



phel  
Pharmacie des Hôpitaux  
de l'Est Lémanique



UNIVERSITÉ  
DE GENÈVE



FIP  
VIRTUAL EVENT  
SEP 2020

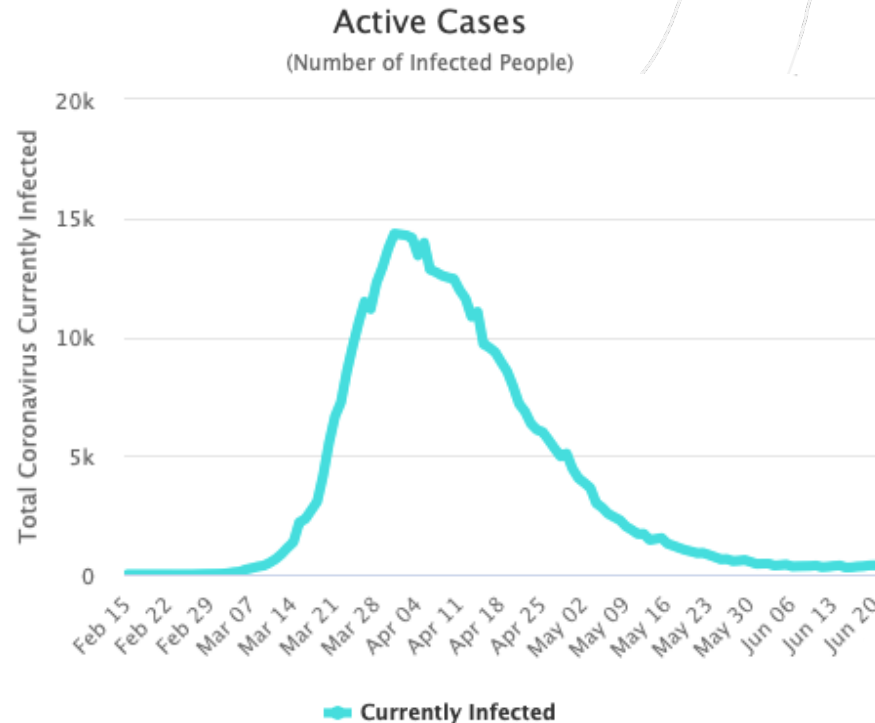
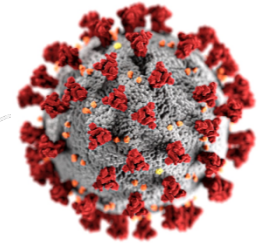
# Roles and Challenges of a Swiss Hospital Pharmacy during the COVID-19 Pandemic

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# Background

- From March 16 to June 18, 2020, due to the COVID-19 pandemic, the Swiss Federal Council declared an “extraordinary situation” in terms of the Epidemics Act in Switzerland.



