European Programme for Intervention Epidemiology Training (EPIET), European Centre for Disease Prevention and Control (ECDC), Stockholm, Sweden
[c] Cyprus International Institute for Environmental and Public Health, Cyprus University of Technology, Limassol, Cyprus
[d] Department of Statistics, La Sapienza University, Rome, Italy

Epidemiological characteristics of COVID-19 cases in non-Italian nationals notified to the Italian surveillanc system

Massimo Fabiani [1], Alberto Mateo-Urdiales [1,2], Xanthi Andrianou [1,3], Antonino Bella [1], Martina Del Manso [1,2], Stefania Bellino [1], Maria C. Rota [1], Stefano Boros [1], Maria F. Vescio [1], Fortunato P. D'Ancona [1], Andrea Siddu [1], Ornella Punzo [1], Antonietta Filia [1], Silvio Brusaferro [1], Giovanni Rezza [1], Maria G. Dente [5], Silvia Declich [5], Patrizio Pezzotti [1], Flavia Riccardo [1]; for the COVID-19 Working Group [1]



vaccines

MDPI

Article

Association of Influenza Vaccination and Prognosis in Patients Testing Positive to SARS-COV-2 Swab Test: A Large-Scale Italian Multi-Database Cohort Study

Marco Massari [1,†], Stefania Spila-Alegiani [1,*,†], Massimo Fabiani [2], Valeria Belleudi [3], Gianluca Trifirò [4,5], Ursula Kirchmayer [3], Francesca Romana Poggi [3], Pamela Mancuso [6], Francesca Menniti-Ippolito [1], Rosa Gini [7], Claudia Bartolini [7], Olivia Leoni [8], Michele Ercolanoni [8], Filippo Da-Re [9], Stefano Guzzinati [10], Nicoletta Luxi [11],

DOI: 10.1002/jmv.26788

LETTER TO THE EDITOR

JOURNAL OF MEDICAL VIROLOGY WILEY

Clinical characteristics of individuals under 40 years of age who died with COVID-19 in Italy

RESEARCH

Epidemiological characteristics of COVID-19 cases and estimates of the reproductive numbers 1 month into the epidemic, Italy, 28 January to 31 March 2020

Flavia Riccardo[1,2], Marco Ajelli[2,3,4,5], Xanthi D Andrianou[1,6], Antonino Bella[1], Martina Del Manso[1,7], Massimo Fabiani[1], Stefania Bellino[1], Stefano Boros[1], Alberto Mateo Urdiales[1,7], Valentina Marziano[3], Maria Cristina Rota[1], Antonietta Filia[1], Fortunato D'Ancona[1], Andrea Siddu[1], Ornella Punzo[1], Filippo Trentini[3], Giorgio Guzzetta[3], Piero Poletti[3], Paola Stefanelli[1], Maria Rita Castrucci[1], Alessandra Ciervo[1], Corrado Di Benedetto[1], Marco Tallon[1], Andrea Piccioli[1], Silvio Brusaferro[1], Giovanni Rezza[1], Stefano Merler[3], Patrizio Pezzotti[1], the COVID-19 working group[*]

1. Istituto Superiore di Sanità, Rome, Italy
2. These authors contributed equally
3. Bruno Kessler Foundation, Trento, Italy
4. Department of Epidemiology and Biostatistics, Indiana University School of Public Health, Bloomington, United States
5. Laboratory for the Modeling of Biological and Socio-technical Systems, Northeastern University, Boston, United States
6. Cyprus University of Technology, Limassol, Cyprus
7. European Programme for Intervention Epidemiology Training (EPIET), European Centre for Disease Prevention and Control (ECDC), Stockholm, Sweden

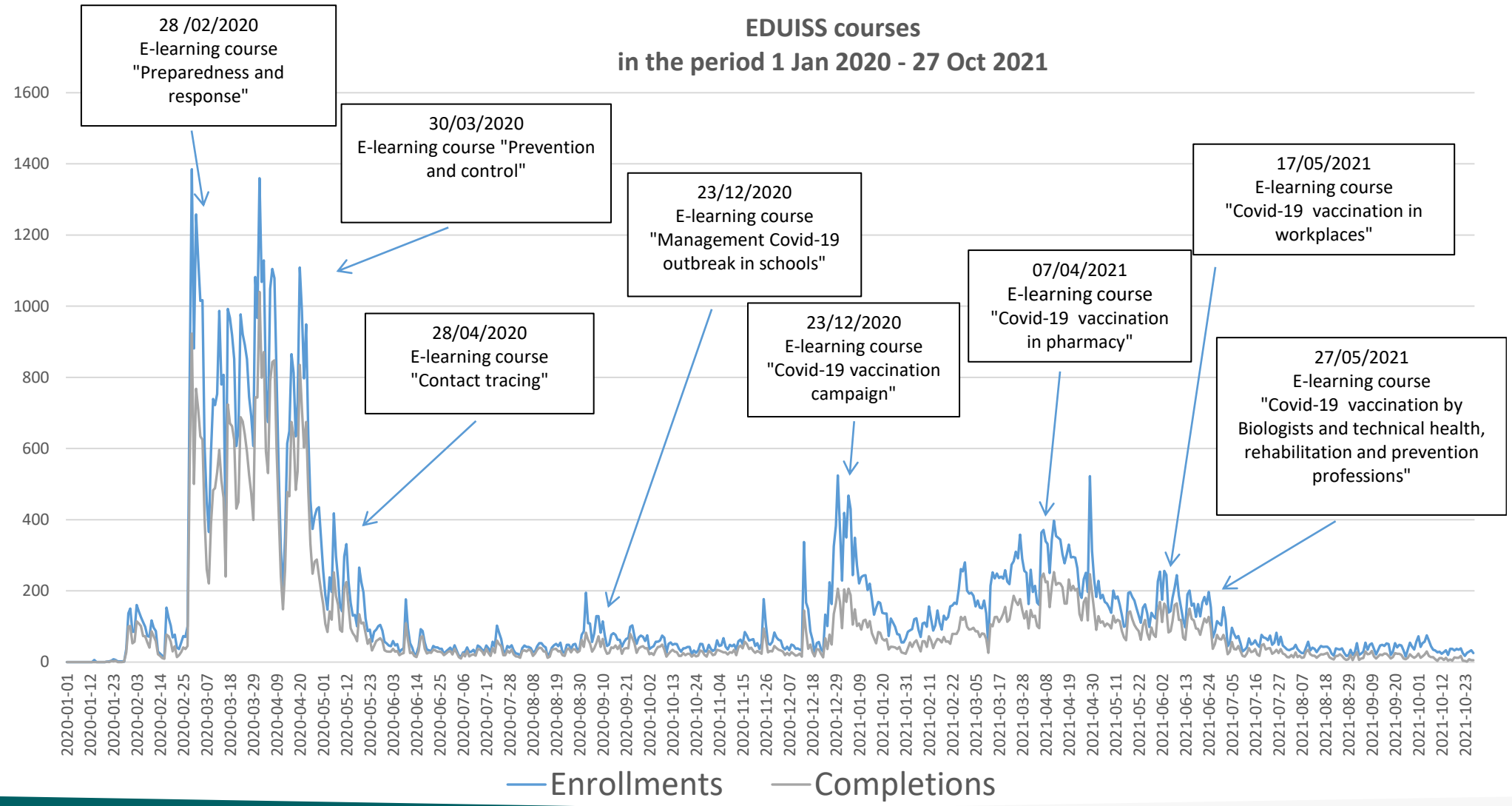
Correspondence: Flavia Riccardo (flavia.riccardo@iss.it)

