

# Hopitaux Universitaire de Genève (HUG) –



# A model hospital for COVID-19 patient management

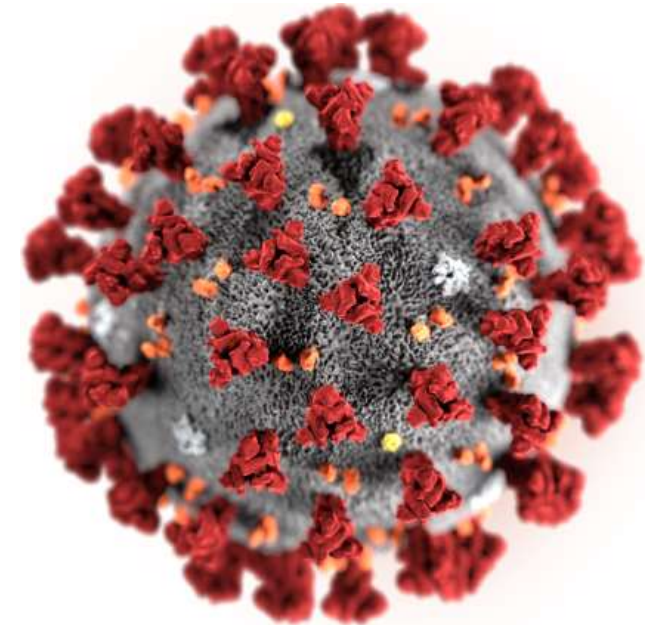
**Professor Didier Pittet, MD, MS, CBE**

Director, Infection Control Programme

The University of Geneva Hospitals and Faculty of Medicine,  
Geneva, Switzerland

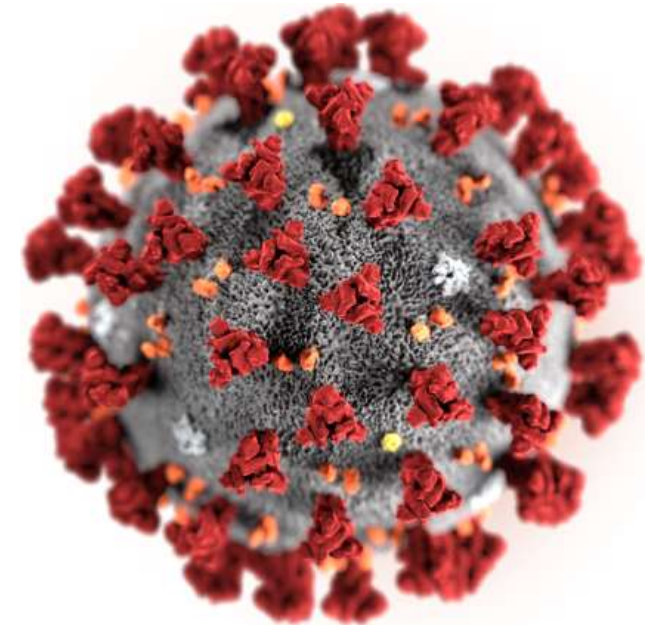
# COVID-19 patient management at hospital level

- Epidemiology of COVID 19 (April 20)
- Mode of transmission and IPC measures
- Managing at hospital level
- Hospital numbers during the 1<sup>st</sup> Wave
- Transforming the hospital/life
- Recovery plan
- Recovering and preparing for the 2<sup>nd</sup> Wave
- Get ready for 5 May 2020



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# Global Situation : PANDEMIC



**2,245,872 cases**

23% cured

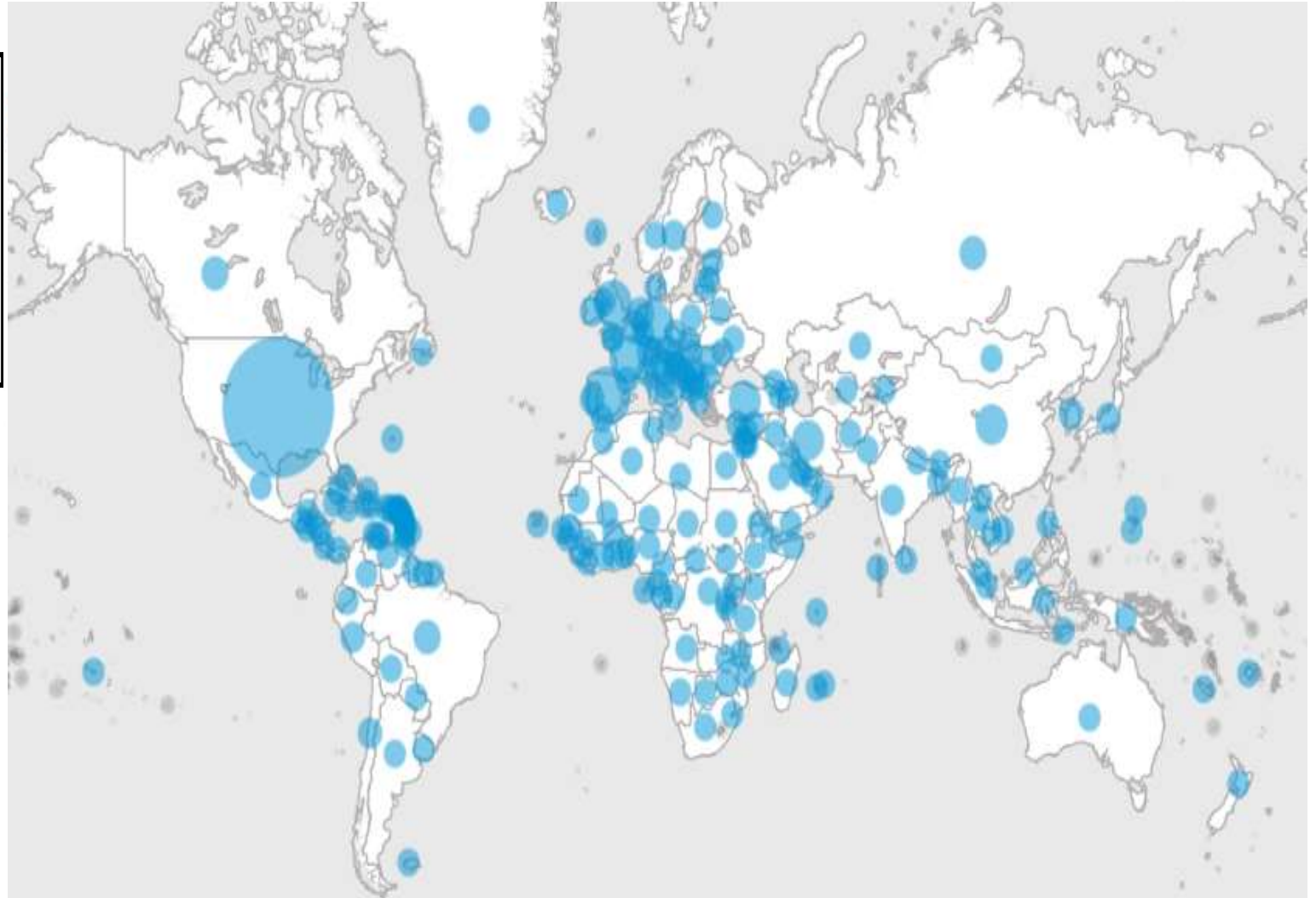
**210 countries**

**152,707 deaths**

**Exponential increase**

0-750'000 cases : 106 days  
(16.12.19-30.03.19)

750'000 -1'500'000 : 10 days  
(30.03.19-09.04.2020)



# Europe

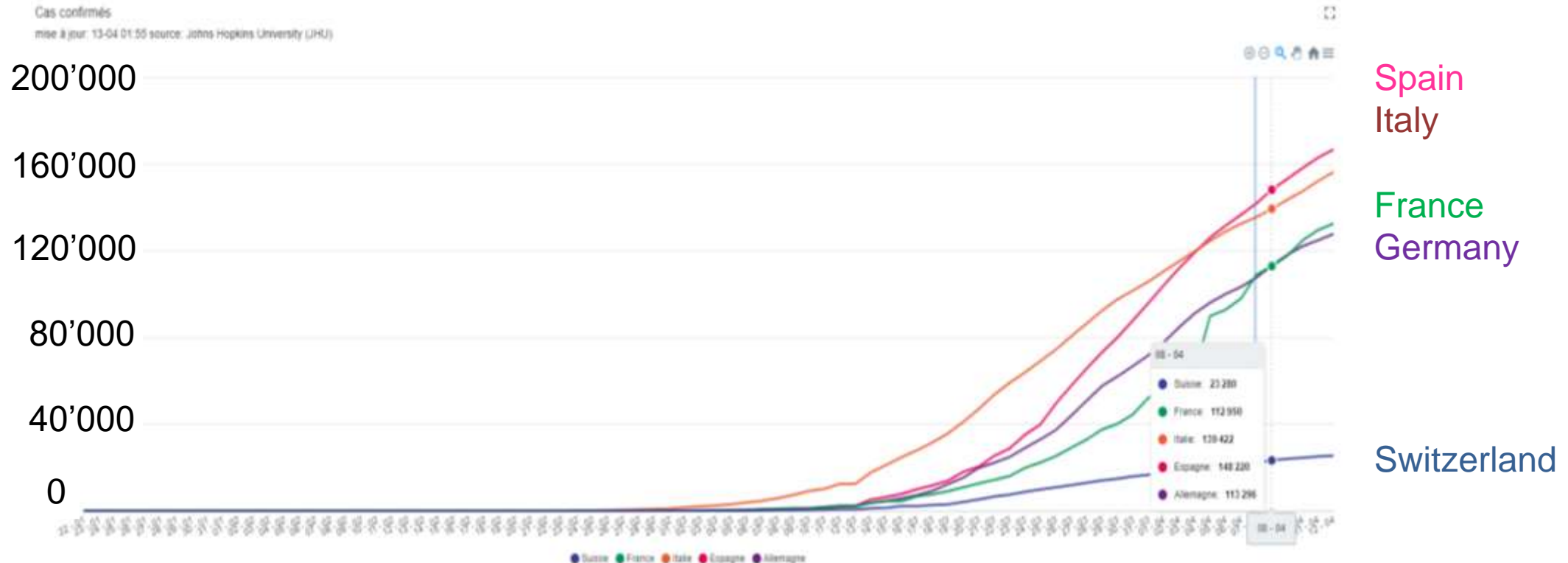


19 April 2020:

- **Spain: 191'726 cases, 20,043 deaths**
- **Italy: 175, 925 cases, 23,227 deaths**
- **France: 110, 721 cases, 19,294 décès**
- **Germany : 139,897 cases, 4,294 deaths**
- **Switzerland: 27,322 cases, 1,110 deaths**

**Spain: the epicentre in Europe**

## Confirmed cases



# Switzerland

19 April 2020

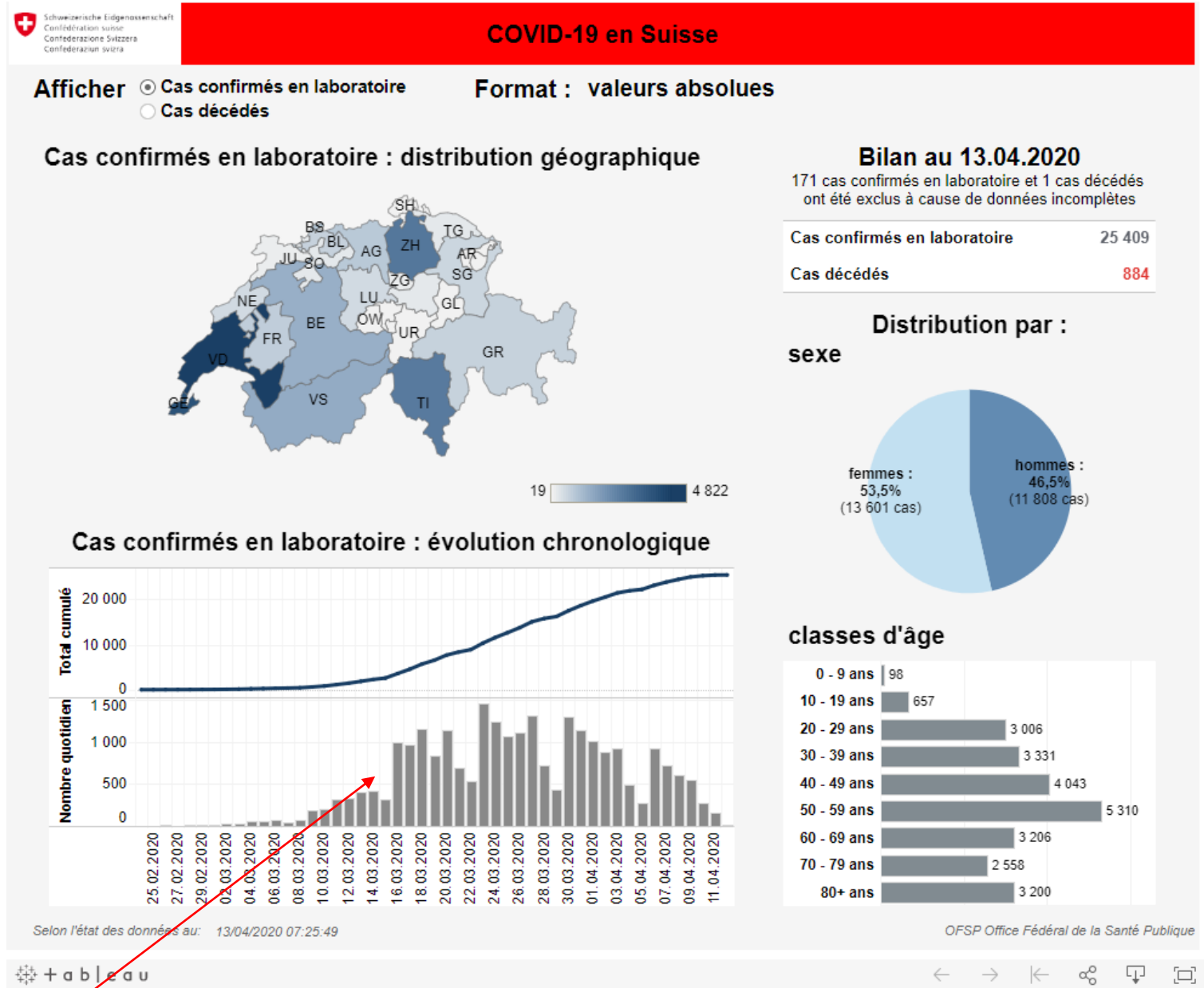
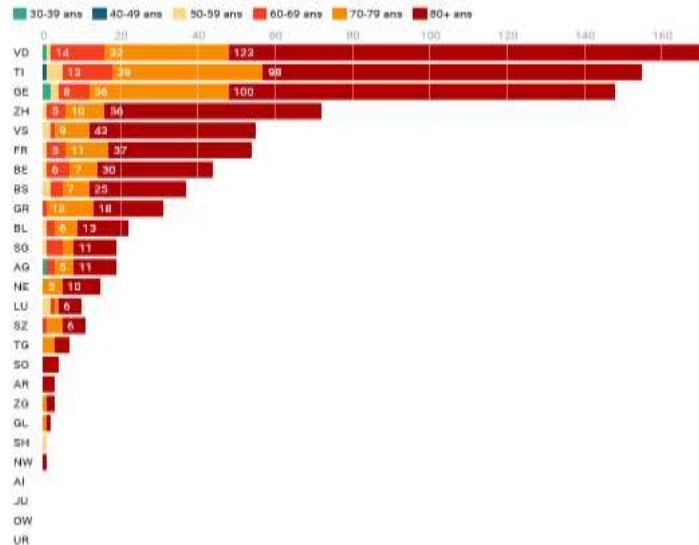
27,322 cases,