<https://www.worldometers.info/coronavirus/>

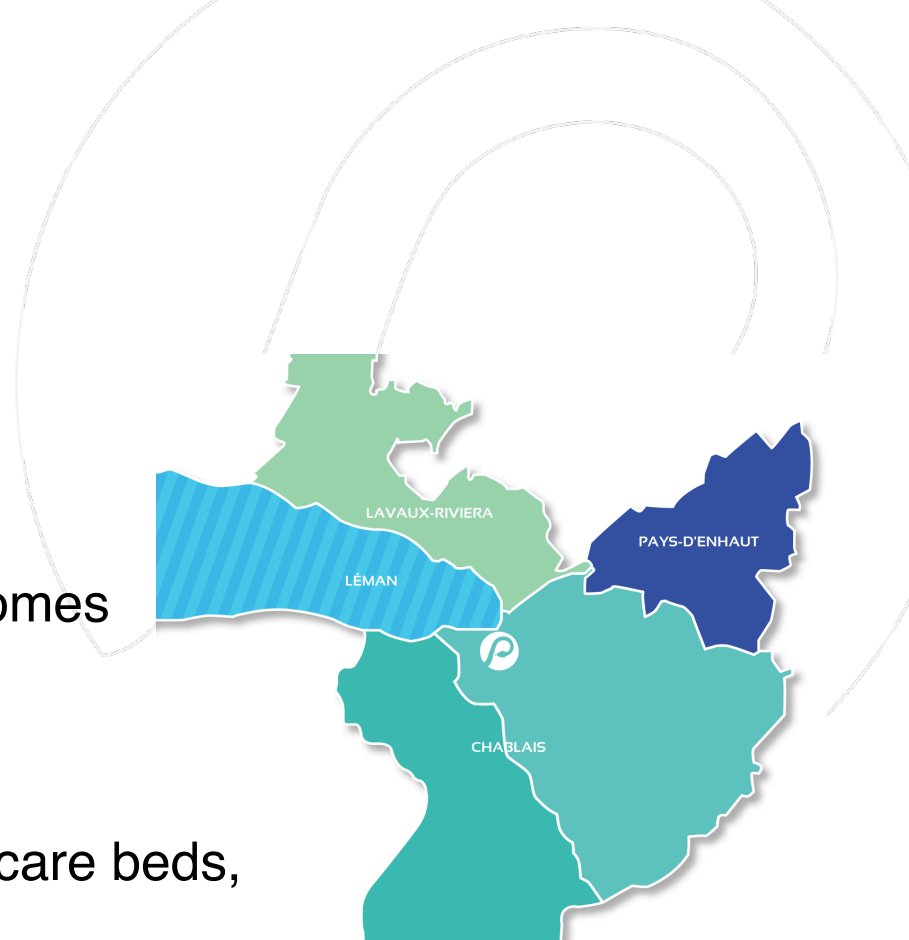
# Purpose and setting

- **Aim:** To assess the roles of an interhospital pharmacy in the fight against *SARS-CoV-2* in Switzerland.
- **Pharmacy of Eastern Vaud Hospitals (PHEL):** installed at the Rennaz Hospital Centre in Switzerland (Riviera-Chablais Hospital, Vaud-Valais).



# Purpose and setting

- Pharmacy responsible for the supply of drugs and provision of pharmaceutical assistance of 5 public hospitals, as well as 7 private healthcare establishments and 15 nursing homes in the East of canton of Vaud.
- Together, these institutions account for more than 400 acute care beds, around 300 rehabilitation beds and more than 900 nursing homes beds.



# Methods

- During the first wave of COVID-19 pandemic, all missions performed by the pharmacy have been systematically collected and evaluated in the crisis unit and in the 4 departments of the pharmacy:
  - Pharmaceutical Logistics
  - Drug Manufacturing
  - Clinical Pharmacy
  - Nursing Homes Supply
- These missions were also compared to the official duties of the pharmacy.

# Results

## Guarantee continuity of human resources

- Identification of key functions and vulnerable employees.
- Prioritising everyone's commitment and using teleworking whenever possible.

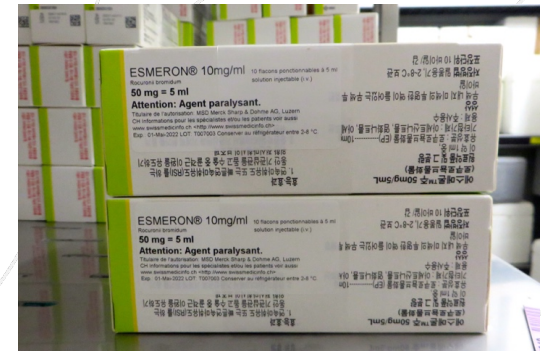


Federal Office of Public Health. Preparedness handbook for small and medium-sized enterprises. 2019

# Results

## Specific drug supply

- Strict monitoring of specific drugs' stocks and active searching in the market.
- Indeed, the supply of several critical ICU drugs became progressively more complicated until mid-April (e.g. midazolam, propofol, rocuronium), although a prior increase in stocks was achieved early March.
- Supply of specific drugs' kit in nursing homes at the beginning of the pandemic.



# Results

## Hand disinfectant production and supply

- Production of hand sanitizers because of shortages (WHO-recommended handrub formulations; 700 liters/week at the peak of the first wave).
- Challenge with the lack of empty bottles in the market.
- Support: Swiss civil protection





# Results

## Clinical assistance

- Synthesis and formatting of available medical information.
- Daily contact with the physicians in charge of COVID-19 patients to discuss individual patient care and general treatment recommendations.
- Identification of alternatives to the main drugs used and at risk of shortage.



PHEL.FP.305

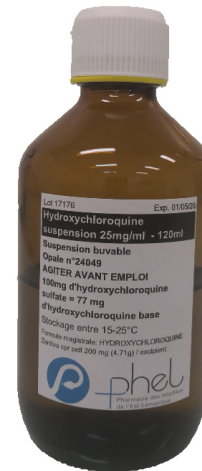
Médicaments COVID19 aux Soins-intensifs et précaution d'emploi