ISS: Provider of national guidance and advice in accordance with the MoH

Some examples: all reports are available online

COVID-19 related training

Physicians daily enrollment and completion

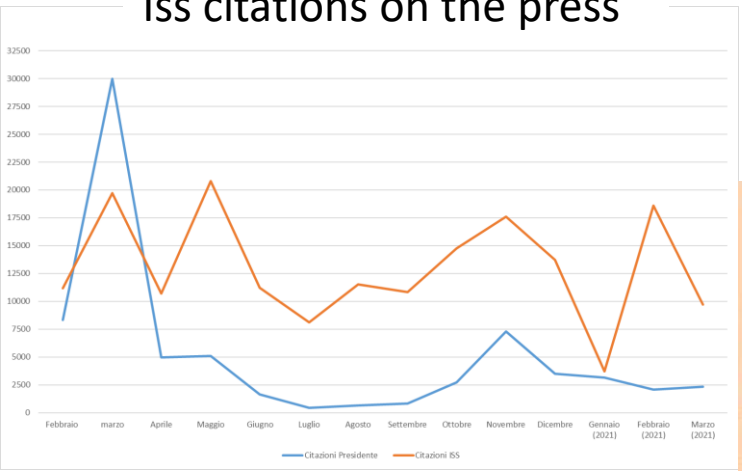


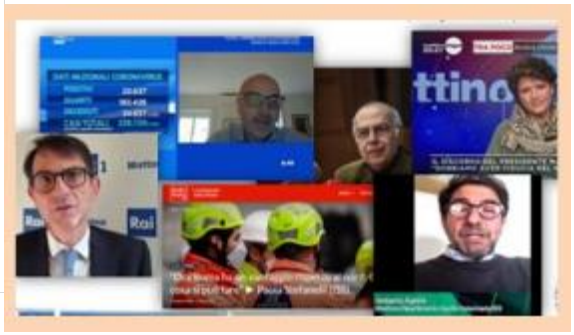
‘Traditional’ press office activities

Since the beginning of the pandemic

- More than 400 press releases
- More than 200K citations on the press
- More than 500 interviews (given by the President or Iss experts)
- Press conferences (weekly)

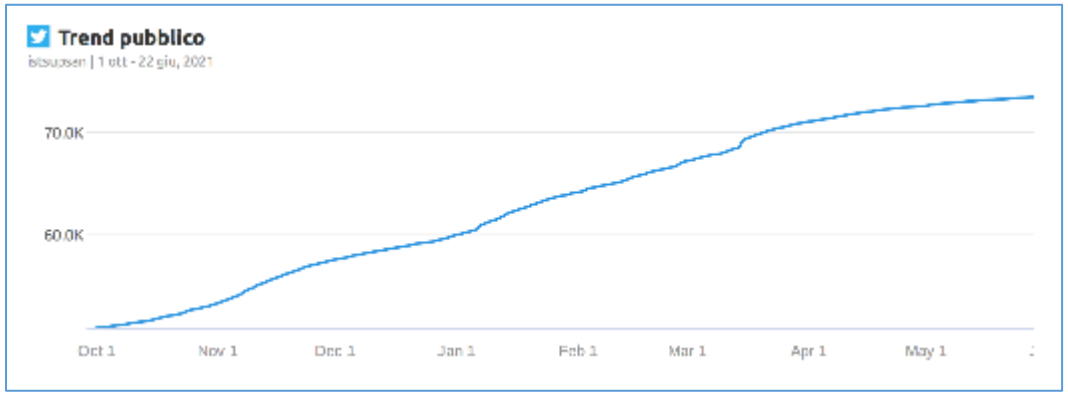
Iss citations on the press





Social media - Trend Follower e interactions

- 80K follower on Twitter
- 25K on Facebook
- 8K on Instagram



Preparedness and Readiness

Design and implementation of a rapid mixed method risk assessment system

Ministero della Salute, Istituto Superiore di Sanità
Cabina di Regia ai sensi del DM Salute 30 aprile 2020

Monitoraggio Fase 2
Report settimanale

Report 57
Sintesi nazionale

Monitoraggio Fase 2 (DM Salute 30 aprile 2020)
Dati relativi alla settimana 7/6/2021-13/6/2021
(aggiornati al 16/6/2021)

Valutazione del rischio - Valutazione di impatto

Algoritmo di valutazione di impatto e indicatori rilevanti per fase di riferimento

Impatto

Valutazione del rischio - Valutazione di probabilità di diffusione

Algoritmo di valutazione di probabilità e indicatori rilevanti per fase di riferimento

Probabilità

Tabella 2 – Valutazione di impatto d'accordo all'algoritmo di valutazione del DM Salute 30 aprile, dati al 16 giugno 2021 relativi alla settimana 7/6/2021-13/6/2021

Regione.PA	Domanda 1	Domanda 2 (dati più recenti disponibili*)		Domanda 3	Valutazione
	Nuovi casi segnalati negli ultimi 5 giorni in soggetti di età >50 anni?	Sovraccarico in Terapia Intensiva (Ind3.8 sopra 30%)?	Sovraccarico in aree mediche (Ind3. sopra 40	Evidenza di nuovi focolai negli ultimi 7 giorni in RSA/case di	
Abruzzo	Si	No	No		
Basilicata	Si	No	No		
Calabria	Si	No	No		
Campania	Si	No	No		
Emilia-Romagna	Si	No	No		
FVG	Si	No	No		
Lazio	Si	No	No		
Liguria	Si	No	No		
Lombardia	Si	No	No		
Marche	Si	No	No		
Molise	Si	No	No		
Piemonte	Si	No	No		
PA Bolzano/Bozen	Si	No	No		
PA Trento	Si	No	No		
Puglia	Si	No	No		
Sardegna	Si	No	No		
Sicilia	Si	No	No		
Toscana	Si	No	No		
Umbria	Si	No	No		
V.d'Aosta/V.d'Aoste	Si	No	No		
Veneto	Si	No	No		

*aggiornato al 15/06/2021

Tabella 1 - Valutazione della probabilità di diffusione d'accordo all'algoritmo di valutazione del DM Salute 30 aprile 2020, dati al 16 giugno 2021 relativi alla settimana 7/6/2021-13/6/2021

Regione.PA	Completezza dei dati sopra-soglia (appendice-	Domanda 1	Domanda 2				Domanda 3	Valutazione della probabilità
		Nuovi casi segnalati negli	Trend di casi (Ind3.1)	Trend di casi (Ind3.4)	Rt puntuale sopra uno?	Trend focolai	Dichiarata trasmissione non gestibile in modo efficace con misure locali (zone rosse)?*	
Abruzzo			↓	↓	No	↓	No	Bassa
Basilicata			↑	↑	Si	↓	No	Moderata
Calabria			↓	↓	No	↓	No	Bassa
Campania			↓	↓	No	↓	No	Bassa
Emilia-Romagna			↓	↓	No	↓	No	Bassa
FVG			↑	↑	No	↓	No	Moderata
Lazio			↓	↓	No	↓	No	Bassa
Liguria			↓	↓	No	↓	No	Bassa
Lombardia			↓	↓	No	↓	No	Bassa
Marche			↑	↑	No	↓	No	Moderata
Molise			↓	↓	No	↓	No	Bassa
Piemonte			↓	↓	No	↓	No	Bassa
PA Bolzano/Bozen			↓	↓	No	↓	No	Bassa
PA Trento			↓	↓	No	↑	No	Bassa
Puglia			↓	↓	No	↓	No	Bassa
Sardegna			↓	↓	No	↓	No	Bassa
Sicilia			↓	↓	No	↓	No	Bassa
Toscana			↓	↓	No	↓	No	Bassa
Umbria			↓	↓	No	↓	No	Bassa
V.d'Aosta/V.d'Aoste			↓	↓	No	↓	No	Bassa
Veneto			↓	↓	No	↓	No	Bassa

ai sensi dell'articolo 30 comma 1 del DL n. 149 del 9 novembre 2020

Valutazione del rischio - Classificazione complessiva di rischio

Matrice di attribuzione del rischio in base agli algoritmi di valutazione di probabilità ed impatto