1,110 deaths

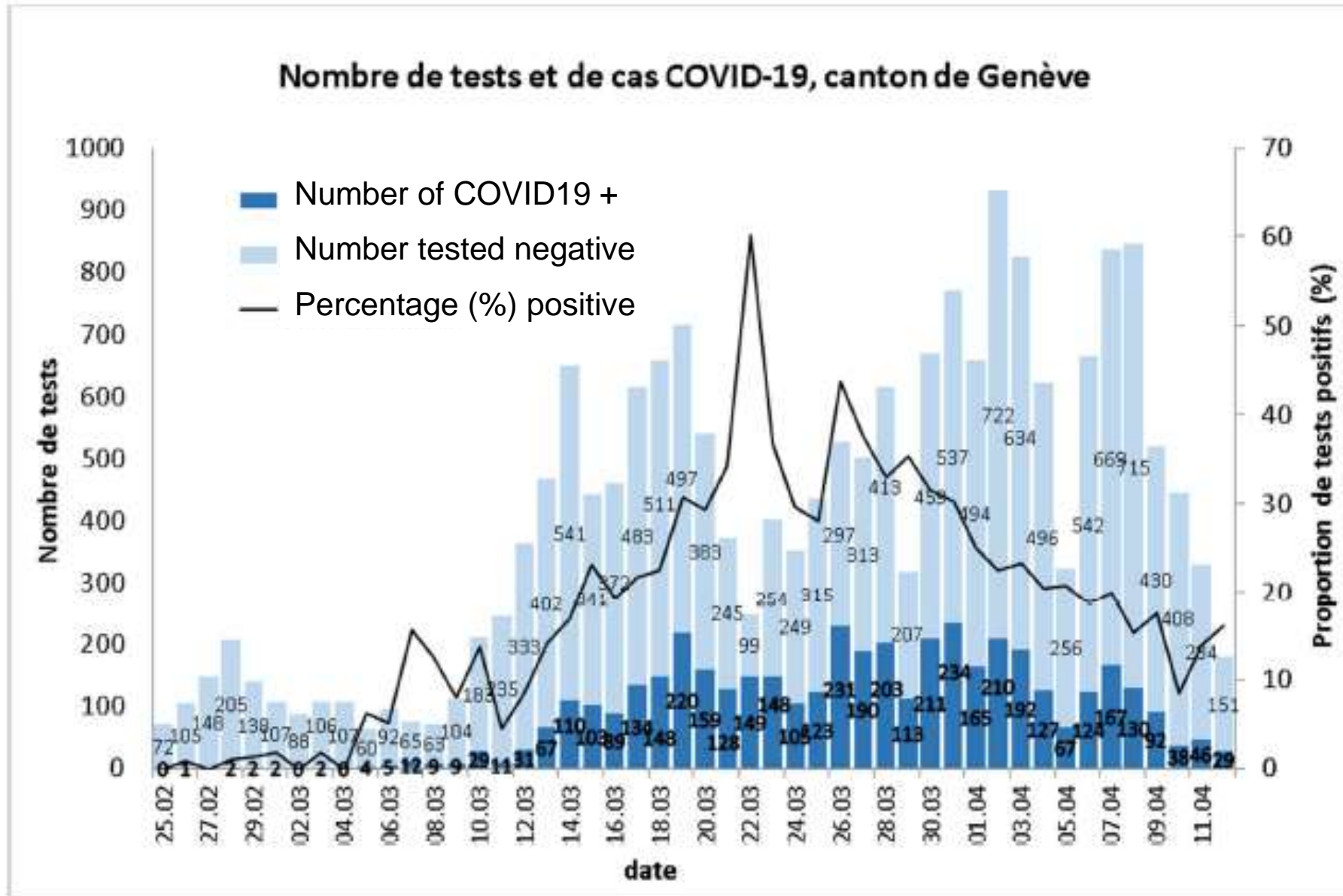
12'700 cases cured

46% active cases

Distribution par classe d'âge des décès liés au covid-19 canton par canton



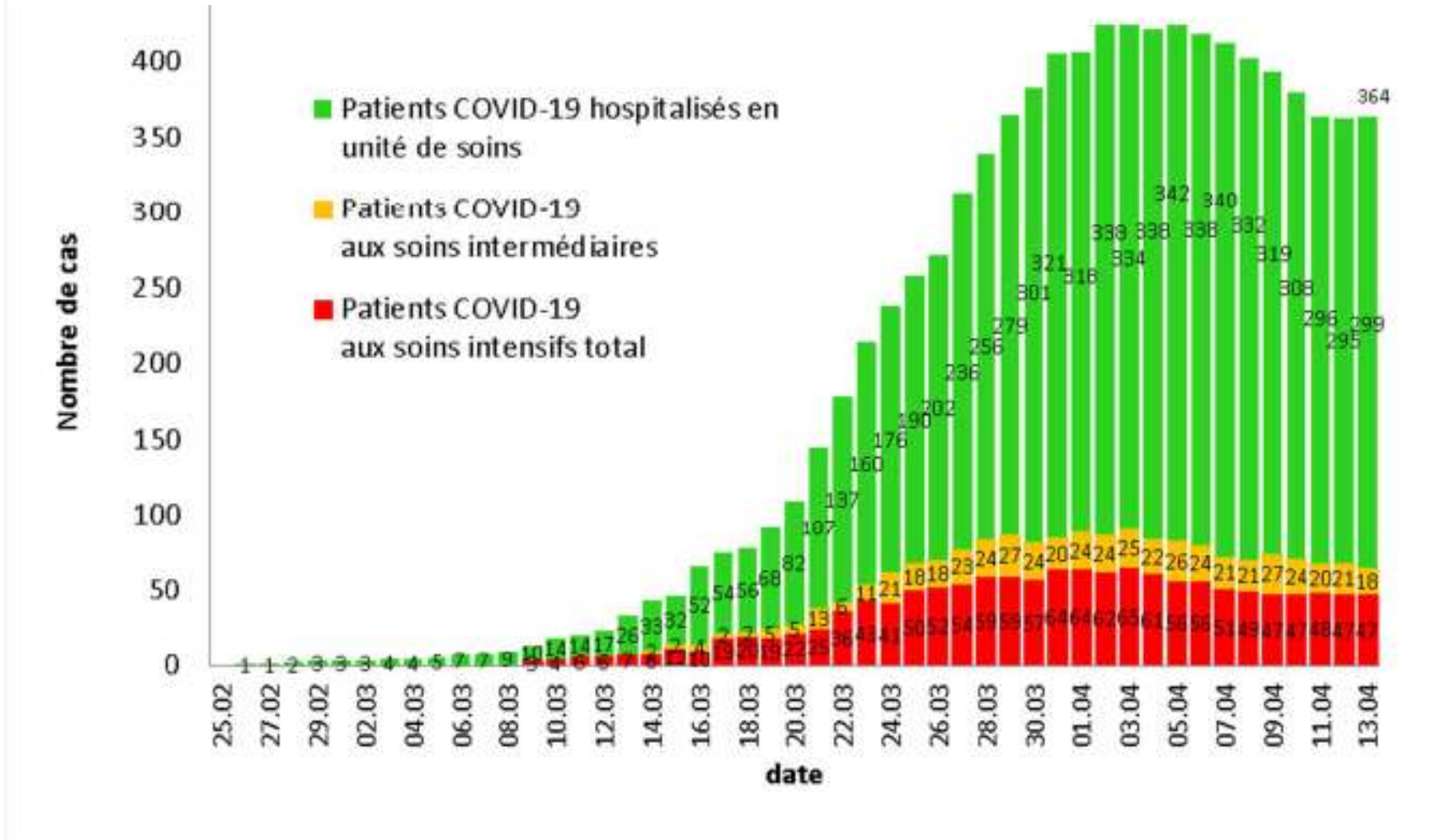
# Geneva: 4371 cases, 160 deaths



# Geneva: 4371 cases, 160 deaths



## Number of COVID-19 patients hospitalized at HUG



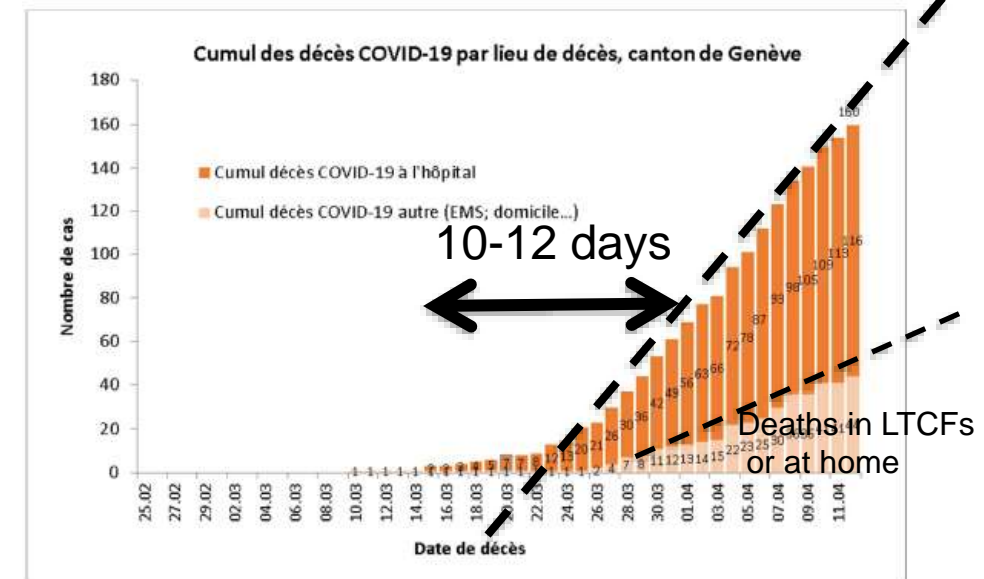
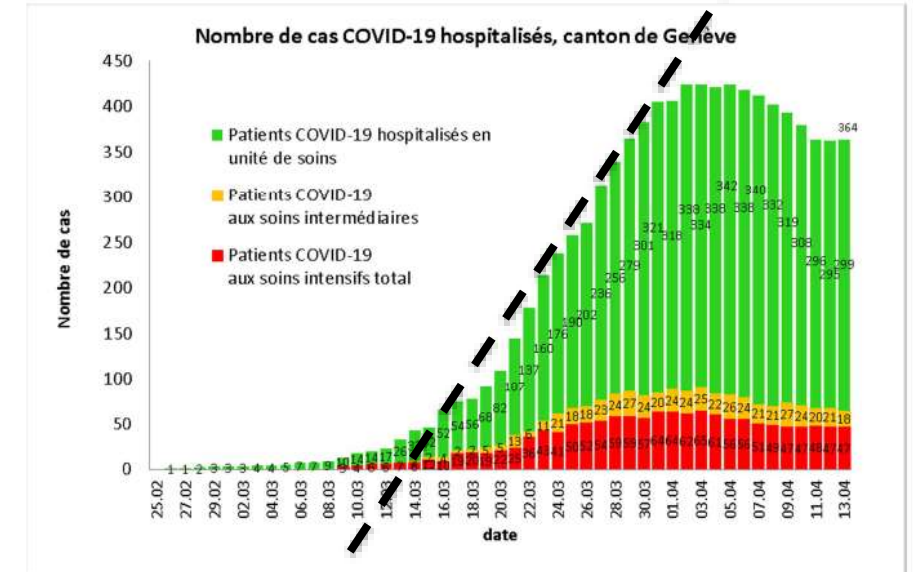
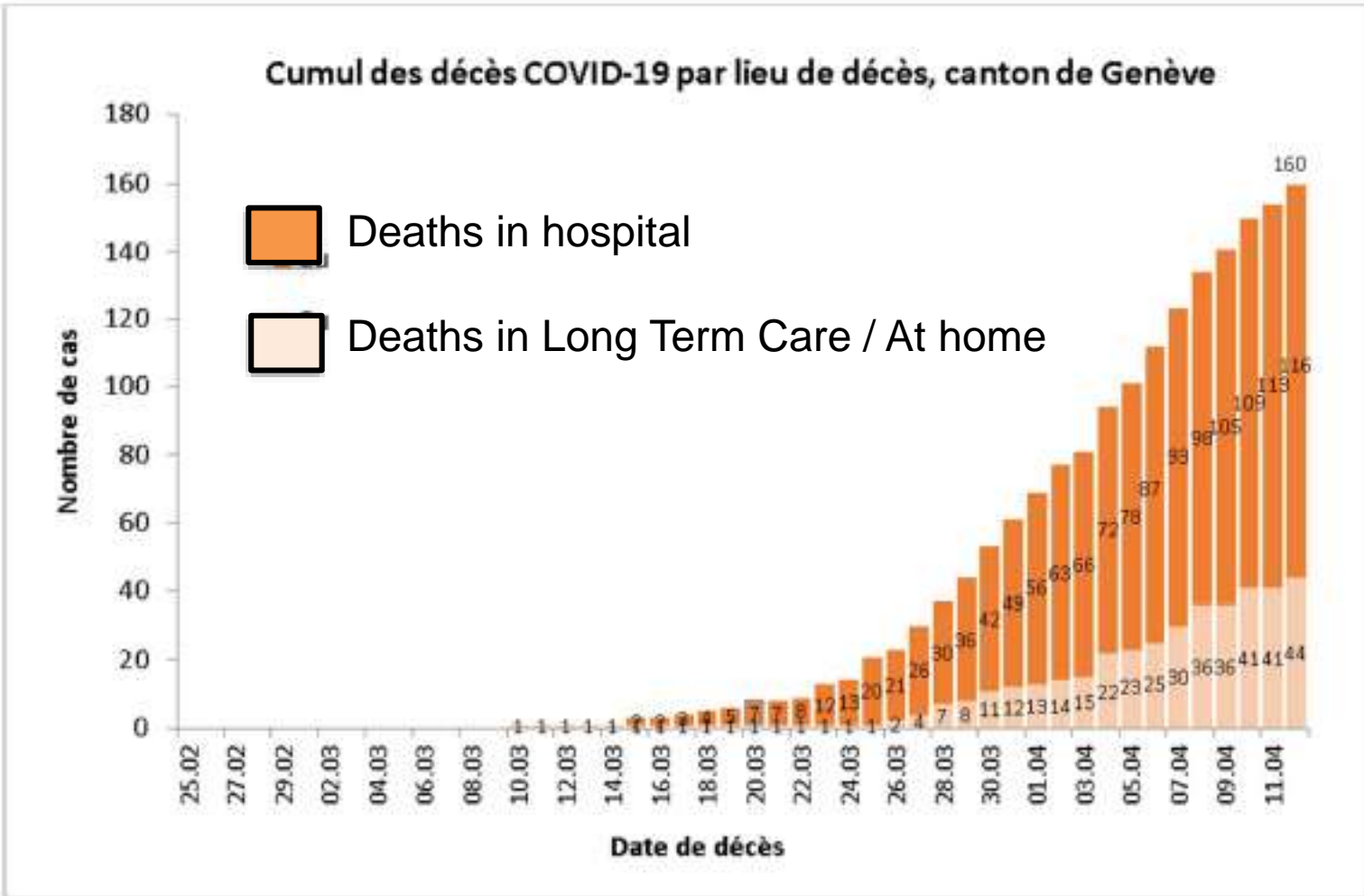
- Regular wards
- Step down units
- ICU



# Geneva: 4371 cases, 160 deaths

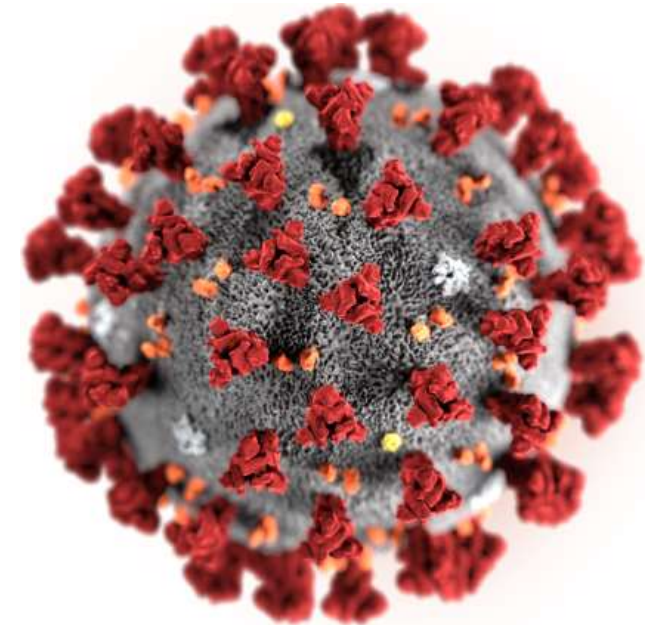


## Cumulative deaths COVID-19 patients



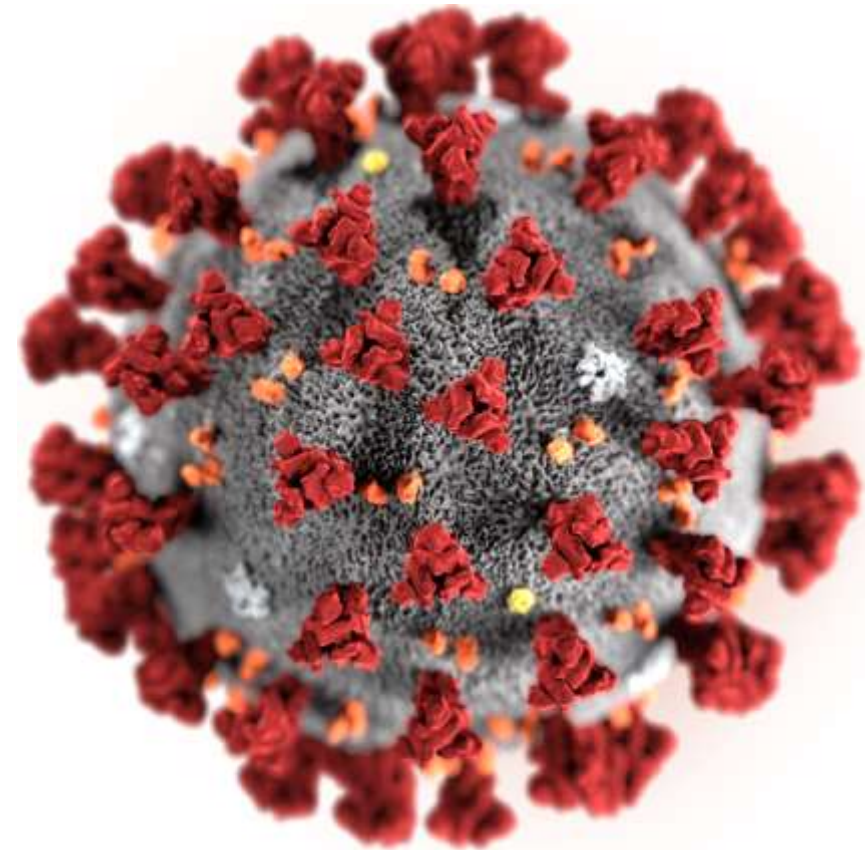
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# Has the WHO changed it's guidance on mode of transmission?

- **No!**
- *We are still recommending droplet/contact precautions, alongside standard precautions*
- *Airborne precautions – for aerosol generating procedures (FFP2, but no “negative air pressure)*



# Mode of transmission – what is known to date



## *Primary modes of transmission of COVID-19:*

- *Droplet: Respiratory droplets (particles >5-10  $\mu\text{m}$  in diameter) are generated when an infected person coughs or sneezes. Any person who is in close contact (within 1 m) with someone who has respiratory symptoms (coughing, sneezing) is at risk of having his/her mucosae (mouth and nose) or conjunctiva (eyes) exposed to potentially infective respiratory droplets*
- *Contact: direct contact with infected people and indirect contact with surfaces in the immediate environment of or with objects used on the infected person (e.g., stethoscope or thermometer) (droplets may land on surfaces where the virus could remain viable).*

- WHO Joint Mission COVID-19 to China, <https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf>
- Ran L, et al. CID 2020
- Moriarty LF, et al. MMWR 2020
- Jefferson T, et al. Medrx 2020

# Airborne transmission – what is known to date



- ❑ *Mainly limited to circumstances and settings in which aerosol generating procedures (AGPs): tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy*
- ❑ *Detection of COVID-19 RNA in air samples*

# Patients suspected or confirmed COVID-19



- *Contact and droplet precautions for all patients with suspected or confirmed COVID-19.*
- *Airborne precautions are recommended only in circumstances and settings in which AGPs and support treatment are performed (i.e. open suctioning of respiratory tract, intubation, bronchoscopy, cardiopulmonary resuscitation).*
- *All patients with respiratory illness should be in a single room, or minimum 1m away from other patients when waiting for a room*
- *Team of HCW dedicated to care exclusively for suspected patients*
- *HCW to wear PPE: medical mask, goggles/face shield, gown, gloves*
- *Hand hygiene should be done any time the WHO “5 Moments” apply, and before PPE and after removing PPE*

# Contact precautions

## CONTACT PRECAUTIONS PERSONAL PROTECTIVE EQUIPMENT (PPE)

### 1 Perform hand hygiene

**Alcohol based handrub**  
Rub hands for  
20–30 seconds.

or

**Water and soap**  
Wash hands for  
40–60 seconds.



### 2 Put on the gown



**3 Put on gloves**  
Ensure gloves are placed over  
the cuff of the gown



- **Single room**
- **Hand hygiene**
  - according to the “5 Moments”, in particular before and after contact with the patient and after removing PPE
  - Avoiding touching eyes, nose or mouth with contaminated gloved or ungloved hands.
- **PPE: gown + gloves**

## Other measures:

- **Equipment**; cleaning, disinfection, and sterilization
- **Environmental cleaning**
  - Avoiding contaminating surfaces not involved with direct patient care (e.g., doorknobs, light switches, mobile phones)

# Droplet precautions



## DROPLET PRECAUTIONS PERSONAL PROTECTIVE EQUIPMENT (PPE)

### 1 Perform hand hygiene

- Alcohol based handrub**  
Rub hands for 20-30 seconds.
- or
- Water and soap**  
Wash hands for 40-60 seconds.



### 2 Put on the mask

Medical mask or surgical mask.



### 3 Put on eye protection

Put on face shield or goggles.



- **Hand hygiene**
  - According to the “5 Moments”, in particular before and after contact with the patient and after removing PPE
  - Avoiding touching eyes, nose or mouth with contaminated gloved or ungloved hands.
- **Single room**
  - if single rooms are not available, separating patients from others by at least 1m
- **PPE**
  - Medical mask
  - Eye protection (goggles or face shield)
- **Limit movement:** Patient to stay in the room
  - If transport/movement is required, require the patient using a medical mask and use predetermined transport routes to minimize exposure for staff, other patients and visitors.



# COVID-19 Precautions

## Contact/Droplet

## with option for Airborne (N95) for AGP

### CONTACT/DROPLET PRECAUTIONS - COVID-19 PERSONAL PROTECTIVE EQUIPMENT (PPE)



<b>1 Perform hand hygiene</b> <b>Alcohol based handrub</b>   <b>Water and soap</b> Rub hands for 20-30 seconds.   Wash hands for 40-60 seconds.	
<b>2 Put on the gown</b>	
<b>3 Eye protection</b> Put on goggles or face shield.	
<b>4 Put on the mask</b> Medical mask   Respirator mask (N95, FFP2, FFP3, or equivalent). Only use if performing aerosol generating procedures.	
<b>5 Put on gloves</b> Ensure gloves are placed over the cuff of the gown.	
<b>Full PPE</b> Gloves, gown, mask (medical or N95), goggles.	

## HOW TO GUIDE - PUTTING ON PPE FOR CONTACT/DROPLET PRECAUTIONS

### 1 Perform hand hygiene

#### Alcohol based handrub

Rub hands for 20–30 seconds.

or

#### Water and soap

Wash hands for 40–60 seconds.



### 2 Put on the gown



### 3 Put on the mask

Medical mask.



### 4 Put on eye protection

Put on goggles or face shield.



### 5 Put on gloves

Ensure glove is placed over the cuff of the gown.



### Full PPE



## HOW TO GUIDE - TAKING OFF PPE FOR CONTACT/DROPLET PRECAUTIONS

Order is important

### 1 Remove gloves



### 2 Remove the gown

Ensure gown is taken off in a manner in which it does not spread anything off of the gown



### 3 Perform hand hygiene

#### Alcohol based handrub

Rub hands for 20–30 seconds.

or

#### Water and soap

Wash hands for 40–60 seconds.



### 4 Remove eye protection

Remove goggles or face shield.



### 5 Remove the mask



### 6 Perform hand hygiene

#### Alcohol based handrub

Rub hands for 20–30 seconds.

or

#### Water and soap

Wash hands for 40–60 seconds.



# How to use a medical mask



- Ensure **hand hygiene** is performed before putting on the mask
- Place the mask carefully, ensuring it **covers the mouth and nose**, and tie it securely to minimize any gaps between the face and the mask.
- **Avoid touching** the mask while wearing it. Replace masks as soon as they become damp with a new clean, dry mask.
- **Remove the mask** using the appropriate technique: do not touch the front of the mask but untie it from behind or from the straps
- After removal or whenever a used mask is inadvertently touched, **clean hands** using an alcohol-based hand rub or soap and water if hands are visibly dirty.
- **Do not re-use** single-use masks, unless indicated
- **Discard single-use masks** after each use and dispose of them immediately upon removal



# Airborne: N95 Mask Fitting

## Do a seal check before you enter the room!



### N95 Mask Fitting

**Do a seal check before you enter the room!**



#### 5A Positive seal check

- Exhale sharply. A positive pressure inside the respirator = no leakage. If leakage, adjust position and/or tension straps. Retest the seal.
- Repeat the steps until respirator is sealed properly.

#### 5B Negative seal check

- Inhale deeply. If no leakage, negative pressure will make respirator cling to your face.
- Leakage will result in loss of negative pressure in the respirator due to air entering through gaps in the seal.