	Azithromycine®	Hydroxychloroquine®	Remdesevir	Actemra®	Kalitra®	Reyataz®
<b>Formulations</b>	Comprimé : 250mg ou 500mg Suspension buvable : 200mg/5ml	Comprimé : Hydroxychloroquine 200 mg Suspension buvable : 25 mg/ml, 100 ml	Fiole sèche : GS-5734 100 mg	Tocilizumab Solution à diluer pour perfusion 20 mg/ml, 20 ml	Comprimé : Lopinavir 200 mg + ritonavir 50 mg Sirop : Lopinavir 80 mg/ml + ritonavir 20 mg/ml	Capsules : atazanavir 200 mg
<b>Indications</b>	Selon algorithme ICHV	Selon algorithme ICHV	Selon algorithme ICHV	Selon algorithme ICHV	N'est plus utilisé pour l'instant (sauf cadre essai clinique)	N'est plus utilisé pour l'instant
<b>Contre-indications</b>	-	<ul style="list-style-type: none"> <li>• Déficit en G6PD</li> <li>• Psoriasis</li> <li>• Porphyrie</li> <li>• Anémie hémolytique</li> <li>• Rétinopathie (si traitement à long terme)</li> <li>• Myasthénie</li> <li>• Champ visuel réduit</li> <li>• Grossesse</li> <li>• Procréation -&gt; 3 mois post traitement</li> <li>• &lt;35 kg</li> </ul>	<ul style="list-style-type: none"> <li>• inconnues</li> <li>• IR avec Clr &lt; 30 ml/min</li> </ul>	<ul style="list-style-type: none"> <li>• Femmes enceintes ou allaitantes</li> <li>• Neutropénie ou thrombopénie &lt;50g/l</li> <li>• ASAT et ALAT &gt;5 fois la limite de référence supérieure</li> <li>• Infections bactériennes ou fongiques sévères</li> </ul>	<ul style="list-style-type: none"> <li>• Insuffisance hépatique sévère</li> <li>• Mucocite</li> <li>• Interactions médicamenteuses via CYP</li> <li>• Trouble du rythme</li> <li>• Hypokaliémie (concomitante)</li> <li>• Sirop : contre-indication si IR sévère</li> </ul>	<ul style="list-style-type: none"> <li>• Insuffisance hépatique sévère ou modérée</li> <li>• Interactions médicamenteuses via CYP</li> </ul>
<b>Précaution/ suivi biologique</b>	<ul style="list-style-type: none"> <li>• ECG (risque d'allongement intervalle QT)</li> <li>• Suivi de la fonction hépatique</li> </ul>	<ul style="list-style-type: none"> <li>• Cardiomyopathie -&gt; contrôle clinique des signes et symptômes</li> <li>• Si FEVG abaissée avant début traitement -&gt; avis cardio</li> <li>• Arythmie, prolongement intervalle QT -&gt; ECG</li> <li>• CI si QT&gt;500 ms ou augmentation de &gt;50 ms</li> <li>• Hypoglycémie -&gt; suivi glycémique</li> <li>• Formule sanguine</li> <li>• CAVE hypokaliémie et</li> </ul>	<ul style="list-style-type: none"> <li>• inconnues</li> </ul>	<ul style="list-style-type: none"> <li>• Dépistage tuberculose latente et hépatite B</li> <li>• Prévoir avant administration le dosage des cytokines et des sous-populations cellulaires par cyTOF (voir Remdes), Dosage à répéter à 72h</li> <li>• Enzymes hépatiques</li> </ul>	<ul style="list-style-type: none"> <li>• Test HIV</li> <li>• Labo (FS, Rein, foie)</li> <li>• kaliémie</li> </ul>	<ul style="list-style-type: none"> <li>• Augmentation bilirubine -&gt; n'est pas une CI</li> <li>• Prolongement intervalle QT -&gt; ECG</li> <li>• CI si QT&gt;500 ms ou augmentation de &gt;50 ms</li> </ul>

# Results

## Individual drug manufacturing

- Elaboration of several manufacturing protocols for drugs not available in specific galenic forms prescribed (e.g. hydroxychloroquine solution 25 mg/ml at the time when it was still being evaluated as a potential COVID-19 treatment).
- Creation of kits in order to facilitate the preparation of certain treatments in the wards (e.g. tocilizumab).



# Results

## Management of ward pharmacies

- Reconfiguration of the ward-based pharmacy technicians' schedule and reinforcement of their presence in the ICU.
- Preparation of medicine trays on a COVID-19+ unit of one of the hospital to relieve the nursing staff.
- Continuation of services to nursing homes, while guaranteeing both the protection of staff and residents.



# Results

## Hygienic masks distribution to healthcare professionals

- Distribution of federal reserves at the start of the pandemic by order of the canton of Vaud.



- Support: Swiss civil protection

# Results

## Internal infrastructure securing

- Development of a specific protection plan (including hygiene procedure) based on federal recommendations.
- Installation of protective equipment.



# Conclusion

- Our pharmacy has faced various challenges during the first wave of the COVID-19 pandemic in Switzerland.
- Some missions performed were even beyond its traditional duties and have been achieved with the support of the Swiss civil protection (hand disinfectant production and hygienic masks distribution).
- Based on the lessons learned from this extraordinary situation, the disaster plan of our pharmacy, as well as the associated staff training, have been further developed.

# Acknowledgments

- To all employees of the pharmacy for their exemplary commitment and precious solidarity during this crisis!



- To the Swiss Federal Department of Defence, Civil Protection and Sport (Centre of Competence for Military and Disaster Medicine) for supporting our researches in this field.



## Disclosure

- No conflict of interest to declare.