Probabilità / Impatto	Molto Bassa	Bassa	Moderata	Alta
Molto Bassa	Rischio Molto basso	Rischio Basso	Rischio Basso	Rischio Moderato
Bassa	Rischio Basso	Rischio Basso	Rischio Moderato	Rischio Moderato
Moderata	Rischio Basso	Rischio Moderato	Rischio Moderato	Rischio Alto
Alta	Rischio Moderato	Rischio Moderato	Rischio Alto	Rischio Molto Alto

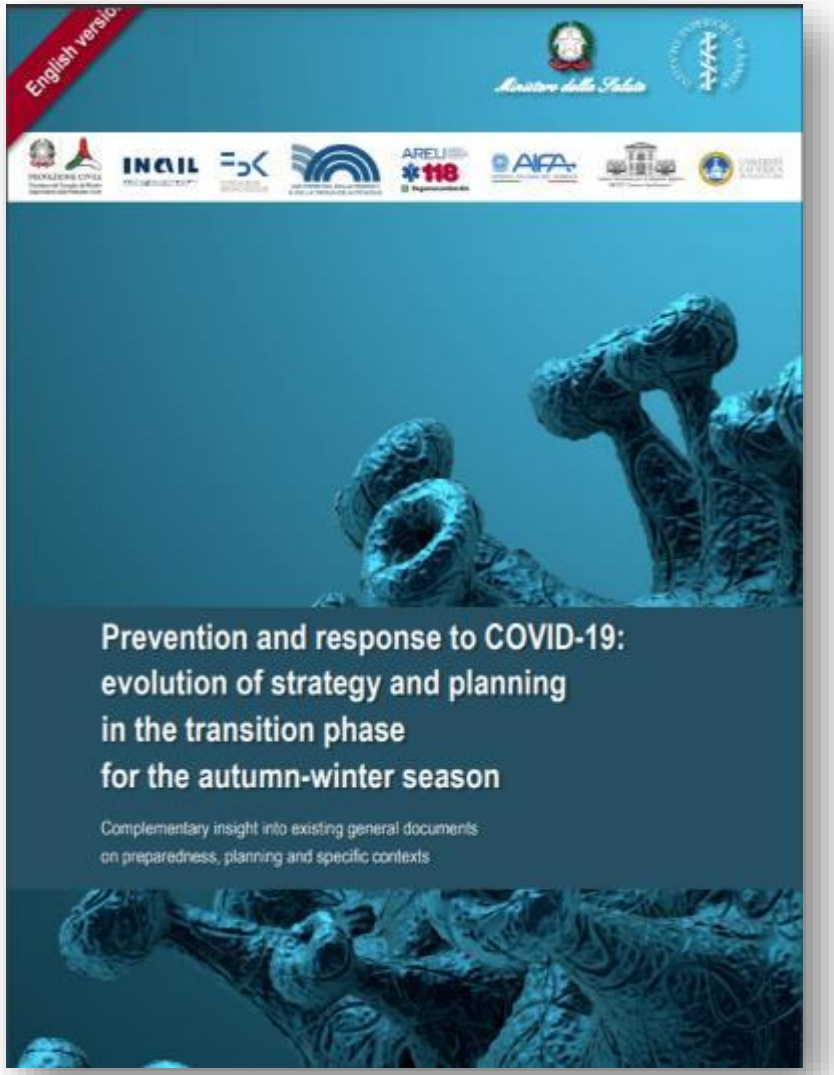
+ Resilienza territoriale = Classificazione del rischio complessiva

Note: Come segnalato nel DM Salute 30 aprile 2020:" *Qualora gli indicatori non opzionali di processo sulla capacità di accertamento diagnostico, indagine e di gestione* [Tabella 3] *dei contatti non siano valutabili o diano molteplici segnali di allerta, il rischio così calcolato dovrà essere rivalutato al livello di rischio immediatamente superiore.*"

NB Poiché ai sensi del documento "Prevenzione e risposta a COVID-19: evoluzione della strategia e pianificazione nella fase di transizione per il periodo autunno-invernale" e della legislazione corrente, le misure di risposta non differiscono per la classificazione di rischio "bassa" e "molto bassa" e per la classificazione di rischio "alta" e "molto alta", tale distinzione non viene riportata in questa relazione.