# How to guide – to putting on and removal of PPE



COVID-19: How to put on and remove personal protective equipment

Course is available

Learnings

Discussions

Progress

Collab Space

Course Details

Documents

Announcements



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tweet

share

mail

This is a guide for healthcare workers involved in patient care activities in a healthcare setting. It aims to show the type of personal protective equipment or PPE needed to correctly protect oneself. Based on the current available evidence, the WHO recommended PPE for the care of COVID patients are CONTACT and DROPLET precautions, with the exception of aerosol producing procedures, which require CONTACT and AIRBORNE (hence, a respirator mask such as N95, FFP2, FFP3). Keeping in mind, PPE is part of a larger infection prevention and control bundle of measures and should be implemented as part of a multimodal strategy of management of COVID-19 patients. Only clinical staff who are trained and competent in the use of PPE should be allowed to enter the patient's room.

Self-paced

Language: English

COVID-19

Enter course

Un-enroll

•COVID How to put on and remove PPE for COVID-19 Droplet/contact precautions

<https://openwho.org/courses/IPC-PPE-EN>

•COVID AGP: How to put on and remove PPE for COVID-19 Airborne/contact precautions for aerosol generating procedures

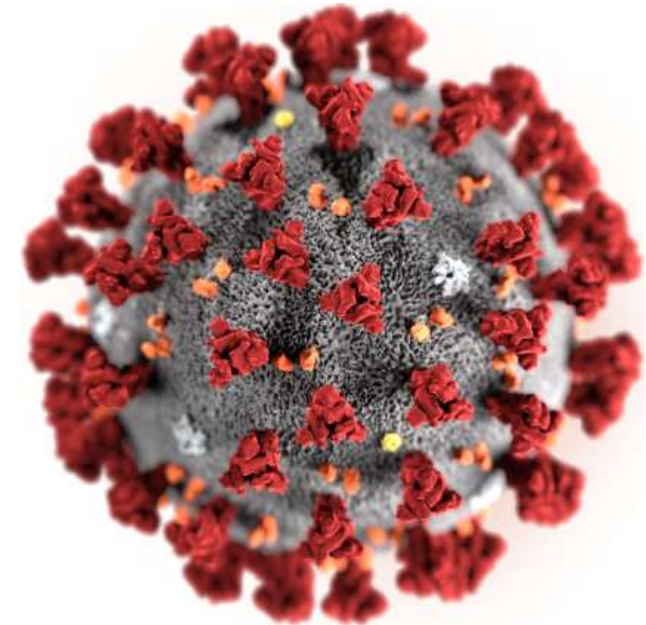
<https://openwho.org/courses/IPC-PPE-EN/items/6o69URMIg5sManZMkdaMQD>

•How to guide: poster version

<https://openwho.org/courses/IPC-PPE-EN/items/3alpyT8H8qa0pj1ldPtzKX>

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Hôpitaux  
Universitaires  
Genève

- 1/ How to manage COVID at hospital level
- 2/ Update and redeployment of HUG activities



# Bienvenue à HUG ! / Welcome to HUG

(>2000 beds)





# What has changed at HUG since 27.2.2020 (1<sup>st</sup> patient COVID)



- Redeployment of activities
- Changes of schedules
- Resource sharing (doctors, nurses and caregivers)
- Mix of specialties and professional cultures
- Accelerated training
- Rapid development of care guidelines and protocols
- Collaboration with outside networks
- Telemedicine consults
- Research projects



# Our COVID screening tent – Entrance



# Testing zone: triage



# COVID screening tent – Triage

(Circuits for ambulatory / patients / HCWs)



**Testing zone staffed by nurses  
and specifically trained medical students**



# What has changed at HUG since 27.2.2020



## Department of Internal Medicine

- Deployment of COVID beds  
(all Gustave-Julliard, from 130 beds to 324 beds)
- Staffing and corresponding planning
- Increase in the number of protected zones
- Training and integration of doctors from other specialties, change of activity of caregivers
- Development of step-down units in collaboration with anesthesia

# Rapid development of care guidelines and protocols

Accueil du groupe
Situation aux HUG
Prise en charge de tout cas suspect
<b>Recommandations institutionnelles COVID-19</b>
Infos générales   ▶
Infos personnel   ▶
Vidéos   ▶
Formation

## Actualités

Nouvelle stratégie de dépistage dès le 28 mars

## Recommandations institutionnelles HUG COVID-19

Le groupe guidelines COVID est mandaté par la Direction Médicale et Cellule Institutionnelle COVID

### Objectif

Emettre et coordonner des recommandations internes HUG pour la prise en charge des patients dans le cadre de l'épidémie COVID-19

### Groupe guidelines COVID

[Thomas Agoritsas](#), [Filippo Boroli](#), [Alexandra Calmy](#), [Birgit Gartner](#), [Angèle Gayet-Ageron](#), [Paola Gasche](#), [Idris Guessous](#), [Philippe Huber](#), [Benedikt Huttner](#), [Anne Iten](#), [Frédérique Jacqueroz Bausch](#), [Laurent Kaiser](#), [Christophe Marti](#), [Steve Primmaz](#), [Caroline Samer](#), [Manuel Schibler](#), [Hervé Spechbach](#), [Pauline Vetter](#), [Diem-Lan Vu Cantero](#), [Marie-Céline Zanella Terrier](#)

### Contact

[Thomas Agoritsas](#), [Angèle Gayet-Ageron](#), [Marie-Céline Zanella Terrier](#), [Franck Schneider](#)

- [1. Vue d'ensemble et identification des cas COVID-19](#)
- [2. Stratégie d'orientation des patients](#)
- [3. Prise en charge et Département de Médecine Aiguë \(Services des Urgences, d'Anesthésiologie et des Soins Intensifs Adultes\)](#)
- [4. Prise en charge intra-hospitalière](#)
- [5. Considérations liées aux médicaments](#)
- [6. Prise en charge ambulatoire des patients suspects ou confirmés COVID-19](#)
- [7. Documents relatifs au décès des patients COVID-19](#)
- [8. Applications](#)

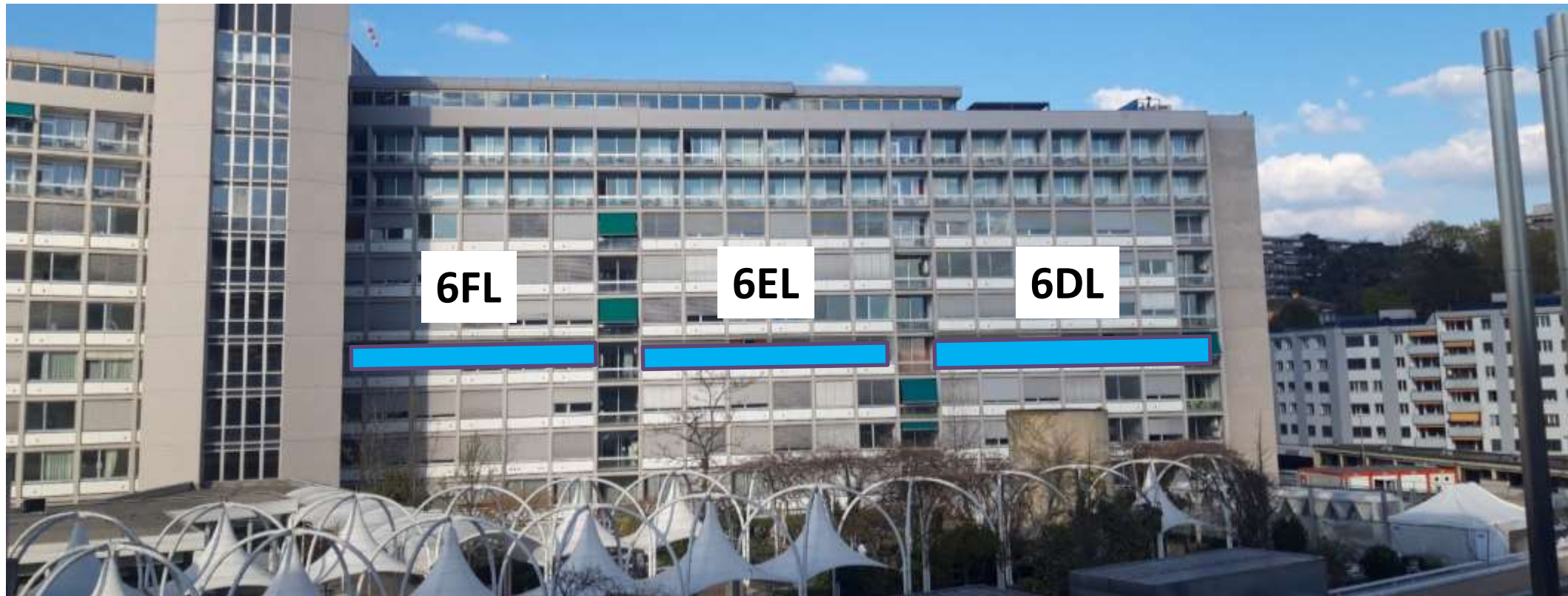
## 1. Vue d'ensemble et identification des cas COVID-19



# Step-down unit/wards (Soins intermédiaires)

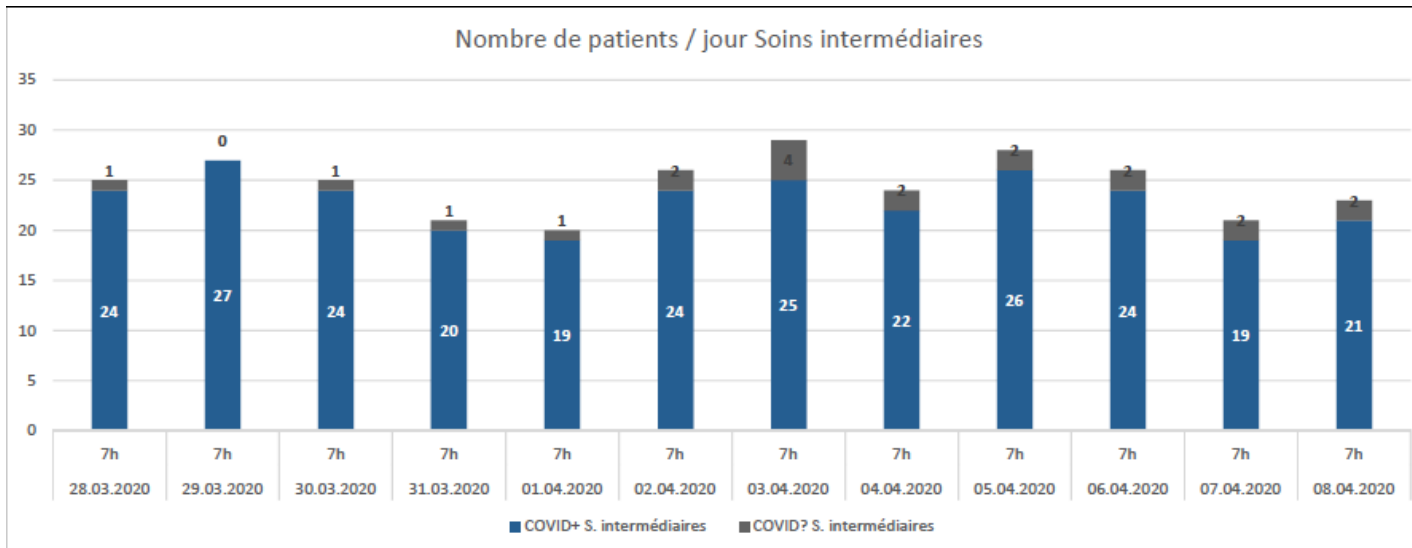


**Co-Management : Depts of Internal Medicine and Anesthesia**



# Step-down unit/wards (Soins intermédiaires)

- *Creation of 40 additional beds – intermediate care*
- *8x5 in « STERN building »*
- *Opening 6FL Monday 30/3, 6EL et 6DL on 3/04/2020, 6CL on 8/04*
- *Capacity: 52 beds; COVID and 8 non-COVID + 8 beds neuro*



# What has changed at HUG since 27.2.2020



## ***Dep of Internal Medicine***

### ***Specialists:***

Cessation of elective consultations

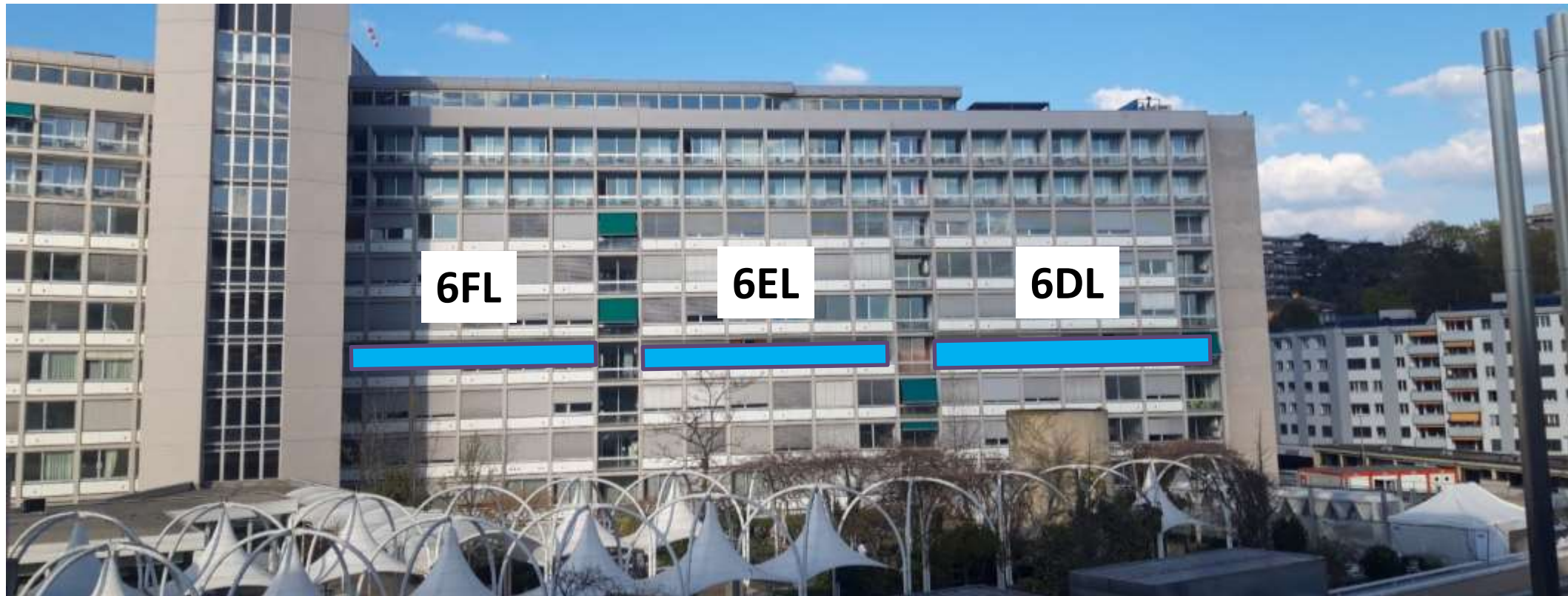
Reduction in intervention activity outside specialized emergency sectors (STEMI and NSTEMI) and transfer of non-COVID patients to private clinics in Canton Geneva

Drastic reduction in hospitalizations, limited to the most complex situations

# Step-down unit/wards (Soins intermédiaires)



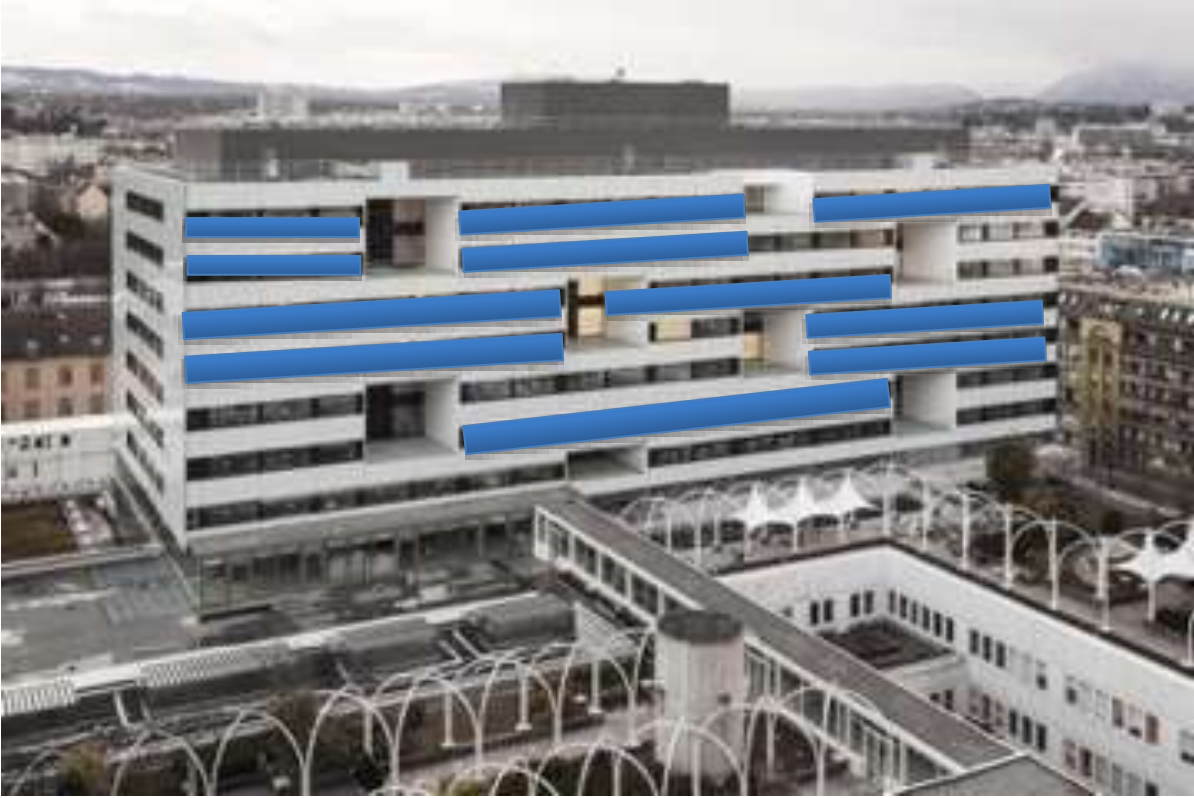
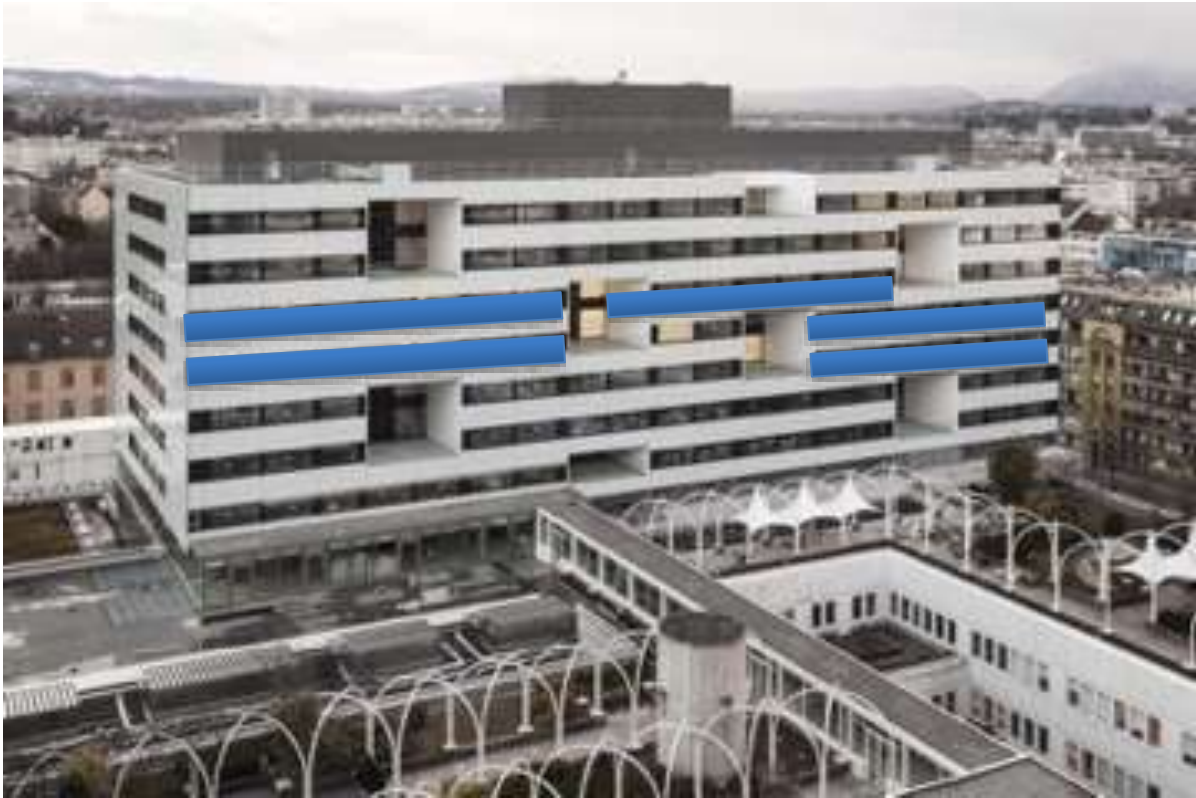
**Co-Management : Depts of Internal Medicine and Anesthesia**