Preparedness and Readiness

Government support in pandemic strategic planning



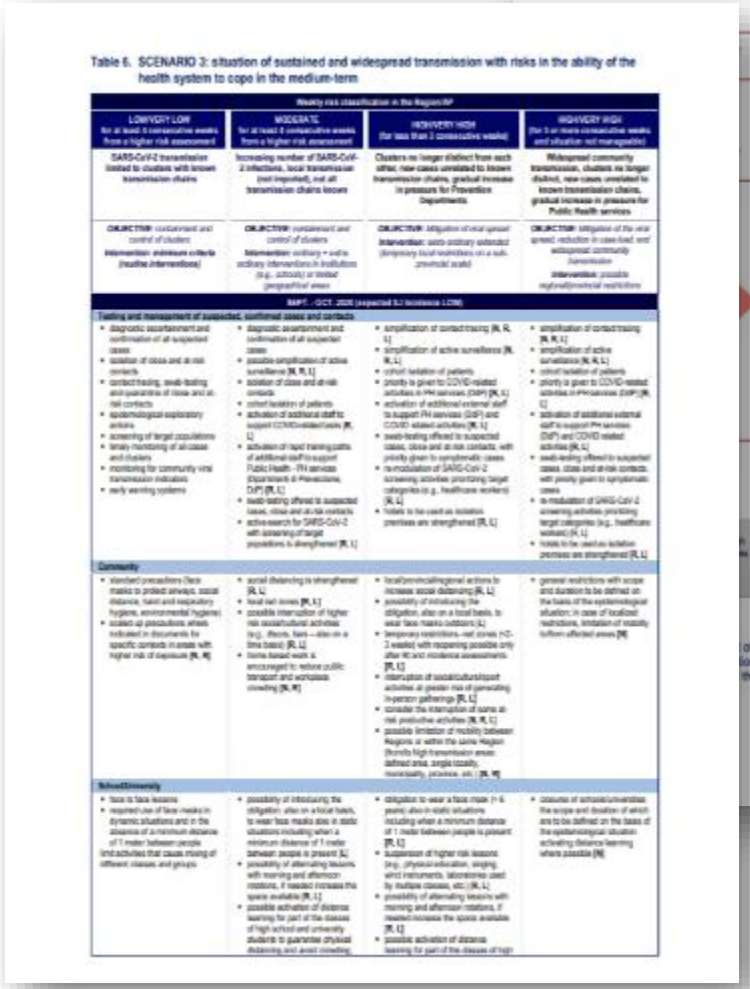
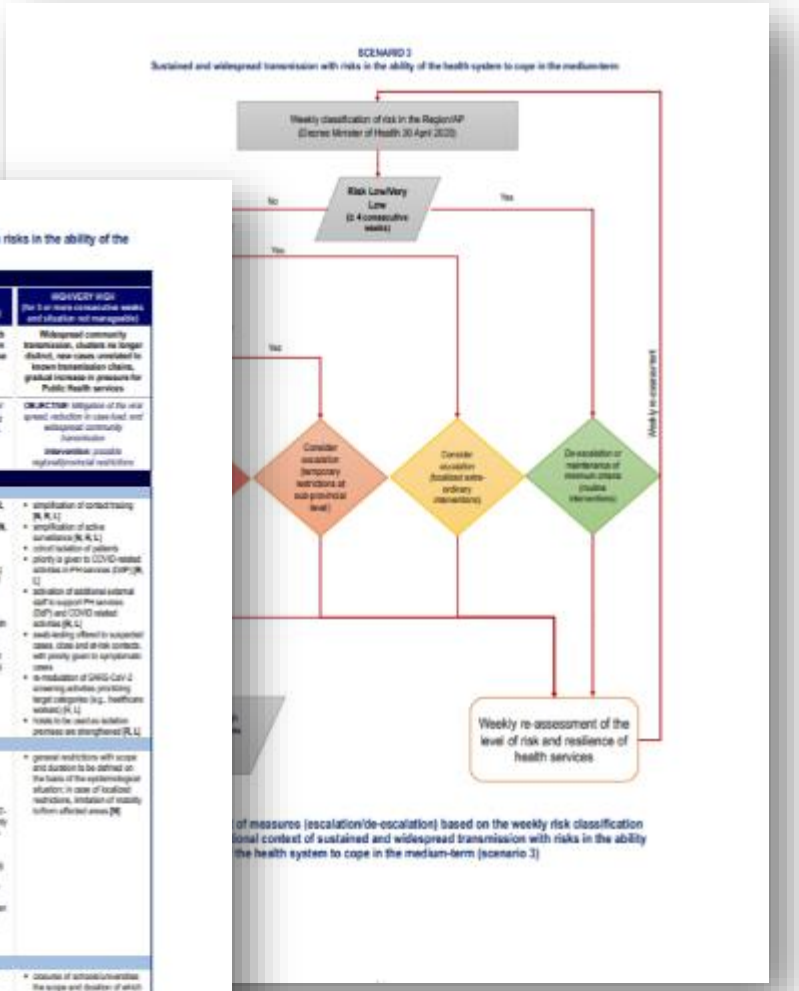
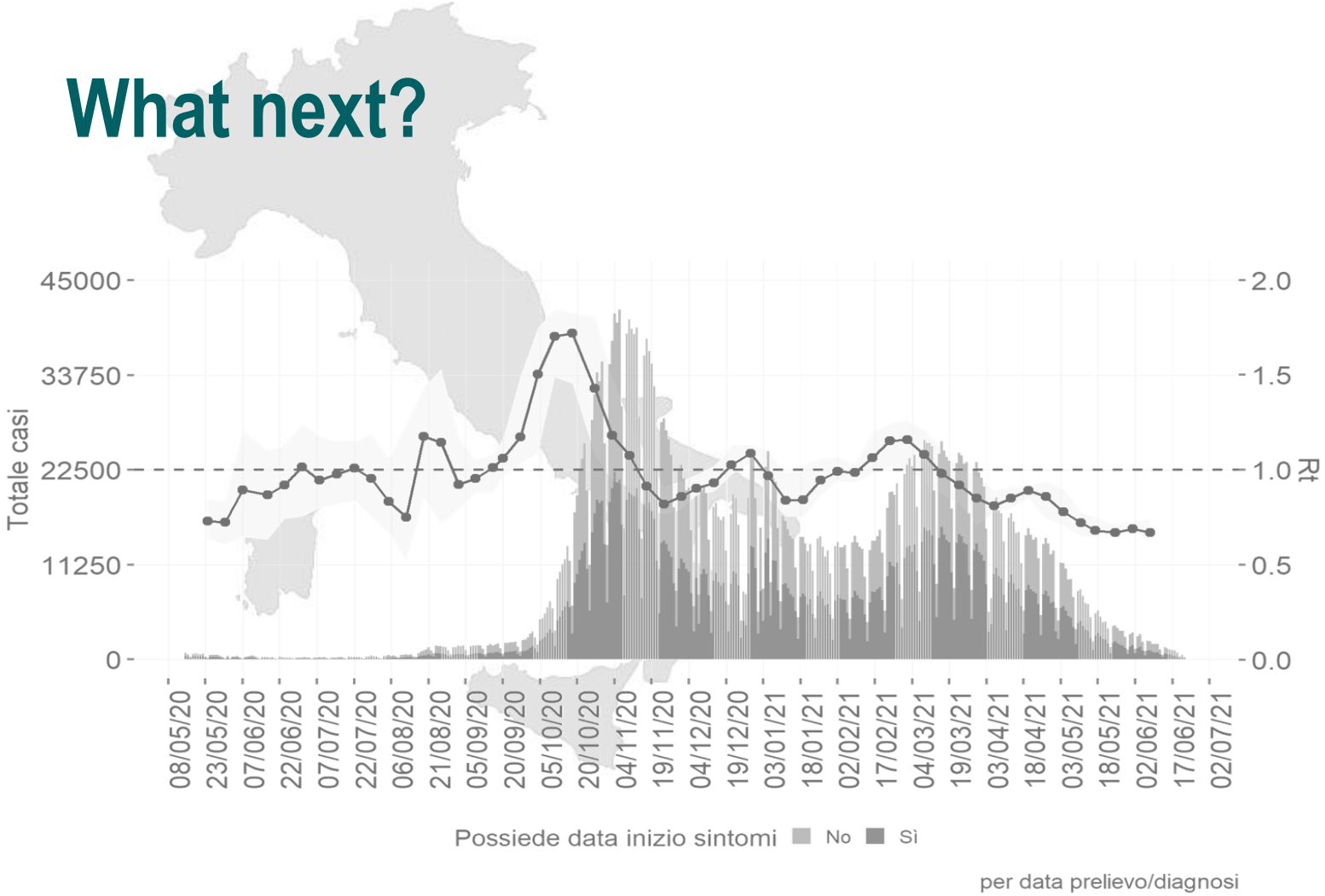


Table 6. SCENARIO 3: situation of sustained and widespread transmission with risks in the ability of the health system to cope in the medium-term

Weekly risk classification in the Region/AP			
LOW/VERY LOW for at least 3 consecutive weeks from a higher risk assessment	MODERATE for at least 3 consecutive weeks from a higher risk assessment	HIGH/VERY HIGH (for less than 3 consecutive weeks)	HIGH/VERY HIGH (for 3 or more consecutive weeks and situation not manageable)
SARS-CoV-2 transmission limited to clusters with known transmission chains	Increasing number of SARS-CoV-2 infections, local transmission (not imported), not all transmission chains known	Clusters no longer distinct from each other, new cases unrelated to known transmission chains, gradual increase in pressure for Prevention Departments	Widespread community transmission, clusters no longer distinct, new cases unrelated to known transmission chains, gradual increase in pressure for Public Health services
OBJECTIVE: containment and control of clusters Intervention: minimum criteria (routine interventions)	OBJECTIVE: containment and control of clusters Intervention: ordinary + extra-ordinary interventions in institutions (e.g., schools) or limited geographical areas	OBJECTIVE: Mitigation of viral spread Intervention: extra-ordinary extended (temporary local restrictions on a sub-provincial scale)	OBJECTIVE: Mitigation of the viral spread, reduction in case-load and widespread community transmission Intervention: possible regional/provincial restrictions
SEPT. - OCT. 2020 (expected ILI incidence LOW)			
Testing and management of suspected, confirmed cases and contacts			
• diagnostic ascertainment and confirmation of all suspected cases • isolation of cases and at-risk contacts • contact tracing, swab-testing and quarantine of close and at-risk contacts • epidemiological exploratory actions • screening of target populations • timely monitoring of all cases and clusters • monitoring for community viral transmission indicators • early warning systems	• diagnostic ascertainment and confirmation of all suspected cases • possible simplification of active surveillance [R, R, L] • isolation of cases and at-risk contacts • cohort isolation of patients • activation of additional staff to support COVID-related cases [R, L] • activation of rapid training paths of additional staff to support Public Health - PH services (Dipartimenti di Prevenzione, DoP) [R, L] • swab-testing offered to suspected cases, close and at-risk contacts • active search for SARS-CoV-2 with screening of target populations is strengthened [R, L]	• simplification of contact tracing [R, R, L] • simplification of active surveillance [R, R, L] • cohort isolation of patients • priority is given to COVID-related activities in PH services (DoP) [R, L] • activation of additional external staff to support PH services (DoP) and COVID related activities [R, L] • swab-testing offered to suspected cases, close and at-risk contacts, with priority given to symptomatic cases • re-modulation of SARS-CoV-2 screening activities prioritizing target categories (e.g., healthcare workers) [R, L] • hotels to be used as isolation premises are strengthened [R, L]	• simplification of contact tracing [R, R, L] • simplification of active surveillance [R, R, L] • cohort isolation of patients • priority is given to COVID-related activities in PH services (DoP) [R, L] • activation of additional external staff to support PH services (DoP) and COVID related activities [R, L] • swab-testing offered to suspected cases, close and at-risk contacts, with priority given to symptomatic cases • re-modulation of SARS-CoV-2 screening activities prioritizing target categories (e.g., healthcare workers) [R, L] • hotels to be used as isolation premises are strengthened [R, L]
Community			
• standard precautions (face masks to protect airways, social distance, hand and respiratory hygiene, environmental hygiene) • scaled-up precautions, where indicated in documents for specific contexts in areas with higher risk of circulation [R, R]	• social distancing is strengthened [R, L] • local lock downs [R, L] • possible interruption of higher risk social/cultural activities (e.g., theatre, bars – also on a time basis) [R, L] • home-based work is encouraged to reduce public transport and workplace crowding [R, R]	• local/provincial/regional actions to increase social distancing [R, L] • possibility of introducing the obligation, also on a local basis, to wear face masks outdoors [L] • temporary restrictions –red zones (>2 weeks) with reopening possible only after RT-PCR and incidence assessment [R, L] • interruption of social/cultural/sport activities at greater risk of generating in-person gatherings [R, L] • consider the interruption of some at-risk productive activities [R, R, L] • possible limitation of mobility between Regions or within the same Region (from/to High transmission areas defined area, single locality, municipality, province, etc.) [R, R]	• general restrictions with scope and duration to be defined on the basis of the epidemiological situation; in case of localized restrictions, limitation of mobility to/from affected areas [R]
School/University			
• face to face lessons • required use of face masks in dynamic situations and in the absence of a minimum distance of 1 meter between people limit activities that cause mixing of different classes and groups	• possibility of introducing the obligation, also on a local basis, to wear face masks also in static situations including when a minimum distance of 1 meter between people is present [L] • possibility of alternating lessons with morning and afternoon rotations, if needed increase the space available [R, L] • possible activation of distance learning for part of the classes of high school and university students to guarantee physical distancing and avoid crowding	• obligation to wear a face mask (>6 years) also in static situations including when a minimum distance of 1 meter between people is present [R, L] • suspension of higher risk lessons (e.g., physical education, singing, wind instruments, laboratories used by multiple classes, etc.) [R, L] • possibility of alternating lessons with morning and afternoon rotations, if needed increase the space available [R, L] • possible activation of distance learning for part of the classes of high	• closures of schools/universities the scope and duration of which are to be defined on the basis of the epidemiological situation activating distance learning where possible [R]



What next?


45000
33750
22500
11250
0
Totale casi
2.0
1.5
1.0
0.5
0.0
Rt
08/05/20
23/05/20
07/06/20
22/06/20
07/07/20
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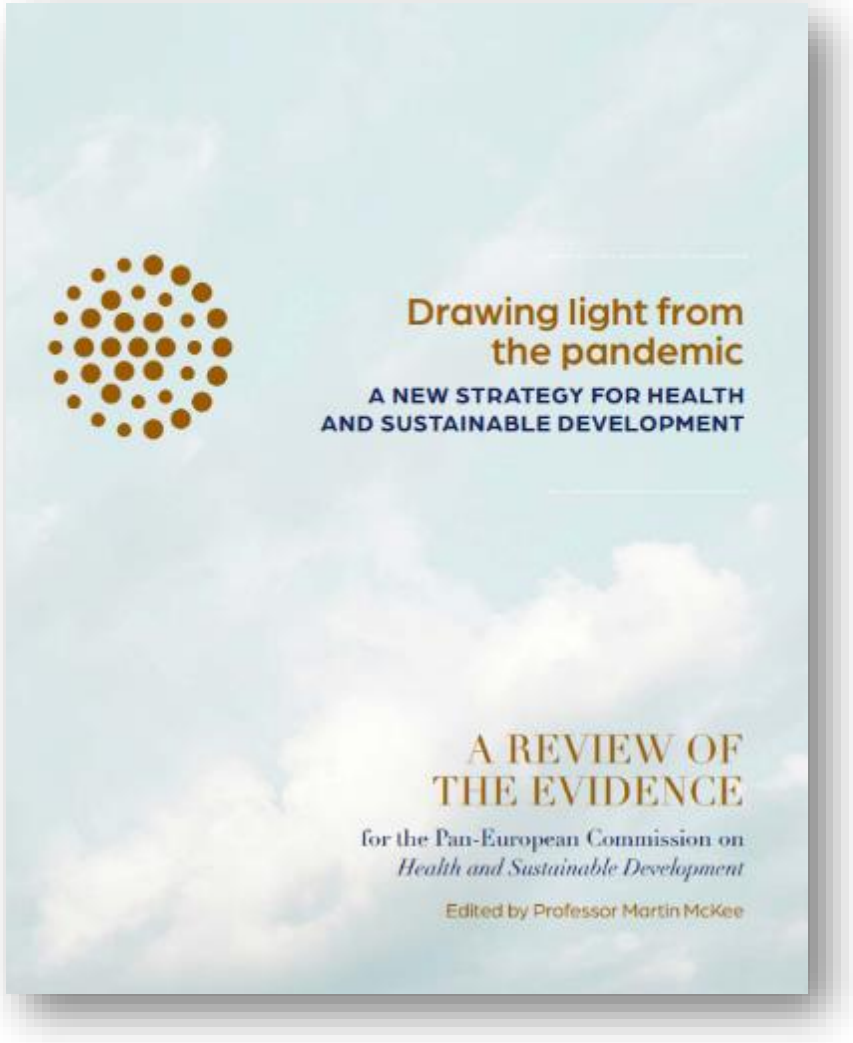
18/04/21
03/05/21
18/05/21
02/06/21
17/06/21
02/07/21
Possiede data inizio sintomi
No
Sì
per data prelievo/diagnosi