# Turning one of the hospital building (600 beds) into a COVID hospital



# Turning one of the hospital building (600 beds) into a COVID hospital



# What has changed at HUG since 27.2.2020



## Department of Acute Medicine/Emergency

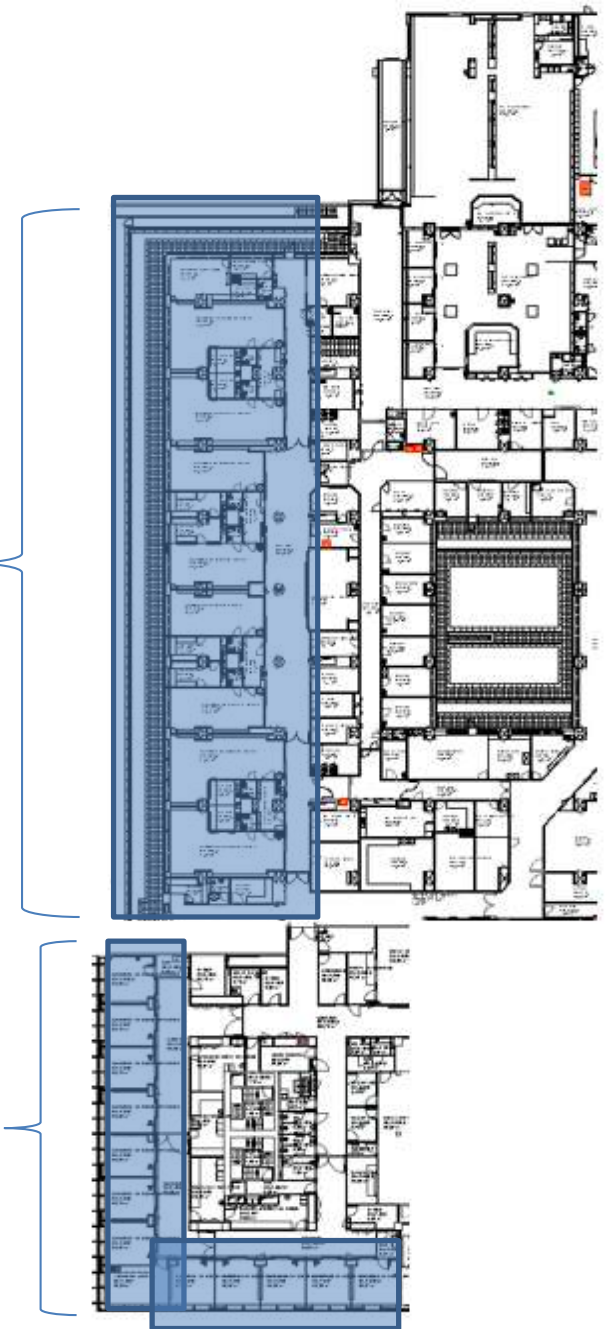
- Emergency wards:
  - Creation of 2 sectors (COVID et non-COVID)
  - Management of the most severe emergencies (diversion of the flow of emergencies to clinics)
- Step-down units:
  - Cf. supra, collaboration active avec le DMED
- Availability of the recovery room and SINPI
- Provision of doctors and nurses / anesthetists for ICU
- Intensive care: from 30 beds to 110 beds
- Available OPERA zone rehabilitation + SINPI use and recovery room + Julliard block + OPERA block reservation

**Intensive care  
(ICU)  
before the COVID-19 epidemic  
10 March 2020**

30 dedicated beds but 40 spaces

18 lits

12 lits





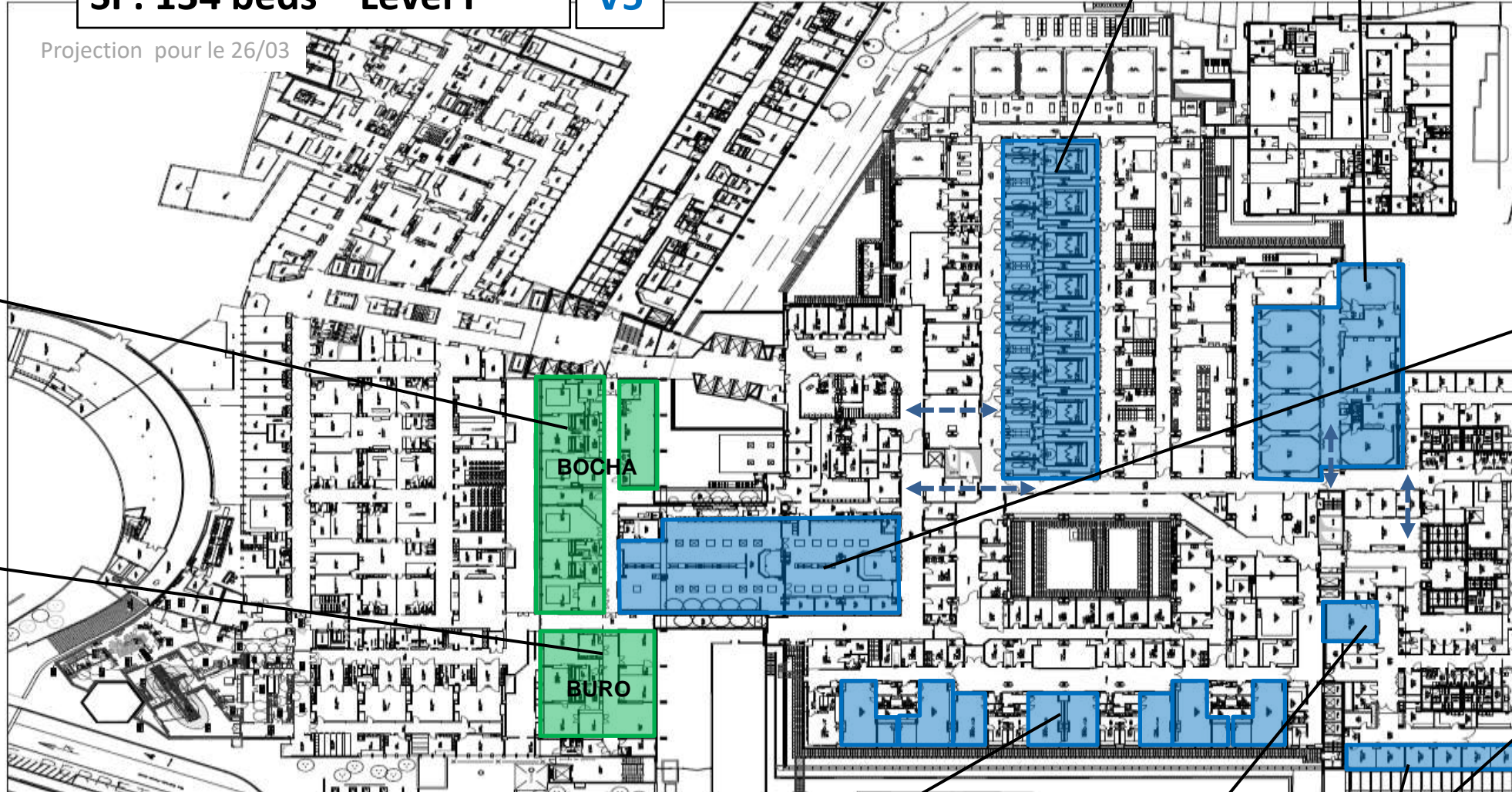
**Zone Repos**

- 1) 5A-P-337
  - 2 salles, 7 couchages
- 2) 5A-P-333
  - 2 canapés, 1 couchage
- 3) 5D-P-123
  - 1 fauteuil, 1 couchage
- 4) 5D-P-132
  - 1 fauteuil, 1 couchage
- 5) 5D-P-129
  - Chaises confort, canapé

**SI : 134 beds – Level P**

**V5**

Projection pour le 26/03



**OPBO-US**  
24 beds

**JULBO-US**  
30 beds

**Urgences  
Bloc Op.  
& Accueil Patients**

**OPSINPI-US**  
32 beds

2 boxes

**BOCHA**

**Urgences  
SSPI (fast & slow)**

**BURO**

**OPERASI-US**  
36 beds

**Déchoquage SIA**  
2 posts

**JULSI-US**  
12 beds

**Restauration**  
5D-P-113

ASH-DPP 01-04

# Getting prepared: specific entrance for direct admission to ICU



**OPEN – BAY**

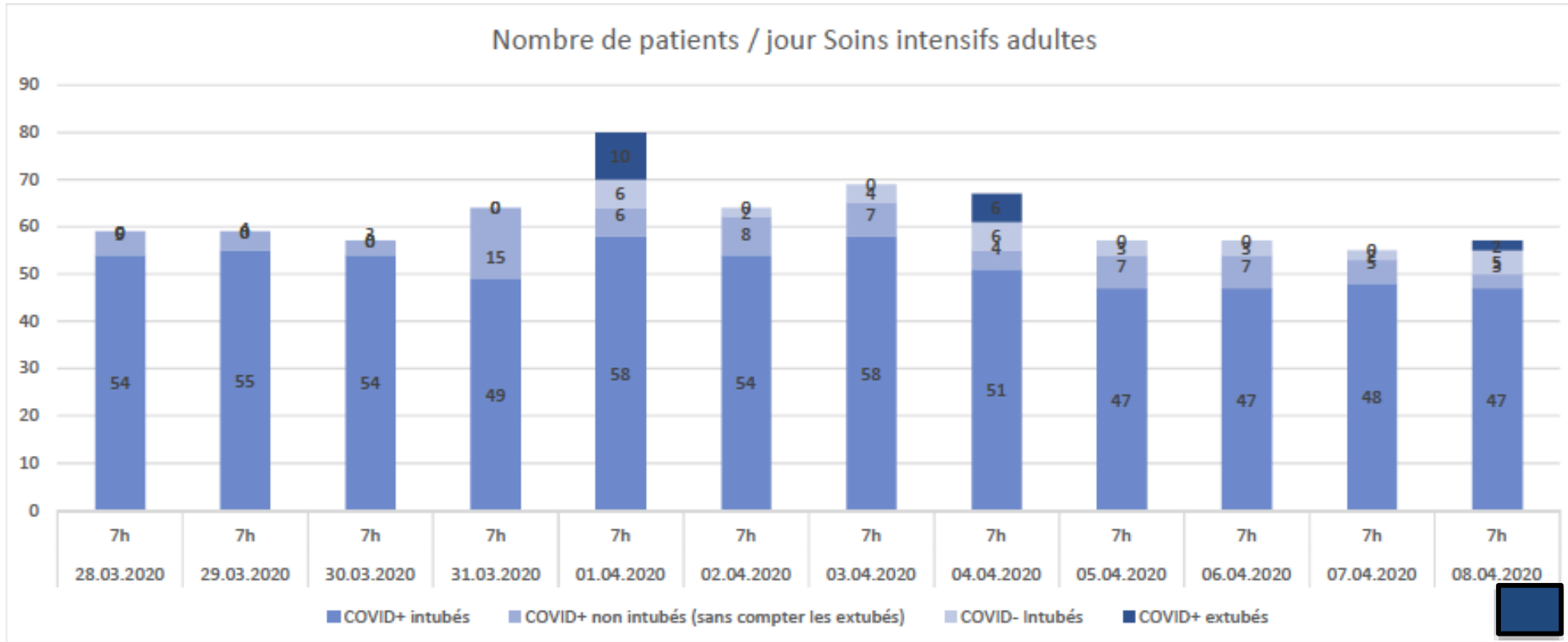
**COVID-ICU**



# What has changed at HUG since 27.2.2020



## Intensive Care



- COVID+ extubated
- COVID+ non int.
- COVID+ intubated

# COVID patient Step-downs and ICU rooms



# Open zone getting prepared for ICU patients (usually part of the PACU - will be used later on as ICU)



# COVID Unit



# What has changed at HUG since 27.2.2020



## Dep of Geriatrics

- 3-Chêne » (300 beds):

Gradual opening of 166 COVID beds for elderly patients without planned intensification of the level of care

163 patients from 13.03.2020 to 03.04.2020

Returned home 14%

Rehabilitation (Loëx-Jolimont) 11%

Deaths 24% (39)

- Loëx » (110 beds): Received COVID patients in 4 units (106 beds)

Palliative care: intensification of support by mobile palliative care units on “CR” and “3-Chêne”



# What has changed at HUG since 27.2.2020



Dep of Diagnostics Facilities/Laboratories

Intense increase in activity from the virology laboratory  
Over 5000 COVID RT-PCR tests performed to date

Introduction of serodiagnosis and start of the seroprevalence study

Support by all DDIAG services, in particular imaging (COVID patients on the imaging platform)

# What has changed at HUG since 27.2.2020



## Dep of Oncology services

Adaptations made to all activities

Continuation of treatments, including adaptation of protocols

Teleconsultations

Patient protection (7th floor, oncology and haemotoncology)

# What has changed at HUG since 27.2.2020



## *Depts of Neurology and Neurosurgery*

*Redeployment of care units (2AL and 3AL)*

*Provision of 8 intermediate care beds at 2EL +*

*Stopping elective surgery and redeploying elective-urgent surgery (<3 months) in clinics*

*Continuation of the stroke and interventional neuro (DDIAG) sector, but unexplained decrease*

# What has changed at HUG since 27.2.2020



## Department of Surgery

Elective surgery stopped

All wards availability for Internal Medicine

Activity reduced to 25% (approx. 100 interventions per week, 50% at HUG in the 4 rooms of BOCHA still open, 50% in clinics)

HUG activity and clinics regulated by a multi-stakeholder committee

# What has changed at HUG since 27.2.2020



## DFEA

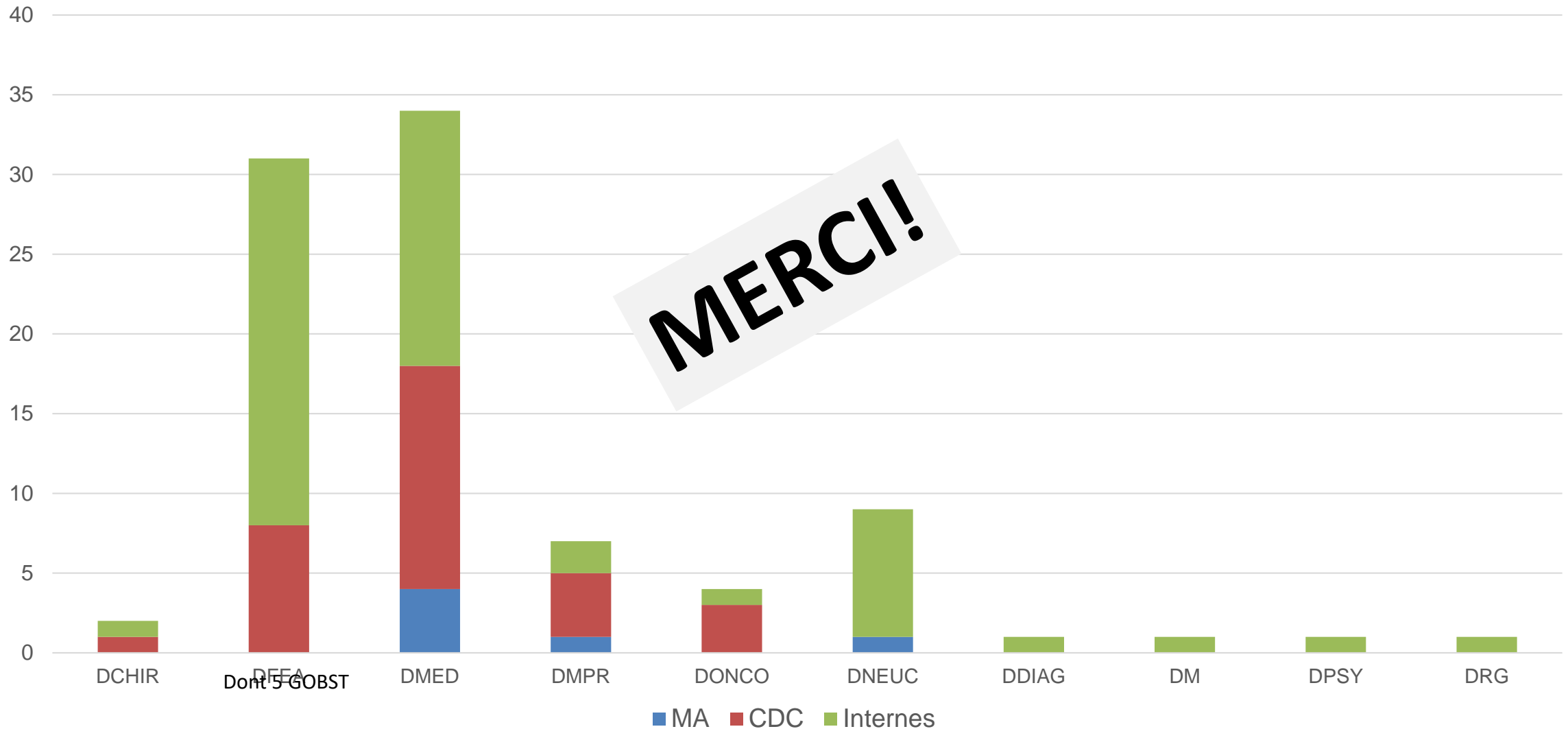
Reduced activity according to the rules (electives, consultations)

Decrease in emergency room attendance

Loan of resources to other services

# Dept of Internal Medicine:

Doctors on loan from other departments, n total = 91



# What has changed at HUG since 27.2.2020



## ***Dep of Psychiatry***

*Creation of the CoviPSY program:*

*- detection of employees with psychological overload and prevention of PTSD*

*Psychologists available to care units at various sites*

*Hotline Permanence (psychiatrists) with meetings by appointment*

# Massive support

## *Infection Prevention and Control (IPC) dep*

On all fronts....

## *All modes of support for all sectors*

Dep of Exploitation (oxygen), stretcher

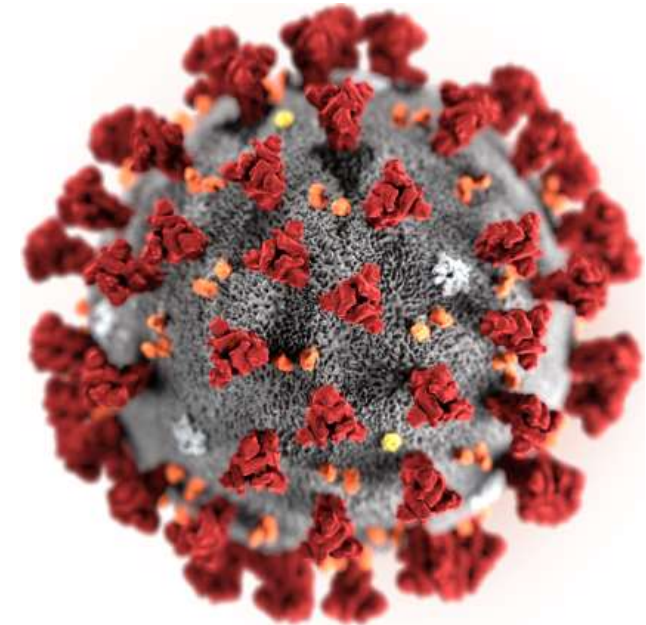
Operative management support: flow and data

...