Building on lessons learned

- Lesson 1: Decisive leadership is essential
- Lesson 2: We need a plan
- Lesson 3: An early warning system linked to effective governance mechanism is essential
- Lesson 4: A trained, motivated and equipped workforce is essential
- Lesson 5: A strong society underpins a strong pandemic response



Building on a One Health approach

One Health 14 (2022) 100396

Contents lists available at ScienceDirect

One Health

journal homepage: www.elsevier.com/locate/onehlt

Strengthening preparedness against global health threats: A paradigm shift based on One Health approaches

M.G. Dente [a,*,1], F. Riccardo [c,1], S. Declich [a], A. Milano [a], C. Robbiati [a], U. Agrimi [b], A. Mantovani [b], S. Morabito [b], G. Scavia [b], F. Cubadda [b], L. Villa [c], M. Monaco [c], L. Mancini [d], M. Carere [d], S. Marcheggiani [d], A. Lavazza [e], M. Farina [f], O. Dar [g], M. Villa [h], P. Testori Coggi [i], S. Brusaferro [j]

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> OH preparedness can enhance our understanding of risk factors of complex global health threats at the human-animal-environment interface.
>
> It can also prove a new point of view from which we can hypothesize future potential scenarios and adapt national and regional prevention and preparedness strategies, to counteract the current megatrends that are damaging our entire planet

We need to **bridge the Gap** between One Health Research and Public Health

Image source: https://seraed.com/bridging-the-gap-between-modern-science-and-patient-expectations-in-manual-therapy/

Challenges

REUTERS

World Business Markets Breakingviews Video More

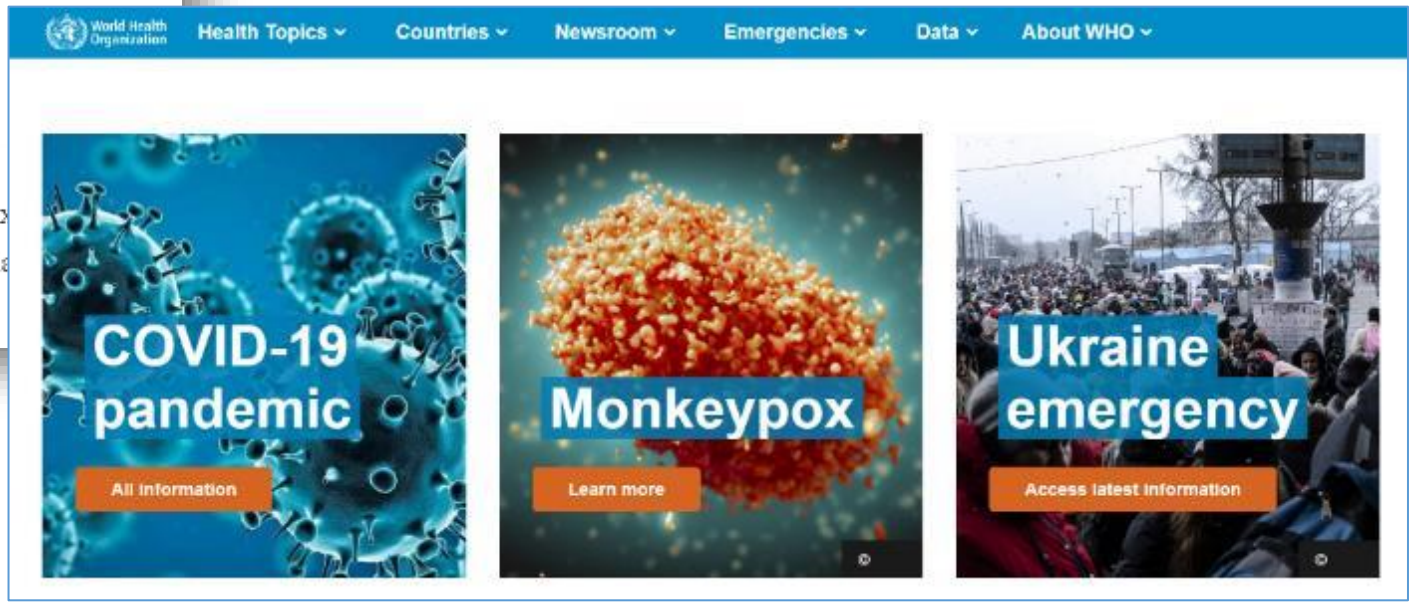
WORLD NEWS NOVEMBER 30, 2020 / 6:30 PM / UPDATED 3 YEARS AGO

WHO worried COVID 'amnesia' will lead to another pandemic

By Reuters Staff 3 MIN READ

GENEVA (Reuters) - The World Health Organization's top emergency ex
on Monday that the world risked future pandemics if it suffered "amnesia
not learn from the current coronavirus crisis.

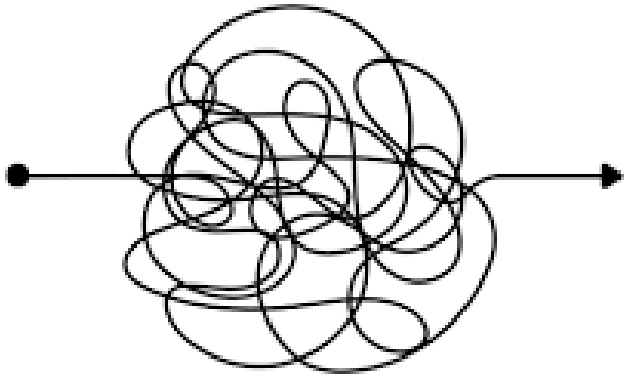
https://www.reuters.com/article/health-coronavirus-who-origins-idINKBN28A2IG



What Data for which Action when

Having to make decisions…

> “The COVID-19 pandemic—caused by SARS CoV-2—is a typical *wicked problem*—we did not see it coming, we experience its effects, and it challenges our entrained ways of thinking and acting.
>
> *J.P. Strumberg, C.M. Martin. J. Eval. Clin. Pract. 2020*



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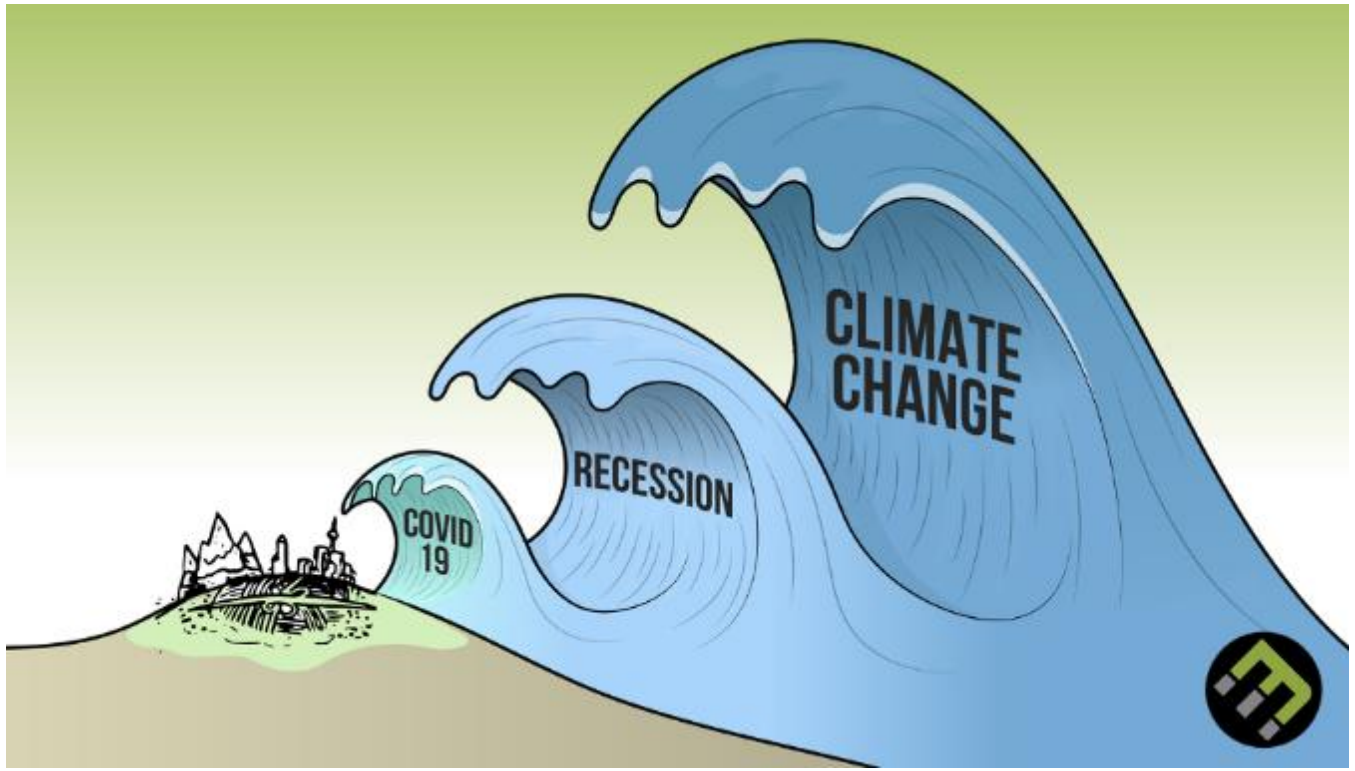
DOI: 10.1111/jep.13419

EDITORIAL

Journal of Evaluation in Clinical Practice
International Journal of Public Health Policy and Health Services Research
WILEY

COVID-19 – how a pandemic reveals that *everything is connected to everything else*

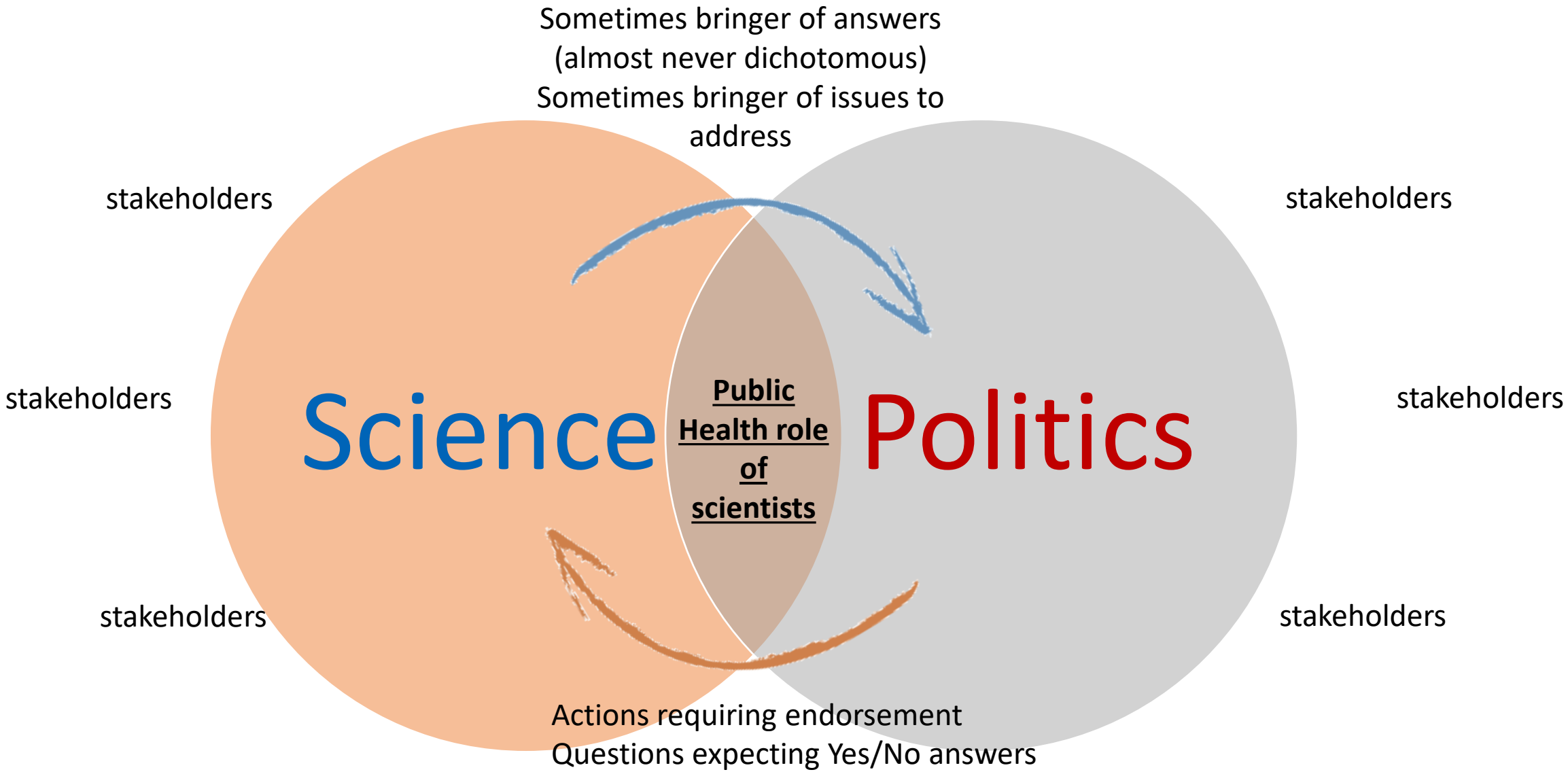
Not the only «wicked» problem on our plate