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Universitaires  
Genève

## **HUG activities and HUG in numbers during COVID19 first wave**



# HUG 3x daily dashboard

COVID-19

HUG - TABLEAU DE BORD DIRECTION DES OPERATIONS

lundi 20 avril 2020

7h

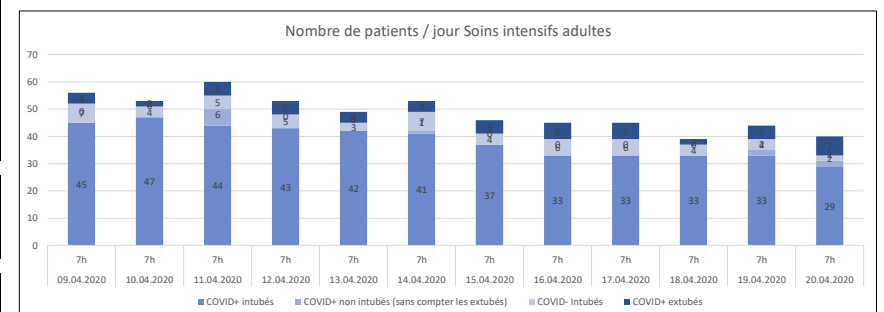
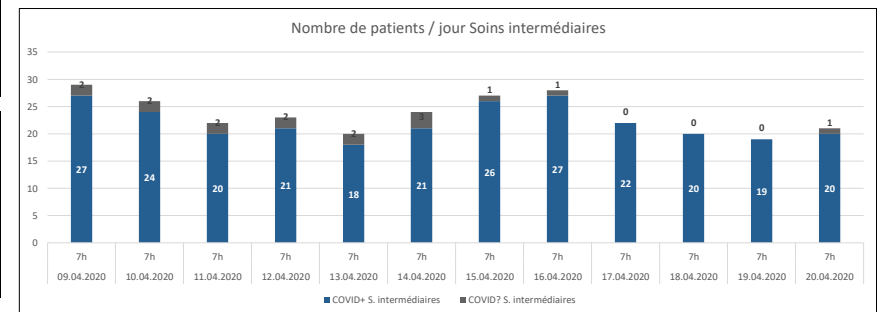
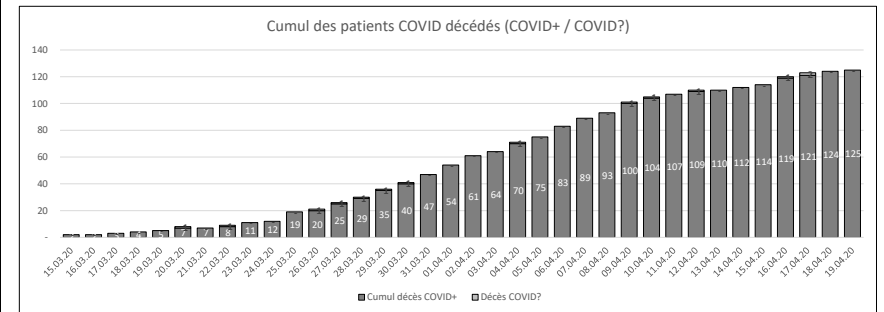
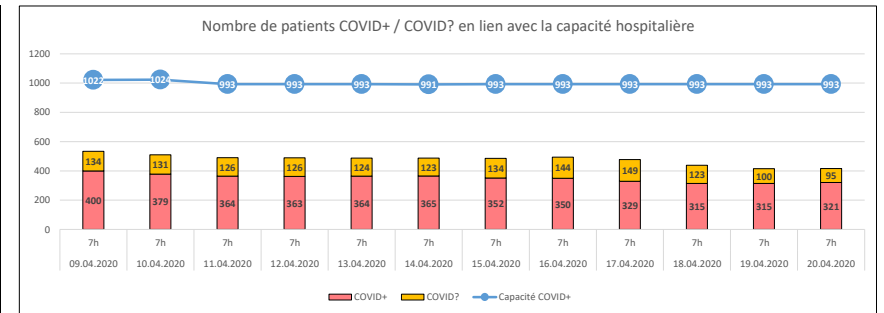
SOINS (Unités bleu inactive)	Capacité COVID	Patients				Lits bloqués	Taux occupation	Taux occupation (yc. Lits bloqués)	Places disponibles
		COVID+	Suspicion	Autres patients	Total patients				
	808	220	28	4	252	14	31	33	542
JUL021-US	18	4	-	-	4	1	22	28	13
JUL022-US	26	8	1	-	9	-	35	35	17
JUL031-US	18	12	-	-	12	-	67	67	6
JUL032-US	18	10	-	1	11	1	61	67	6
JUL041-US	26	15	2	-	17	4	65	81	5
JUL042-US	26	14	2	-	16	3	62	73	7
JUL051-US	18	-	-	-	-	-	-	-	18
JUL052-US	18	-	-	-	-	-	-	-	18
JUL061-US	26	10	2	-	12	2	46	54	12
JUL062-US	26	7	2	-	9	2	35	42	15
JUL071-US	26	-	-	-	-	-	-	-	26
JUL072-US	26	-	-	-	-	-	-	-	26
JUL081-US	26	-	-	-	-	-	-	-	26
JUL082-US	26	-	-	-	-	-	-	-	26
1DL-US	31	-	-	-	-	-	-	-	31
1EL-US	28	-	-	-	-	-	-	-	28
2AL-US	42	-	-	-	-	-	-	-	42
3AL-US	22	-	-	-	-	-	-	-	22
5DLUPHA-US	18	4	1	1	6	1	33	39	11
8EL-US	21	-	-	-	-	-	-	-	21
8FL-US	22	-	-	-	-	-	-	-	22
ARV0-US	28	20	-	-	20	-	71	71	8
LAN2-US	26	16	-	-	16	-	62	62	10
LAN3-US	26	18	2	-	20	-	77	77	6
LAN4-US	26	13	2	-	15	-	58	58	11
14-3C-US	24	13	2	1	16	-	67	67	8
15-3C-US	18	6	2	1	9	-	50	50	9
21-3C-US	31	15	3	-	18	-	58	58	13
41-3C-US	31	18	1	-	19	-	61	61	12
43-3C-US + 44-3C-US	31	14	4	-	18	-	58	58	13
DOUBS-US	6	-	-	-	-	-	-	-	6
LIL-US	11	-	-	1	1	-	9	9	10
SERAN-US	2	-	-	-	-	-	-	-	2
ZEPHYR-US	13	2	-	-	2	-	15	15	11
ZOM-US	14	1	-	-	1	-	7	7	13
1CPEDEV-US	5	-	-	-	-	-	-	-	5
MEDB2-US	4	-	-	-	-	-	-	-	4
USIPED-US	4	-	1	-	1	-	25	25	3

SOINS INTERMEDIAIRES (Unité bleu inactive)	Capacité COVID	Patients				Lits bloqués	Taux occupation	Taux occupation (yc. Lits bloqués)	Places disponibles
		COVID+	Suspicion	Autres patients	Total patients				
	75	20	1	-	21	13	28	45	41
JUL033-US	12	9	-	-	9	-	75	75	3
6CL-US	16	-	-	-	-	-	-	-	16
6DL-US	15	3	-	-	3	5	20	53	7
6EL-US	16	3	-	-	3	6	19	56	7
6FL-US	12	3	-	-	3	2	25	42	7
13P-3C-US	4	2	1	-	3	-	75	75	1

SOINS INTENSIFS ADULTES	Capacité COVID	Patients				Lits bloqués	Taux occupation	Taux occupation (yc. Lits bloqués)	Places disponibles
		COVID+	Suspicion	Autres patients	Total patients				
	110	34	2	7	43	22	39	59	45
BO-JUL	30	-	-	-	-	-	-	-	30
JULSI-US	12	-	2	7	9	-	75	75	3
OPERASI-US	36	27	-	-	27	-	75	75	9
BO-OPE	-	-	-	-	-	-	-	-	-
OPSINPI-US / JUL-BO	32	7	-	-	7	22	22	91	3

UNITES NON COVID	Capacité COVID	Patients				Lits bloqués	Taux occupation	Taux occupation (yc. Lits bloqués)	Places disponibles
		COVID+	Suspicion	Autres patients	Total patients				
Autres sites	-	47	64	-	111	-	-	-	-

<b>TOTAL COVID (aujourd'hui)</b>	<b>993</b>	<b>321</b>	95	11	427	49	43	48	<b>628</b>
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# COVID-19

# HUG - TABLEAU DE BORD DIRECTION DES OPERATION

HUG  
3x daily  
dashboard

Regular wards

- Int Med
- Geriatrics
- Psychiatry
- LTC beds

	SOINS (Unités bleu inactive)	Capacité COVID	Patients				Lits bloqués	Taux occupation	Taux occupation (yc. Lits bloqués)	Places disponibles
			COVID+	Suspicion	Autres patients	Total patients				
		808	220	28	4	252	14	31	33	542
JULLIARD	JUL021-US	18	4	-	-	4	1	22	28	13
	JUL022-US	26	8	1	-	9	-	35	35	17
	JUL031-US	18	12	-	-	12	-	67	67	6
	JUL032-US	18	10	-	1	11	1	61	67	6
	JUL041-US	26	15	2	-	17	4	65	81	5
	JUL042-US	26	14	2	-	16	3	62	73	7
	JUL051-US	18	-	-	-	-	-	-	-	18
	JUL052-US	18	-	-	-	-	-	-	-	18
	JUL061-US	26	10	2	-	12	2	46	54	12
	JUL062-US	26	7	2	-	9	2	35	42	15
	JUL071-US	26	-	-	-	-	-	-	-	26
	JUL072-US	26	-	-	-	-	-	-	-	26
	JUL081-US	26	-	-	-	-	-	-	-	26
	JUL082-US	26	-	-	-	-	-	-	-	26
STERN	1DL-US	31	-	-	-	-	-	-	-	31
	1EL-US	28	-	-	-	-	-	-	-	28
	2AL-US	42	-	-	-	-	-	-	-	42
	3AL-US	22	-	-	-	-	-	-	-	22
	5DLUPHA-US	18	4	1	1	6	1	33	39	11
	8EL-US	21	-	-	-	-	-	-	-	21
	8FL-US	22	-	-	-	-	-	-	-	22
LOEX	ARV0-US	28	20	-	-	20	-	71	71	8
	LAN2-US	26	16	-	-	16	-	62	62	10
	LAN3-US	26	18	2	-	20	-	77	77	6
	LAN4-US	26	13	2	-	15	-	58	58	11
TROIS CHÈNE	14-3C-US	24	13	2	1	16	-	67	67	8
	15-3C-US	18	6	2	1	9	-	50	50	9
	21-3C-US	31	15	3	-	18	-	58	58	13
	41-3C-US	31	18	1	-	19	-	61	61	12
	43-3C-US + 44-3C-US	31	14	4	-	18	-	58	58	13
UNITES EN PARTIE COVID	DOUBS-US	6	-	-	-	-	-	-	-	6
	LIL-US	11	-	1	-	1	-	9	9	10
	SERAN-US	2	-	-	-	-	-	-	-	2
	ZEPHYR-US	13	2	-	-	2	-	15	15	11
	2OM-US	14	1	-	-	1	-	7	7	13
	1CPEDEV-US	5	-	-	-	-	-	-	-	5
	MEDB2-US	4	-	-	-	-	-	-	-	4
	USIPED-US	4	-	1	-	1	-	25	25	3

Step-down wards	Capacité COVID	Patients				Lits bloqués	Taux occupation	Taux occupation (yc. Lits bloqués)	Places disponibles
		COVID+	Suspicion	Autres patients	Total patients				
		75	20	1	-	21	13	28	45
JUL033-US	12	9	-	-	9	-	75	75	3
6CL-US	16	-	-	-	-	-	-	-	16
6DL-US	15	3	-	-	3	5	20	53	7
6EL-US	16	3	-	-	3	6	19	56	7
6FL-US	12	3	-	-	3	2	25	42	7
13P-3C-US	4	2	1		3	-	75	75	1

ICU wards	Capacité COVID	Patients				Lits bloqués	Taux occupation	Taux occupation (yc. Lits bloqués)	Places disponibles
		COVID+	Suspicion	Autres patients	Total patients				
		110	34	2	7	43	22	39	59
BO-JUL	30	-	-	-	-	-	-	-	30
JULSI-US	12	-	2	7	9	-	75	75	3
OPERASI-US	36	27	-	-	27	-	75	75	9
BO-OPE	-	-	-	-	-	-	-	-	-
OPSINPI-US / JUL-BO	32	7	-	-	7	22	22	91	3

Non-COVID wards	Capacité COVID	Patients				Lits bloqués	Taux occupation	Taux occupation (yc. Lits bloqués)	Places disponibles
		COVID+	Suspicion	Autres patients	Total patients				
Autres sites	-	47	64	-	111	-	-	-	-

<b>TOTAL COVID (aujourd'hui)</b>	<b>993</b>	<b>321</b>	95	11	427	49	<b>43</b>	48	<b>628</b>
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Total COVID+ bed occupied  
Total COVID bed Capacity

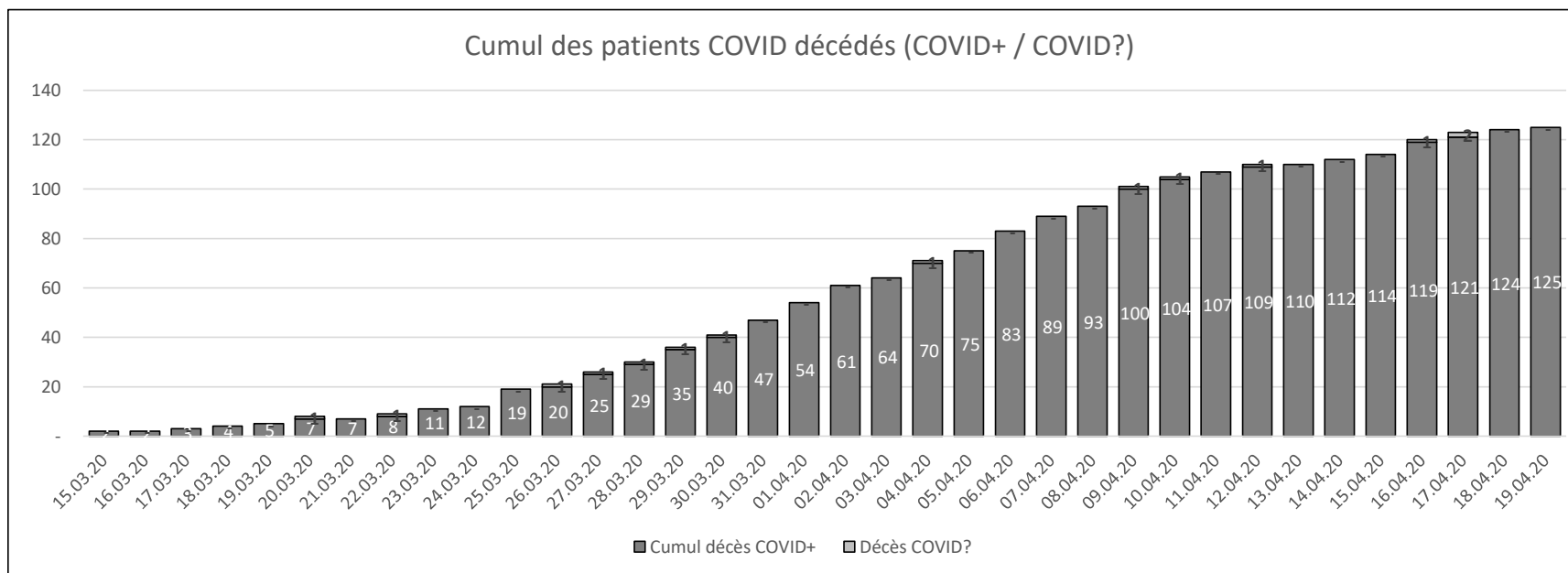
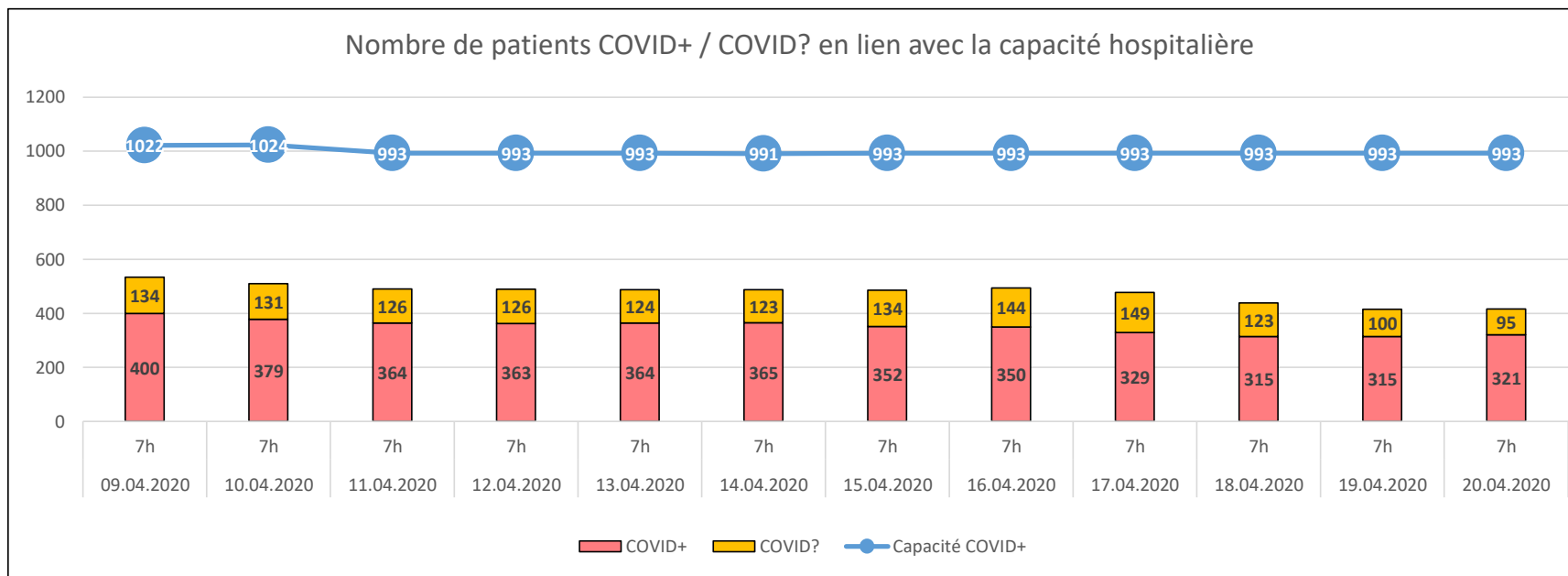
COVID bed occupancy rates

COVID beds available

# HUG 3x daily dashboard

- COVID-
- COVID+
- COVID capacity

## Cumulative death rates

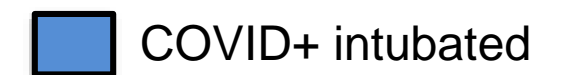
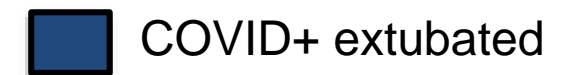


# HUG 3x daily dashboard

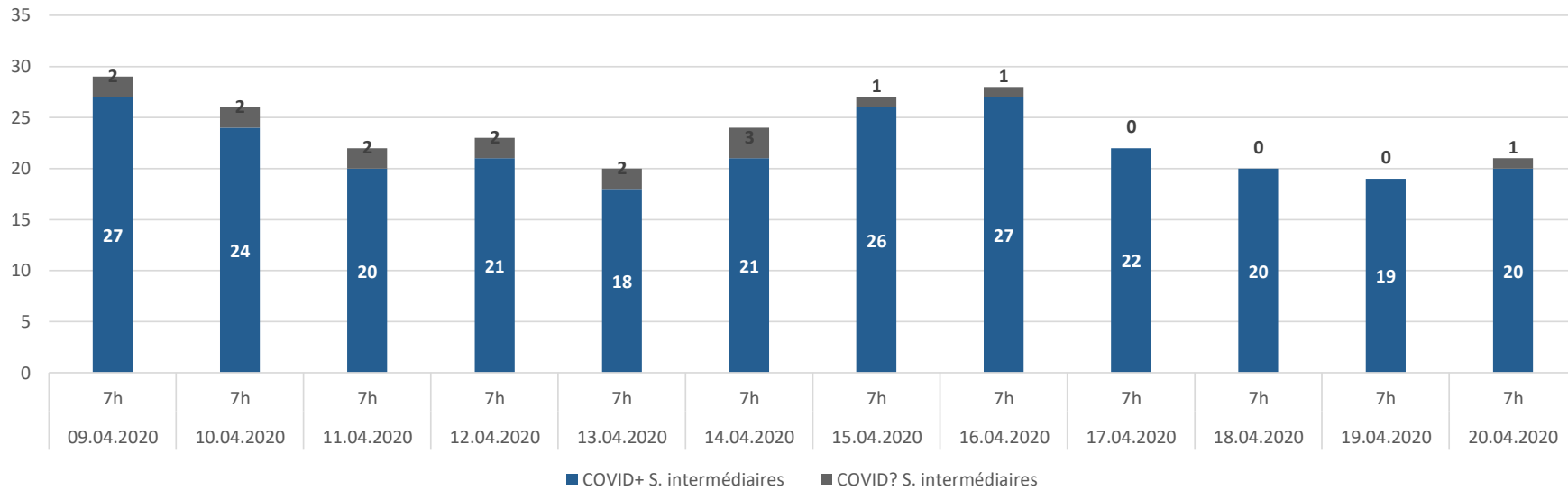
## Step-down wards



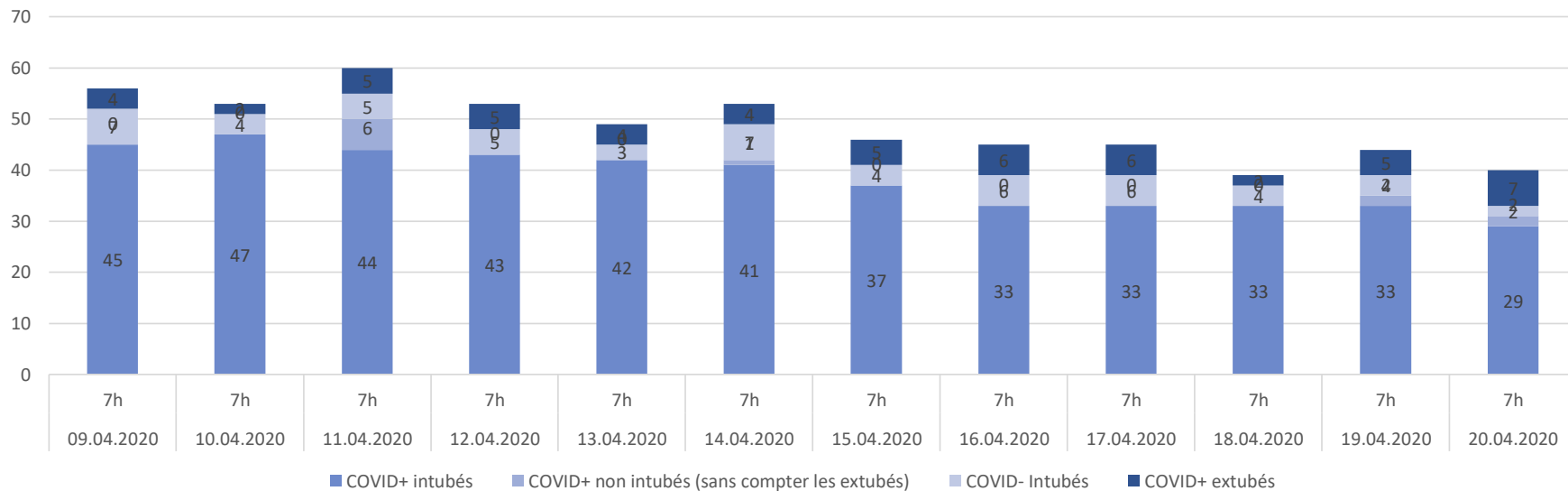
## ICUs



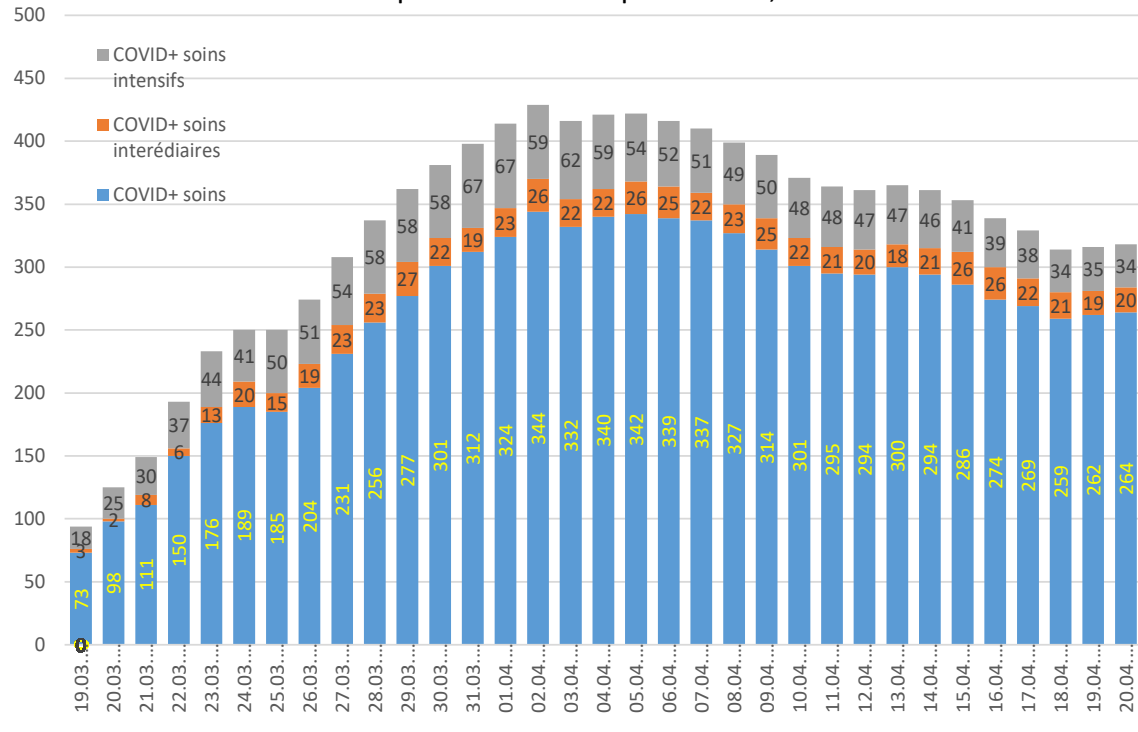
Nombre de patients / jour Soins intermédiaires



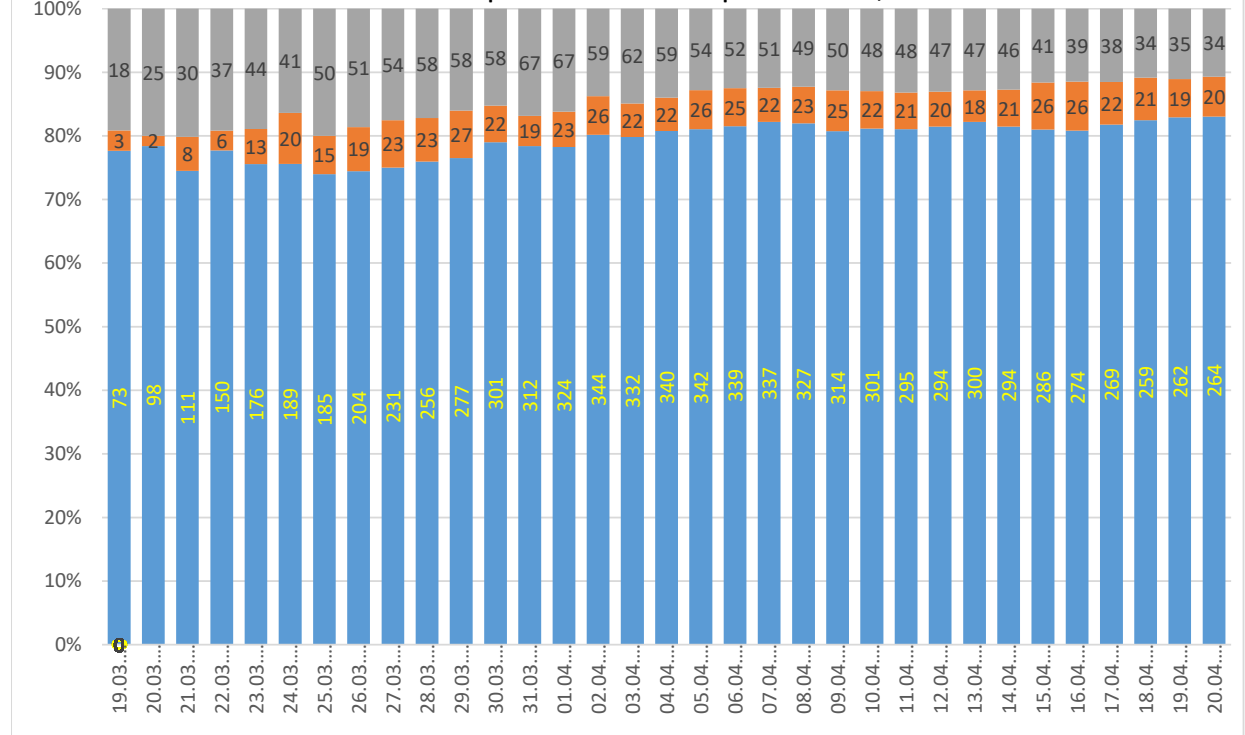
Nombre de patients / jour Soins intensifs adultes



Nombre de patients COVID+ par secteur, valeurs à 12h



Distribution des patients COVID+ par secteur, valeurs à 12h



- COVID+ ICUs
- COVID+ Step-down units
- COVID+ Internal Medicine



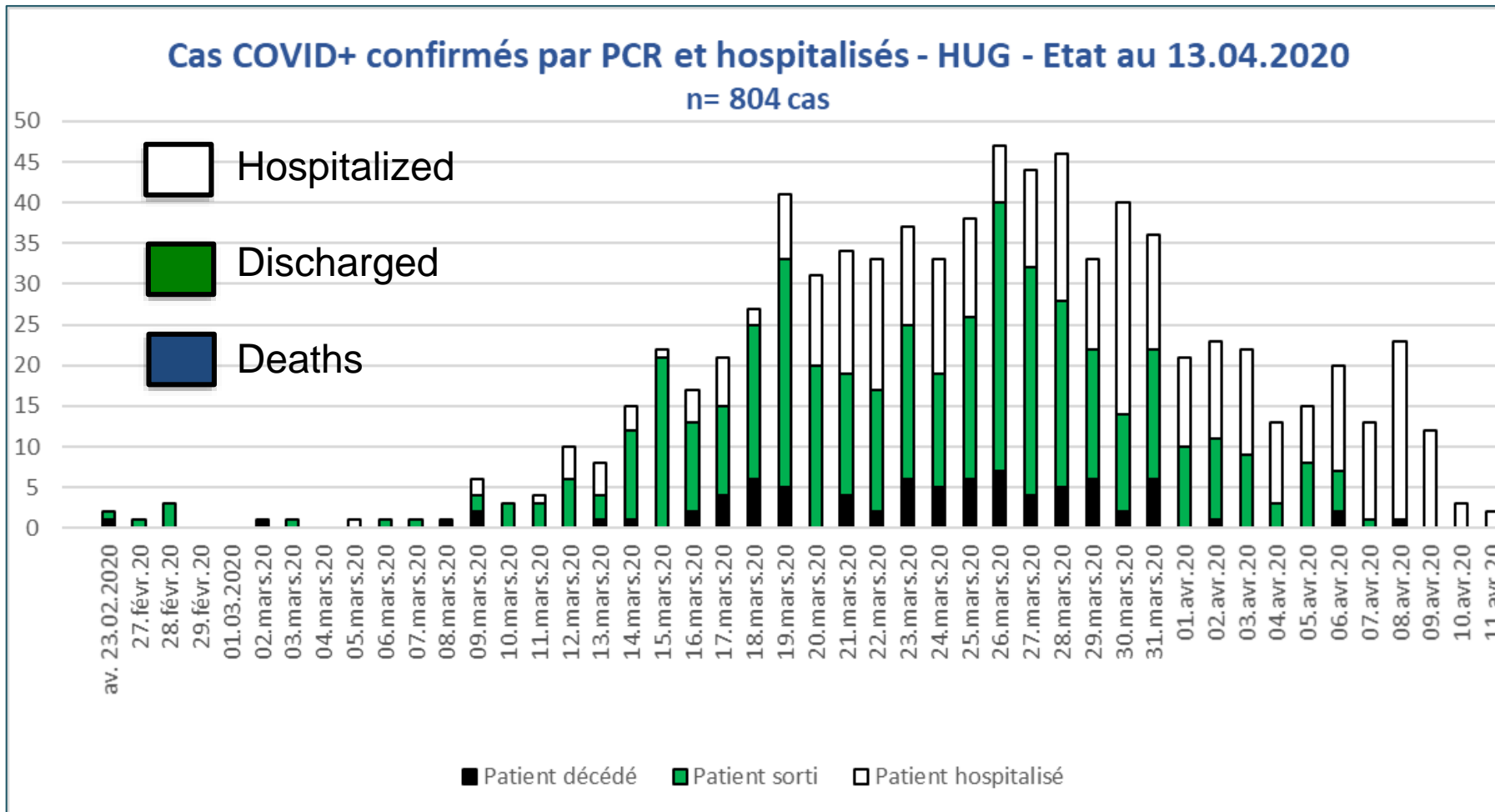
# Surveillance HUG (available data from 13.04.2020)



## Cases of COVID-19 patients hospitalized (HUG up to April 13)

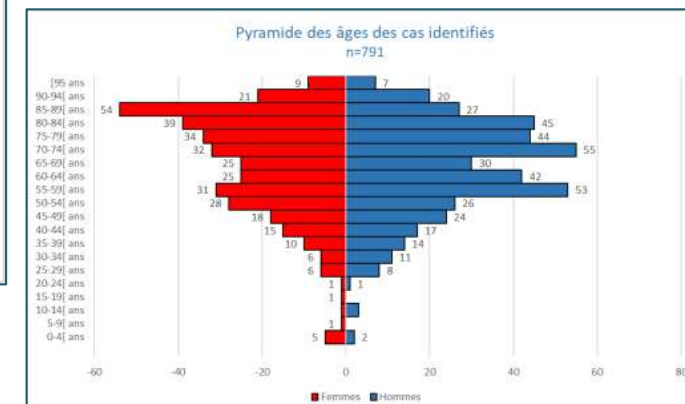
804 patients hospitalized for COVID

- 320 (39 %) still hospitalized
- 403 (50 %) left the hospital
- 81 (10.1%) deaths



Median age 66.0 years  
(from 1-100 years)

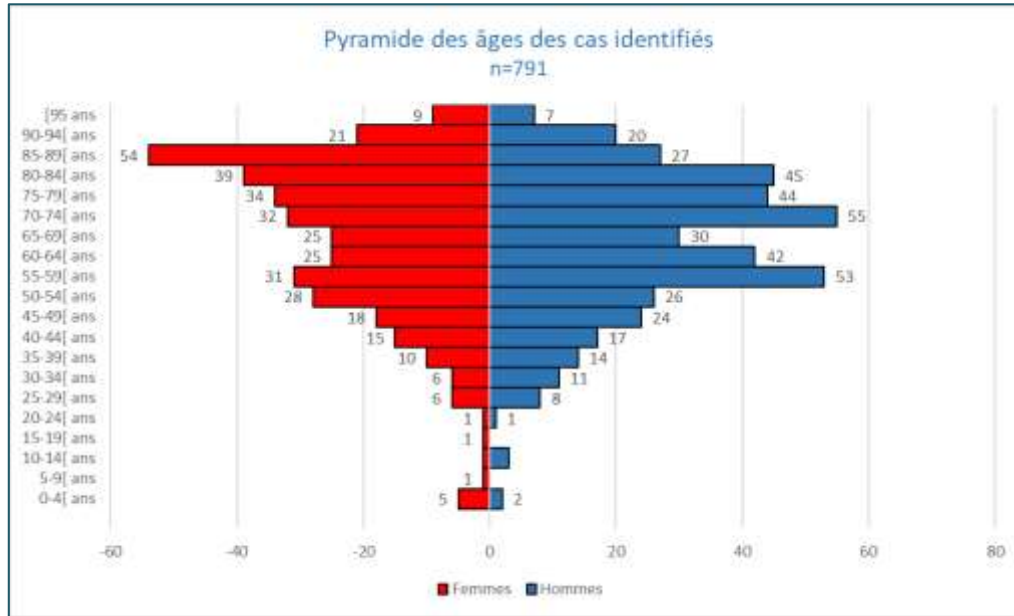
Gender 430 (54,2%) males



# Hospitalized cases HUG (13.04.2020 7h) World Health Organization

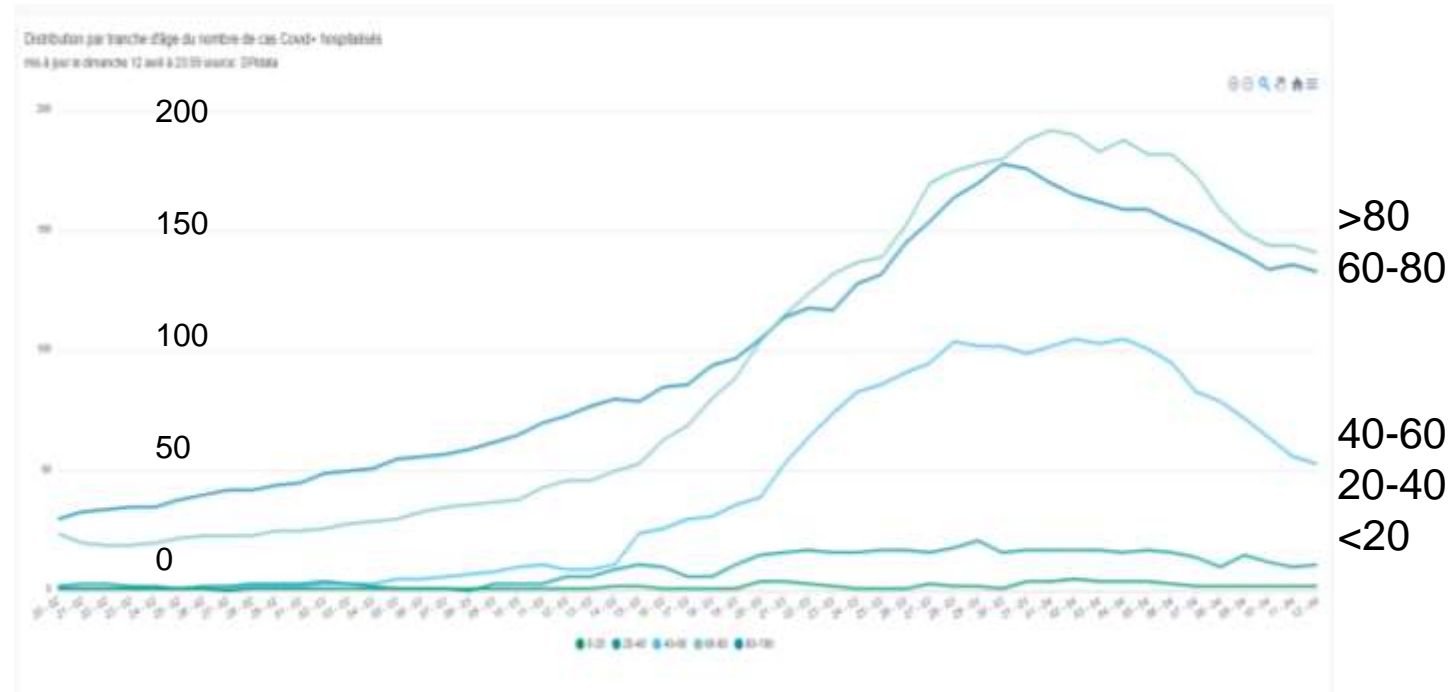
## 362 cases COVID19+, 110 deaths, 490 returned home

**Distribution by age groups and gender**



Median age 66.0 years  
(from 1-100 years)  
Gender 430 (54,2%) males

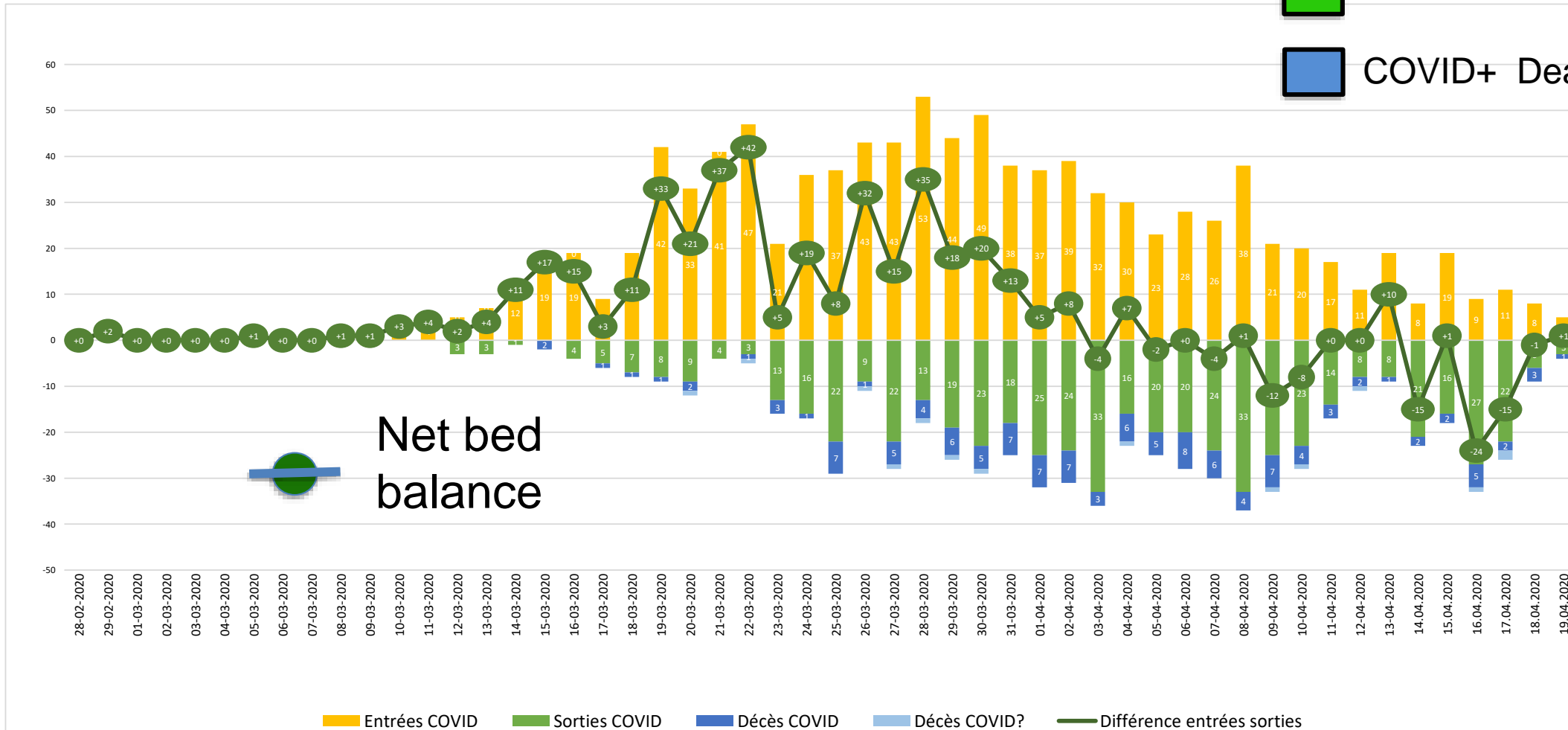
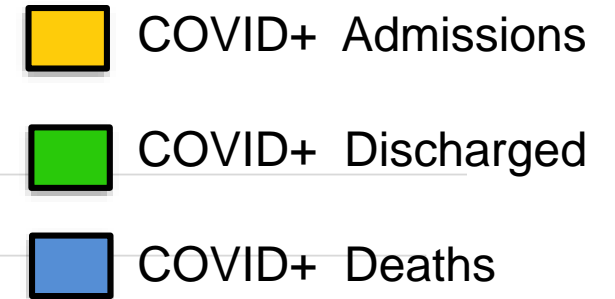
**Distribution by age groups of covid + cases**