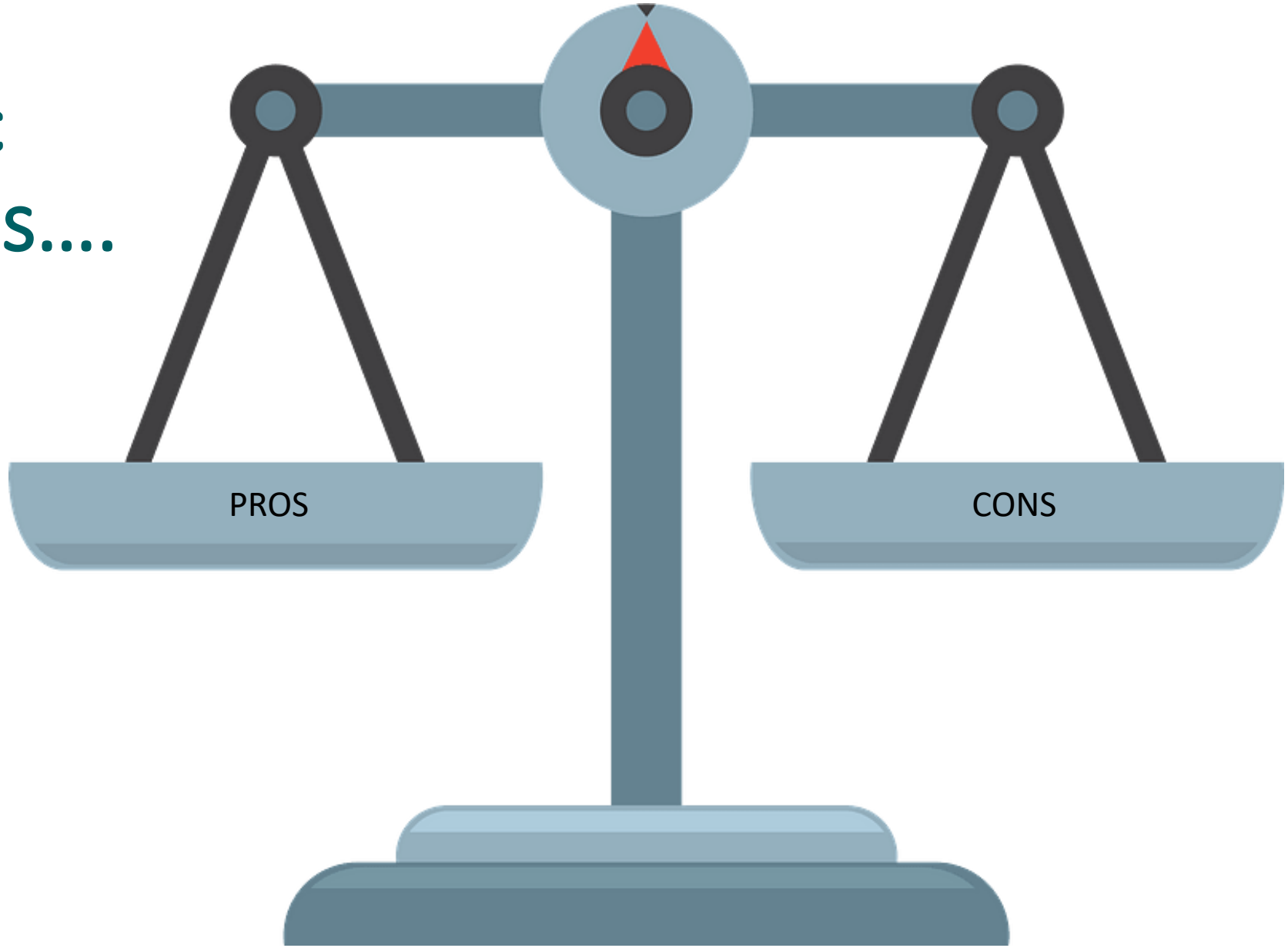
“Super Wicked Problems” – The Coronavirus Pandemic as an Analogy for Future Sustainability Challenges

https://science4sustainability.wordpress.com/2020/08/31/super-wicked-problems-the-coronavirus-pandemic-as-an-analogy-for-future-sustainability-challenges/

Relationship between science and politics



Balancing Public Health Strategies….



… in the midst of communication complexity

Stakeholders
(e.g. anti-vax groups)

PH Officials

Reporting official data through Reports, articles, interviews, press releases, scientific papers

Ambitious scientists

Expressing personal views, often with a very narrow specialistic perspective

Stakeholders

Stakeholders

Politicians

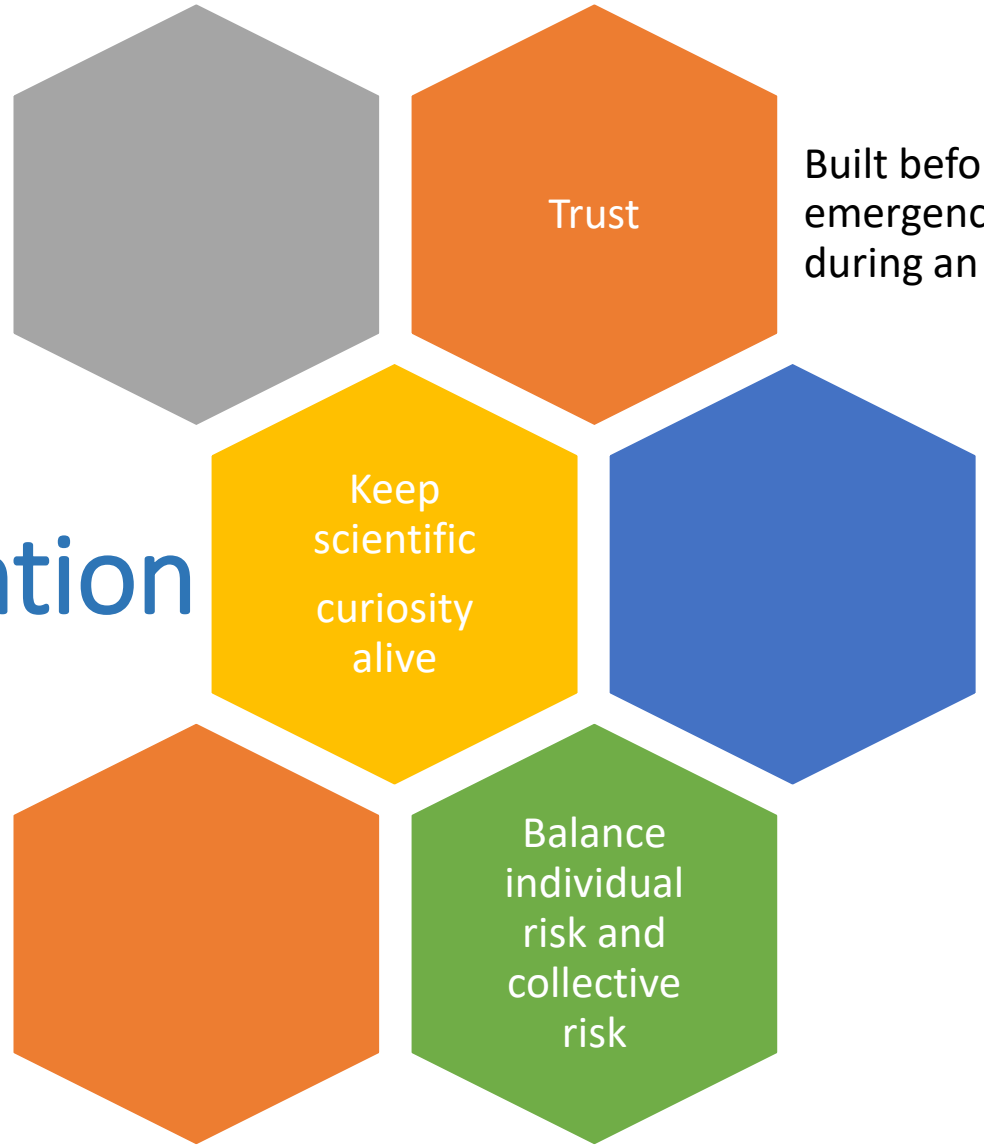
Different views

Stakeholders

Ambitious journalists

Journalistic investigations, counter-information

Thanks for your attention



Built before an emergency and changes during an emergency

flavia.riccardo@iss.it