# COVID-19

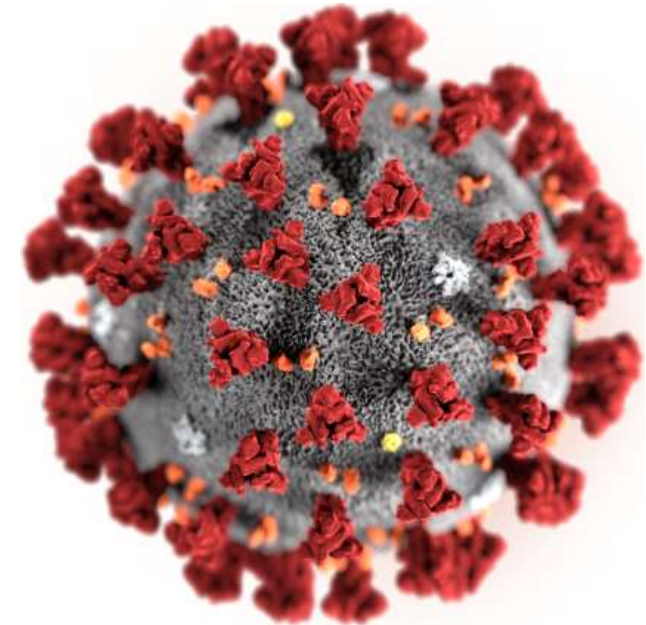
# HUG - TABLEAU DE BORD DIRECTION DES OPERATIONS

20 avr 20 7h	Cumul cas testés	11 740
20 avr 20 7h	Cumul cas testés COVID+	2 319
20 avr 20 7h	Cas COVID+ hospitalisés	316
20 avr 20 7h	Cumul cas COVID+ sortis	561



# COVID-19 patient management at hospital level

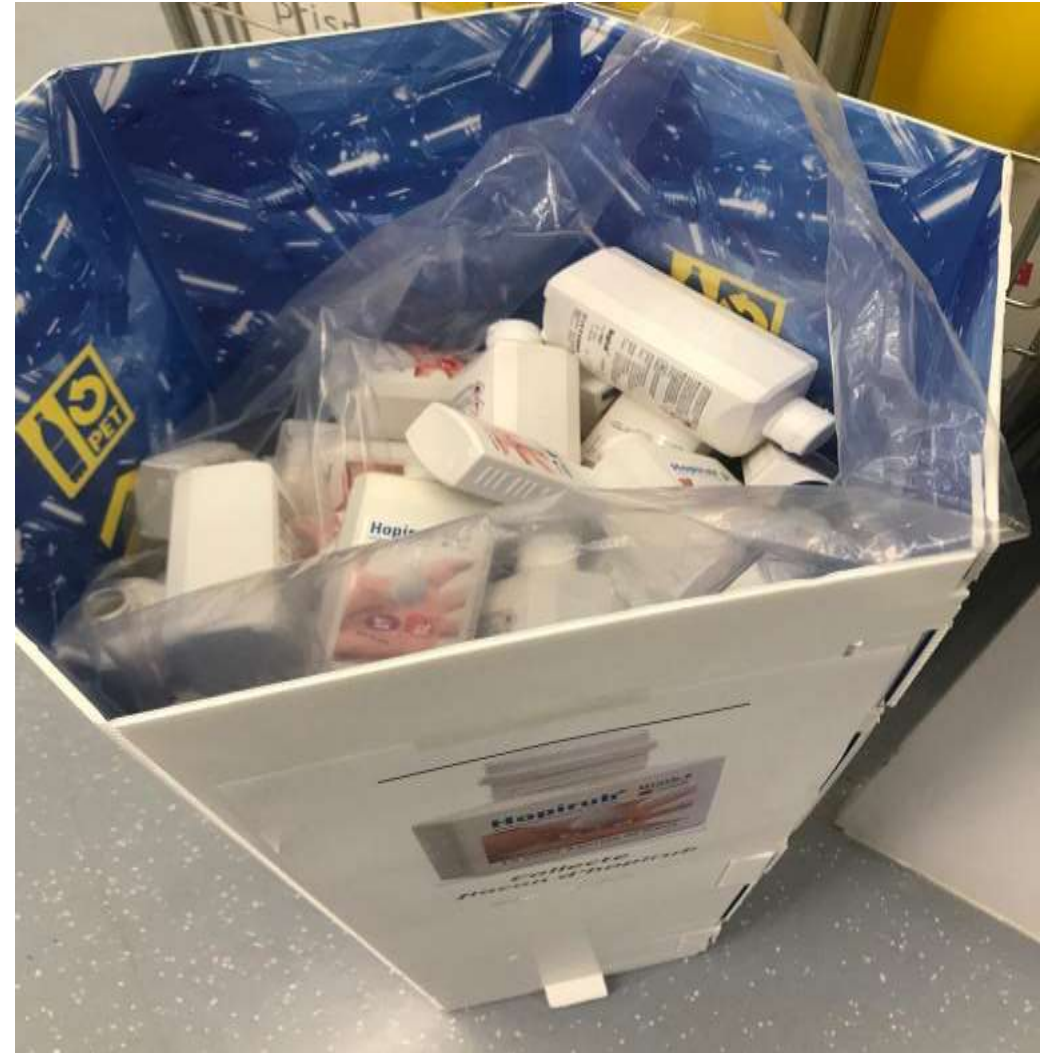
- Epidemiology of COVID 19 (April 20)
- Mode of transmission and IPC measures
- Managing at hospital level
- Hospital numbers during the 1<sup>st</sup> Wave
- **Transforming the hospital/life**
- Recovery plan
- Recovering and preparing for the 2<sup>nd</sup> Wave
- Get ready for 5 May 2020



# Transformation / Transforming the hospital during COVID



# Recycling of hand hygiene bottles & masks for reuse following reprocessing



# Re-organizing daily life : Cafeteria

Respect #SocialDistancing and #HandHygiene



# Hospital environment – closure of locations





# Lock down of some areas/sectors



# Meeting in corridors and resting areas, respectful of #SocialDistancing and #HandHygiene



# Meeting in resting areas, respectful of #SocialDistancing

(Sunday morning coffee break for some ICU doctors)



# Meeting of the Crisis Cell in on of the main auditorium

Respect #SocialDistancing and #HandHygiene



# Border crossing to/from France – A serious issue for our HCWs



# Support of military services



# Shortage of PPE - Special Delivery



# PPE Delivery







# Our staff

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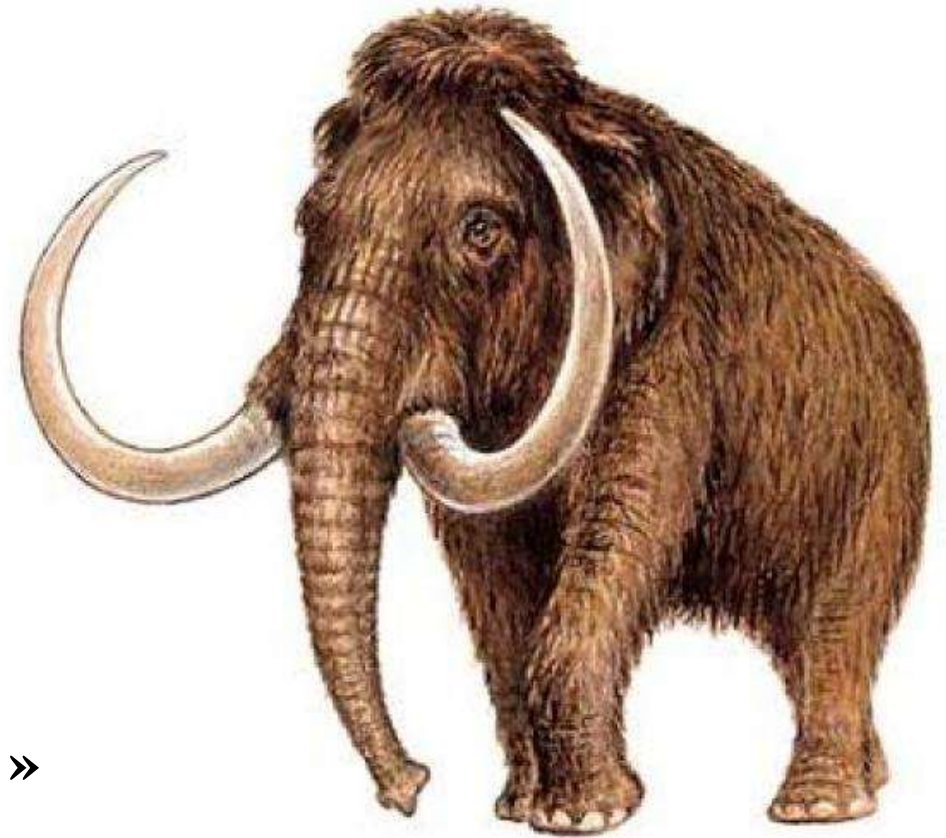


**M of Health, Alain Berset**

**visited HUG on 24 March 2020**

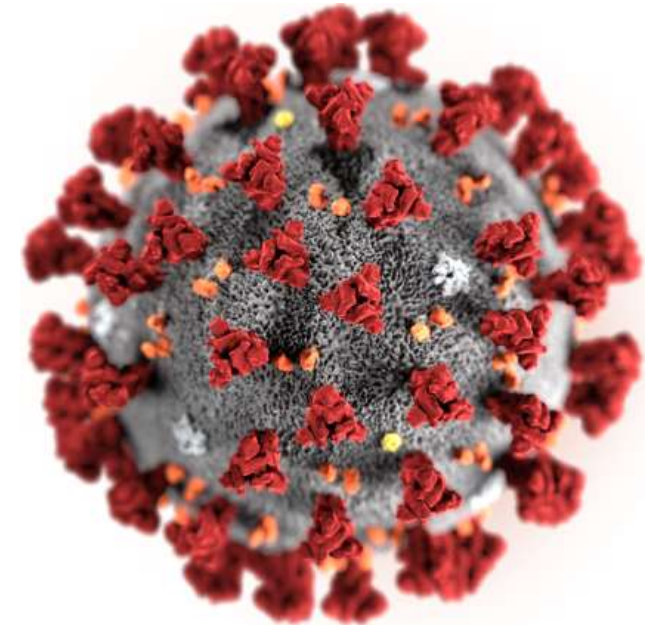
**« Le mammoth a fait un saut périlleux arrière »**

"The mammoth did a back flip"



# COVID-19 patient management at hospital level

- Epidemiology of COVID 19 (April 20)
- Mode of transmission and IPC measures
- Managing at hospital level
- Hospital numbers during the 1<sup>st</sup> Wave
- Transforming the hospital/life
- **Recovery plan**
- Recovering and preparing for the 2<sup>nd</sup> Wave
- Get ready for 5 May 2020



# And now what?



# Resumption of activity of HUG after the crisis: principles to follow



## ***Patient needs***

- Types of patients with the most urgent medical needs
- Medical and nursing skills
- Available skills (e.g. anesthesiologists and other specialist doctors)
- Need for rest for committed employees
- Vision at cantonal/regional level
- Coordination with private clinics in the region
- Preservation of a margin of hospital security capacity
- Predictable fluctuations
- Second wave risk - has not yet been ruled out

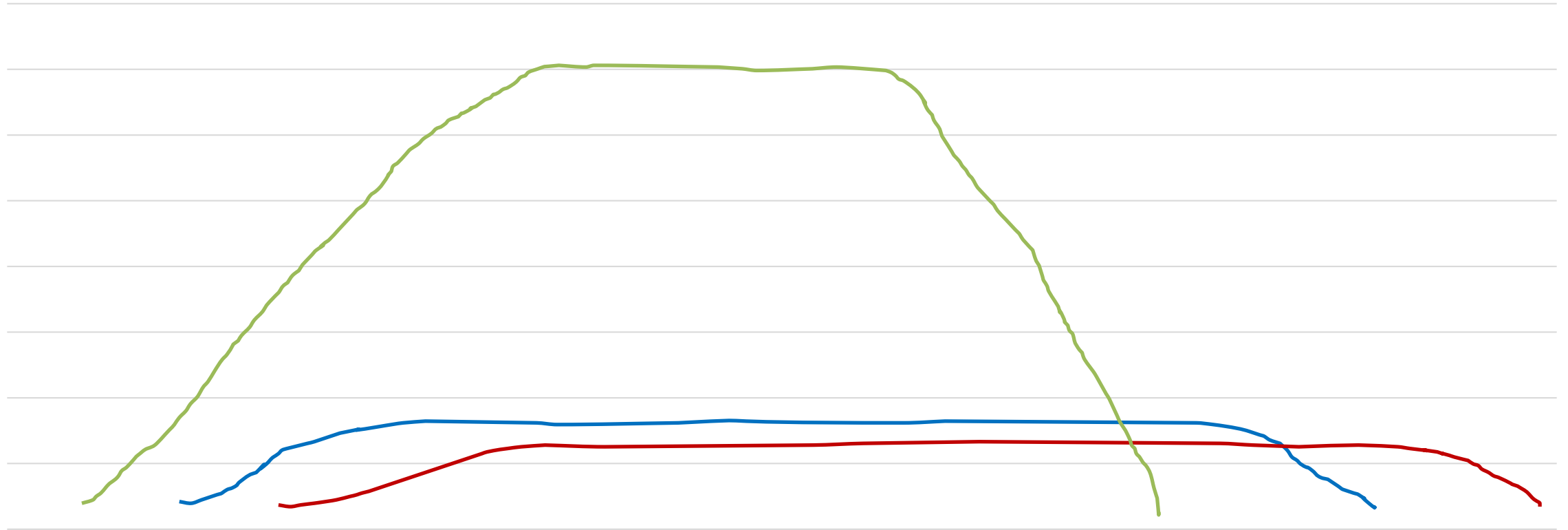
# Evolution of the need for hospital beds



## *Filling order:*

- COVID wards, then intensive care, then Step-down wards, with approximately 2 weeks lag
- The decline will be in reverse order
- Take into account the time before degradation (approx. 7 days upstairs), ICU time (average 10 days), time before discharge or rehabilitation (around 7 days)
- So the decline indicator will be the decrease in the number of COVID beds occupied on the floor
- Need to keep a reserve of approx. 20% when steady state is reached

# Use of stationary beds by the COVID epidemic



— Soins intensifs — Soins intermédiaires — Unités COVID

# Next steps



*Ask department heads*

- 1. Which clinical activities should resume as a priority (patient needs)?*
- 2. What resources are necessary for this reopening of activity?*
- 3. What are the consequences for other services / departments, cantonal structures*

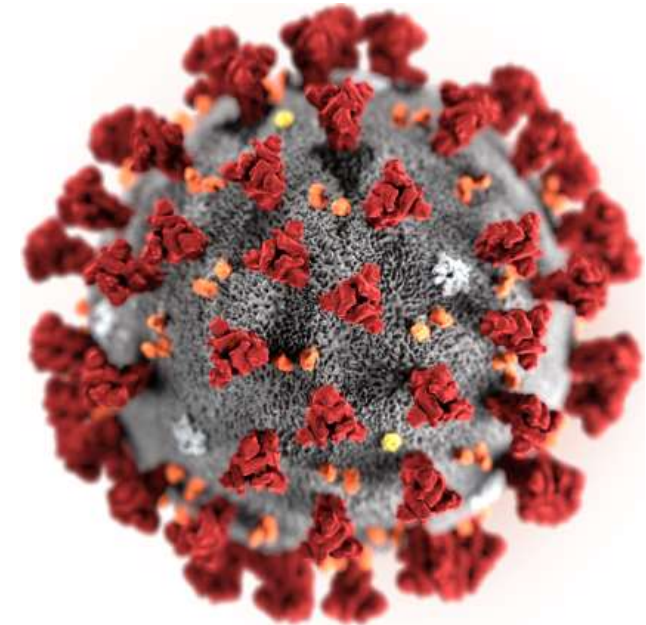
*What changes (process, collaboration, structures, culture, etc.) were positive during this crisis and should be kept?*

*What weaknesses were identified during this crisis and what are the avenues to explore to remedy them?*

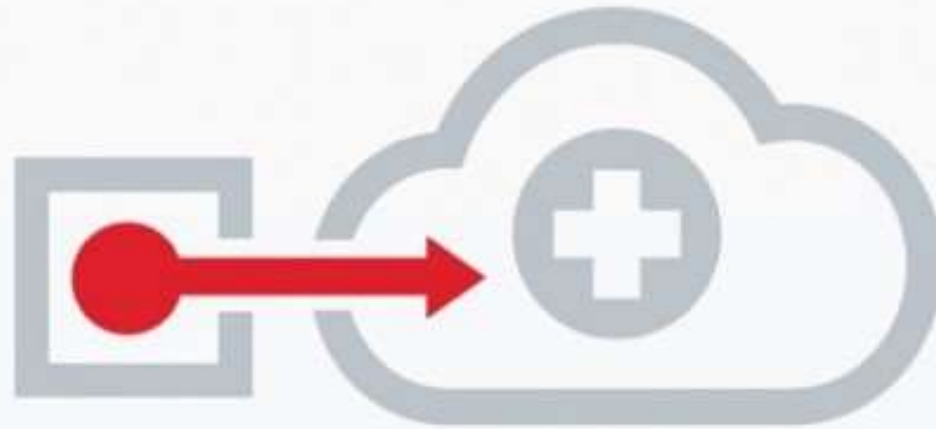


# COVID-19 patient management at hospital level

- Epidemiology of COVID 19 (April 20)
- Mode of transmission and IPC measures
- Managing at hospital level
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- **Recovering and preparing for the 2<sup>nd</sup> Wave**
- Get ready for 5 May 2020

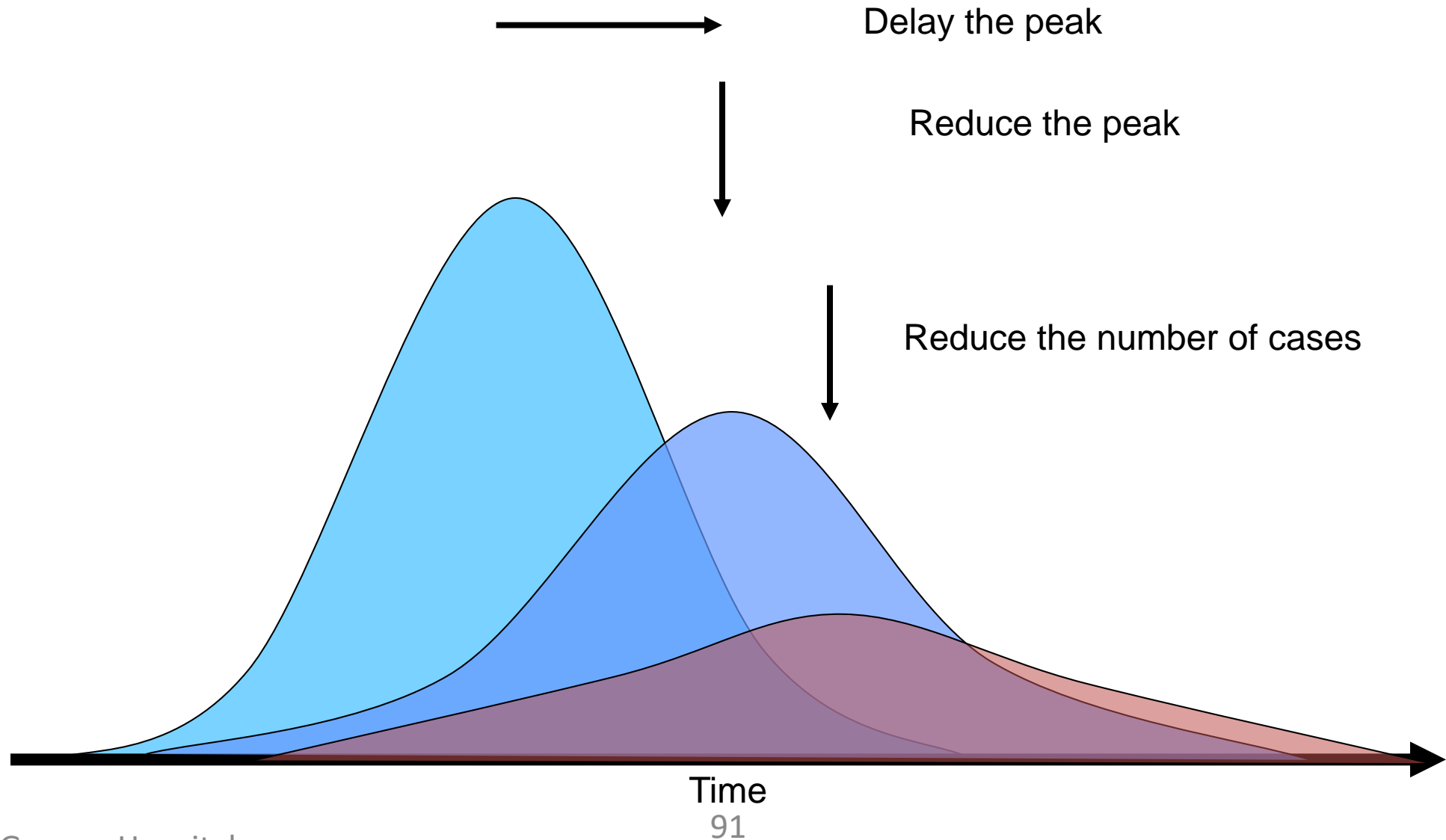


# And the 2<sup>nd</sup> Wave?



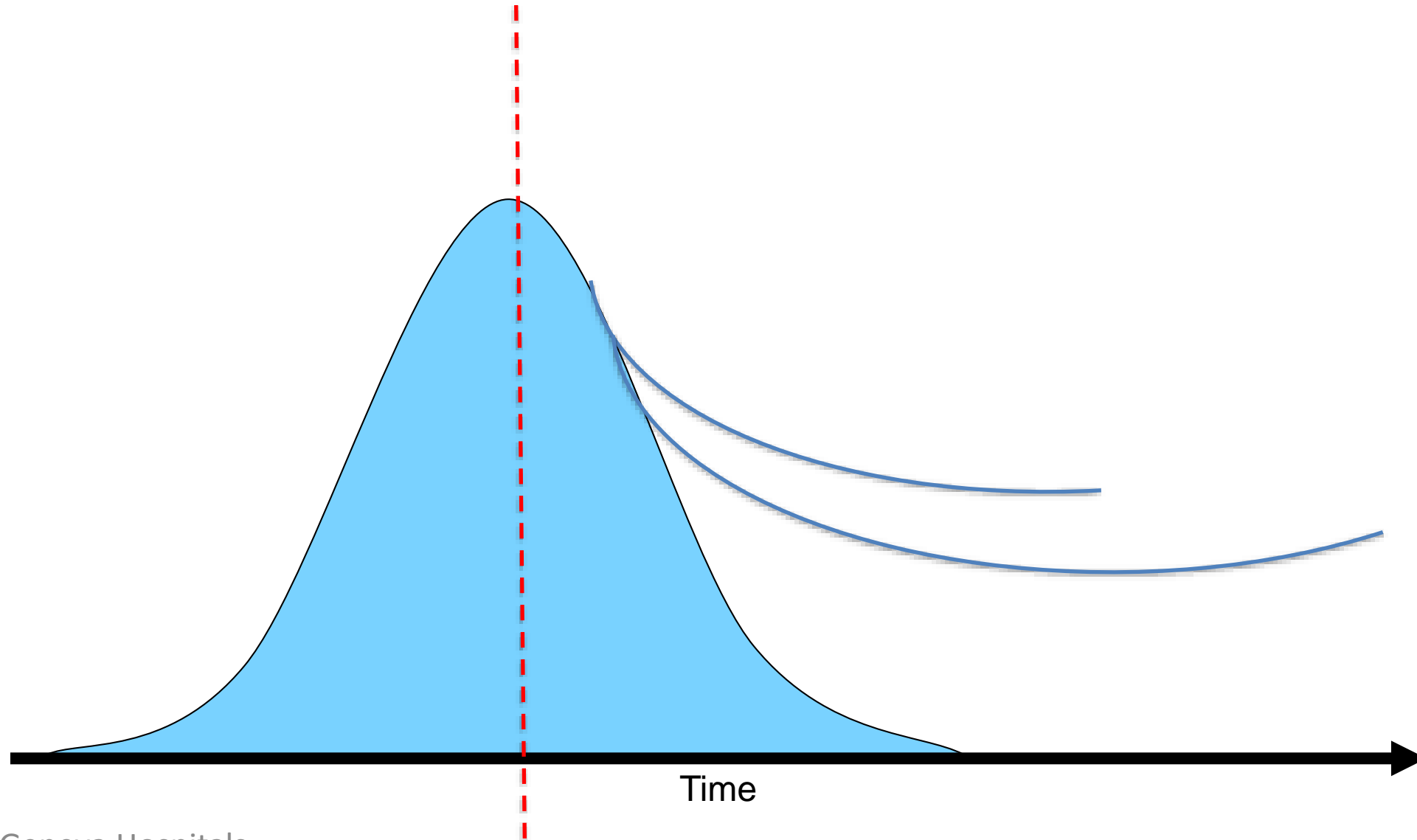
**Recovery Plan and  
Preparing the 2<sup>nd</sup> Wave**

# Epidemic/ Pandemic situations: effects of the interventions

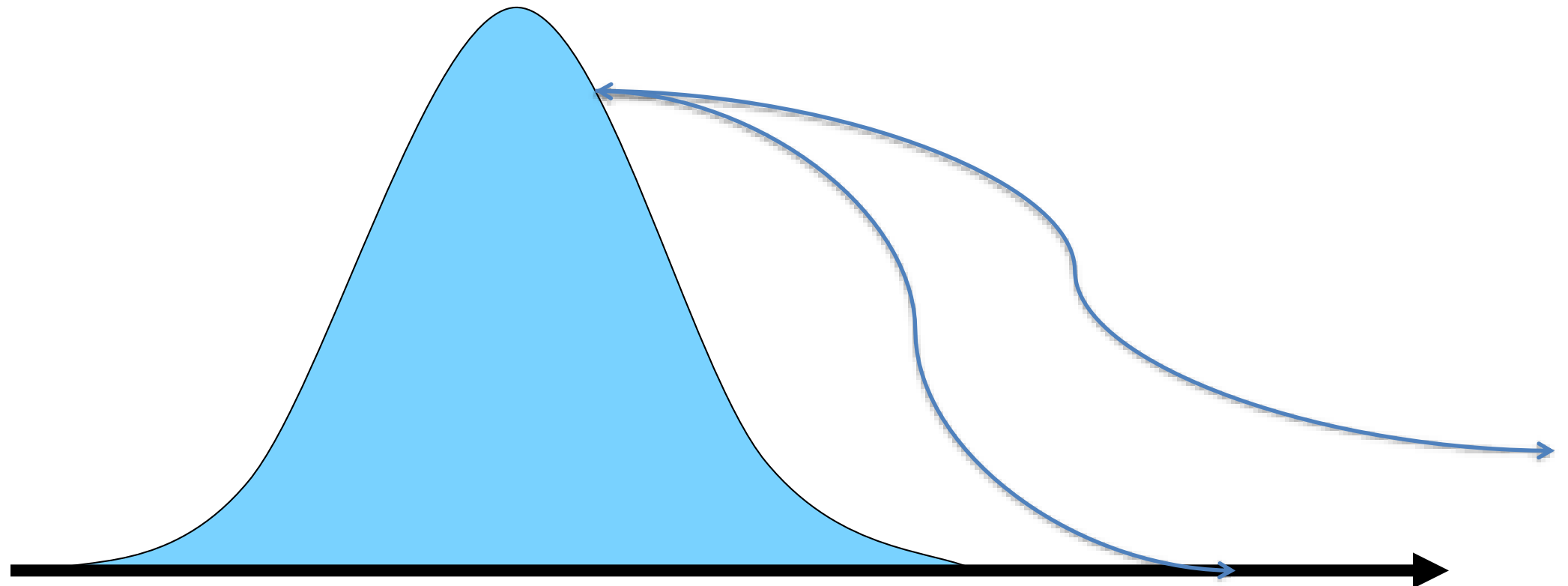


- The higher the peak, the higher the number of recognized and unrecognized cases and the more severe the cases
- All elements that will contribute to reduce the size and to delay the peak are beneficial on the number of severe cases, the number of deaths, and the unforeseen impact on the healthcare system

# Epidemic curve / Pattern according to interventions



# Epidemic curve / Pattern according to interventions



The danger

of missinterpretation

...

OR

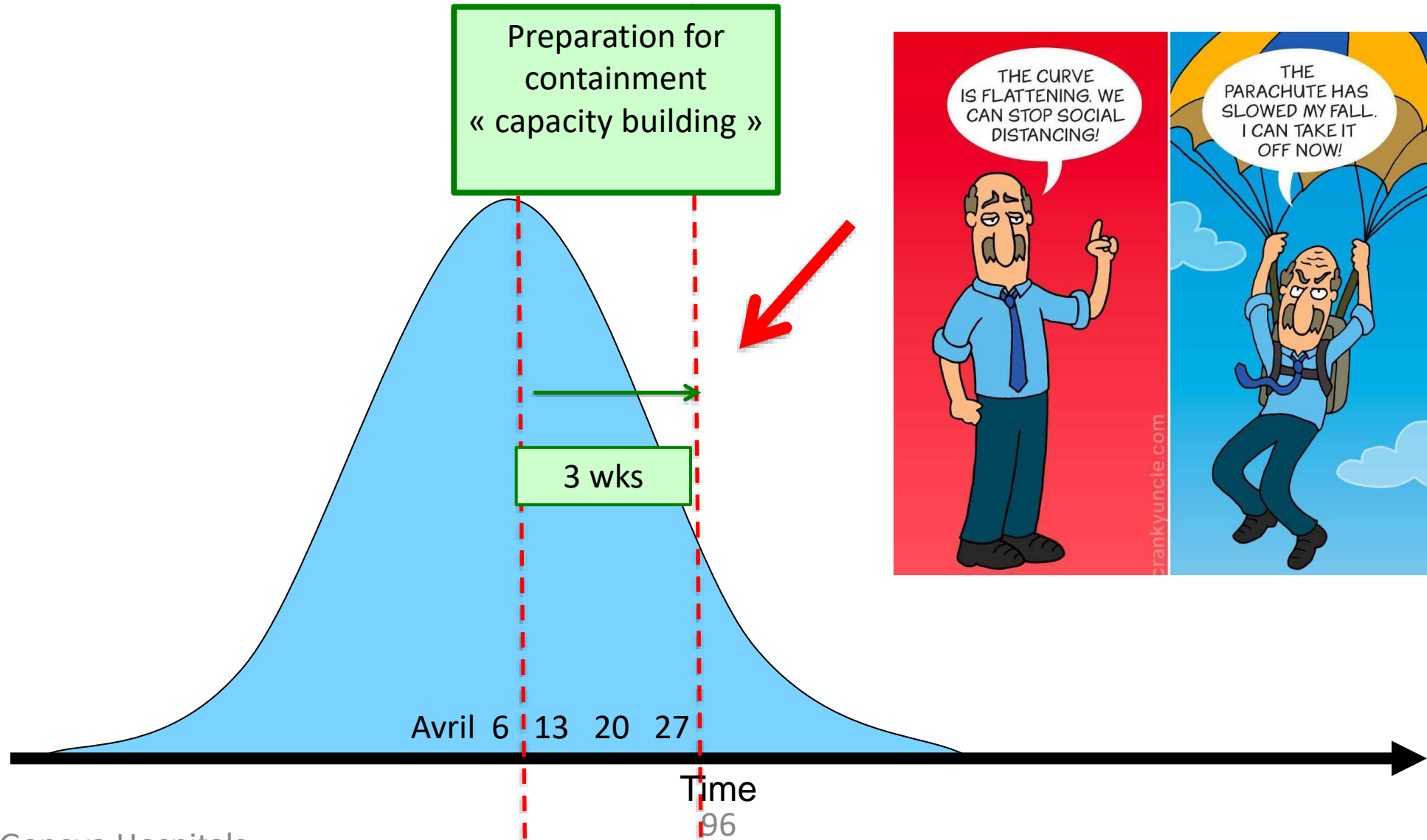
... failure to  
communicate  
your message properly



crankyuncle.com



# Capacity building / get prepared for deconfinement





# Deconfinement / Measures to put in place



- 1. A broad screening policy**
- 2. Strict and exhaustive follow up of contacts**
- 3. Data collection and interpretation**
- 4. Reinforced prevention measures in public spaces**
- 5. Early vaccination strategy at cantonal level  
(flu/others/COVID when available)**

# Deconfinement / Measures to put in place



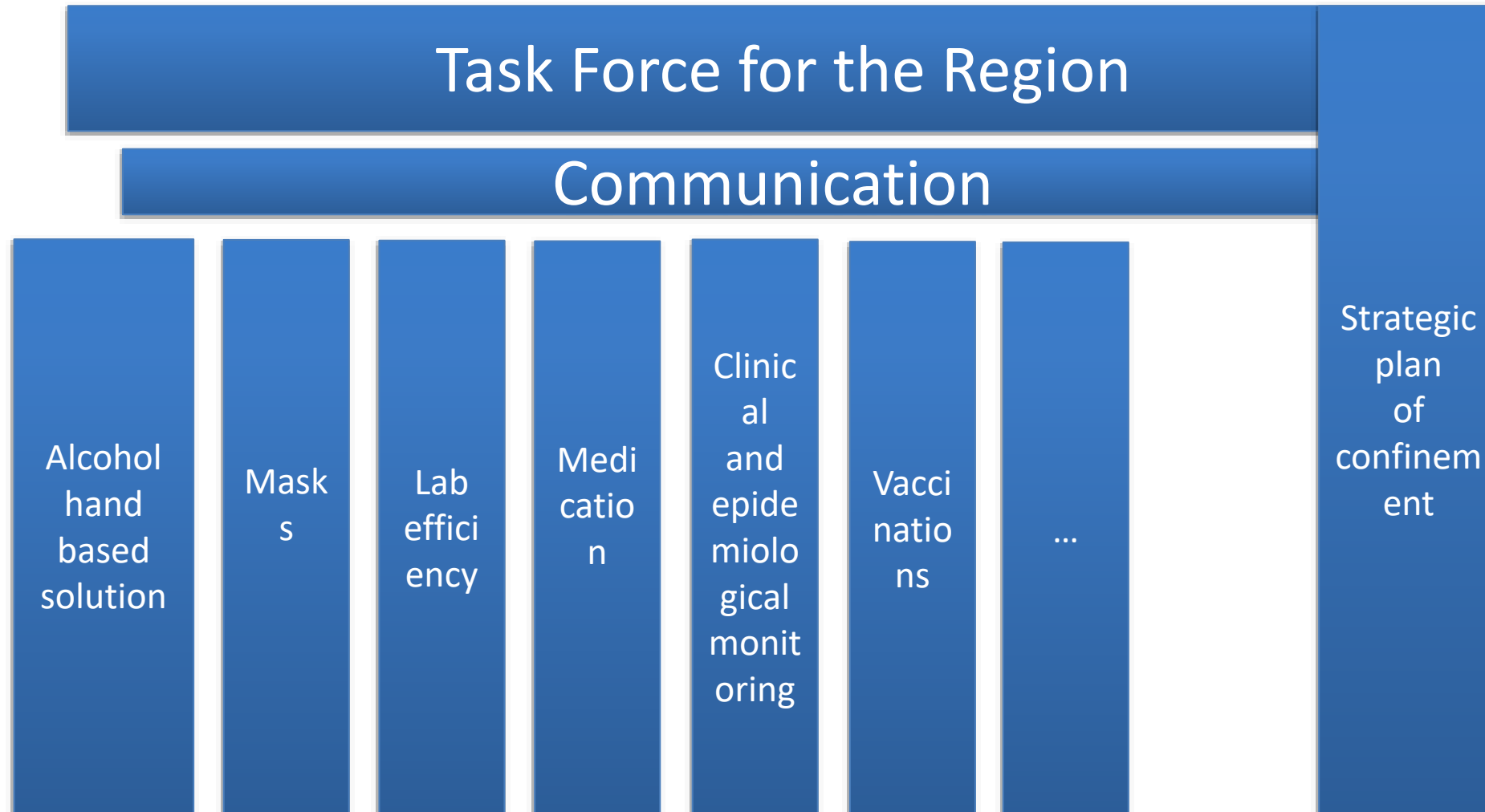
**6. A zero tolerance policy for at risk populations**

**7. A preparedness plan for the second wave of the epidemic**

**8. A communication strategy and campaign**

**9. A cantonal/regional TASK FORCE – bringing together key players and skills: public health, epidemiology, infectious disease experts, political decision makers, economic players ... etc**

# Public and Private of services at HUG, the health system and the population



# Grippe dans la période COVID – winter 20-21

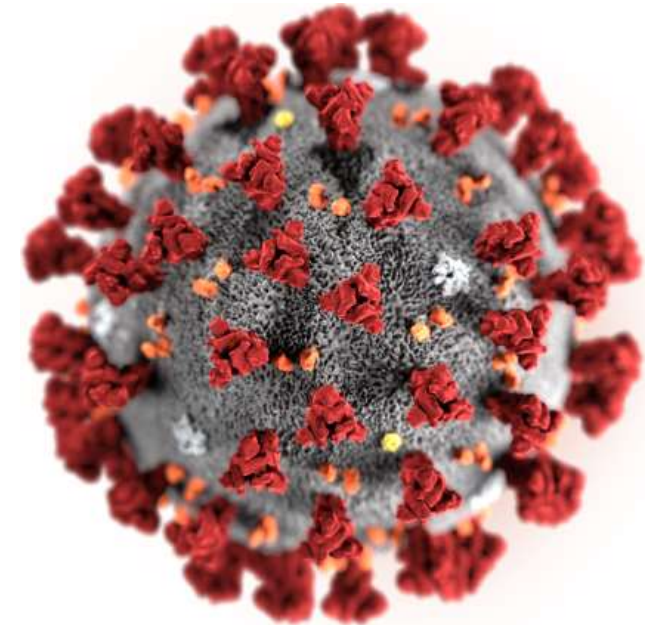


- Winter 2020-21: there will be co-habitation of influenza and coronavirus (COVID19)
- Both have similar symptoms, not clinically differentiable
- A person with flu (mild) misses work approx. 1 week
- If they catch coronavirus (mild): same as 2 weeks less work
- Flu = Lasts approx. 3 months + number of important consultations each year

***There is an existing vaccine!!!***

# COVID-19 patient management at hospital level

- Epidemiology of COVID 19 (April 20)
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- Recovery plan
- Recovery and preparing for the 2<sup>nd</sup> Wave
- **Get ready for 5 May 2020**



# The father of hand hygiene





**World Health  
Organization**

**WHO SAVE LIVES: Clean Your Hands**

***“NURSES AND MIDWIVES  
Clean care  
is in your hands!”***

**5 May 2020**

<https://www.who.int/infection-prevention/campaigns/clean-hands/en/>

# Main Campaign poster

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# Join me in the # SAFE HANDS CHALLENGE

I invite all healthcare workers and leaders to

join me and my friend Dr. Tedros – WHO DG

In washing your hands according to the WHO method and post a video or picture of yourself on social media tagging the [#SafeHands](#) challenge

<https://www.who.int/news-room/campaigns/connecting-the-world-to-combat-coronavirus/safehands-challenge>













I invite all healthcare workers and leaders to join me and my friend Dr. Tedros – WHO DG to rub or wash your hands according to the WHO method and post a video or picture of yourself on social media tagging the [#SafeHands](https://www.instagram.com/WHO/hashtag/safehands) challenge

[www.CleanHandsSaveLives.org](http://www.CleanHandsSaveLives.org)