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COVID-19 pandemic in Switzerland: a brief overview of the role and response of primary care

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1. Introduction

The first Swiss case of COVID-19 infection was confirmed on February 25, 2020, in the canton of Ticino bordering Italy. During the following days, several other cases were detected in other cantons, all of them linked to Italy, where the pandemic was already spreading at a fast pace. The number of cases in Switzerland increased exponentially in the subsequent weeks reaching the peak of the first wave on March 23, 2020. A partial lockdown began on the March 16, 2020, with authorities prohibiting public and private gatherings of more than 5 people, closing schools, restaurants and bars, as well as non-essential shops. The partial lockdown lasted until end of April 2020, with a partial opening of public infrastructures and reactivation of several activities. In June 2020, publicly accessible SARS-CoV-2 PCR-testing started in Switzerland in official testing centers. Rapid antigen testing appeared a few months later in November 2020 [1]. The Swiss COVID-19 vaccination program was initiated in the last days of December 2020.

According to data of the Federal Office of Public Health, the number of cumulated laboratory-confirmed cases in Switzerland was 336'473 by December 1st 2020, 1'036'994 by December 1st 2021, and finally 4'328'479 by December 1st 2022 [2]. The COVID-19 laboratory-confirmed deaths increased from 57,31/100'000 inhabitants in December 1st 2020, to 128'44/100'000 in December 1st 2021, and then one year later to 157'47/100'000 inhabitants. A total of 13'847 laboratory confirmed-deaths occurred until the December 1st 2022, with more than half that had occurred during the second wave in Autumn 2020. As a consequence, COVID constituted in 2020 the third cause of death after cardiovascular diseases and cancers [3].

1.1. The Swiss healthcare system & the context of primary care in Switzerland

Switzerland is a federal country located in central Europe and consisting of 26 cantons. The cantons are sovereign and the division of powers between the central government (Federal council) and the cantons depends on the domain. In terms of health governance, responsibilities are divided between the government, the cantons and local communal authorities. Overall, the Confederation has a role in the governance of most health areas such as system financing, health security, some aspects of public health, research and education. The cantons issue practice rights to professionals, guarantee care through the management of hospitals, oversee residential care, and are responsible for prevention and health promotion policies. The system is funded through enrollee premiums, taxes (mostly cantonal), social insurance contributions, and out-of-pocket payments. Residents are required to purchase insurance from private nonprofit insurers. Adults also pay yearly deductibles, in addition to coinsurance (with an annual cap) for all services [4].

The current model for the provision of primary care through general practice, mostly comprising physicians ("the family physicians[1]") trained in general internal medicine during five years, is a liberal sector activity. It is largely unregulated without any formal link with public health authorities. The family physicians are free to set up practice, alone or in a group practice, wherever they wishes.

The patient has a free choice of the GP he consults. He also has free access to other specialties, without having to consult a family physician. There is thus no formal registration to a specific practice, and no patient lists. However, for some years now, some health insurers have been offering restrictive packages in terms of choice (imposing a list of doctors, accessing to specialists only through a gatekeeping system, this concerns about half of the insured) in exchange for a reduction in

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[1] In the rest of the article, we will use "general practitioner", GP

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insurance premiums.

The remuneration of the GP is based on a combination of fee-for-service and fee-for-time funding.

Although Switzerland has a high density of GPs in international comparison (105.5 /100000), the discipline tends to evolve to a shortage due to the demographic evolution and the political wish to refocus the care on primary care medicine to restrain healthcare cost. In addition, Swiss primary care organization has remained largely unchanged over the past decades. It is constituted of small practices of general practitioners (about 50 % of FPs work alone) who work almost exclusively with medical assistants [5].

Because of the country's federalism and the availability of data, this article will present both the national situation and the situation of our French-speaking canton, the canton of Vaud (800,000 inhabitants). Regarding data from this canton, they mostly come from a study we carried out just after the first wave. All general practices (N = 532) were invited to participate and we obtained data from 218 of them (participation rate = 41 %). The aim of the survey (which had a mixed design, including a questionnaire and interviews) was to describe and understand GPs' levels of involvement and opinions in dealing with the COVID-19 pandemic's first wave in the canton [6,7].

2. Role of general practitioners in the response to the COVID-19 pandemic in 2020

2.1. GPs little involved in the management of the pandemic

2.1.1. Pandemic response on a national level

On the national level, updates of the pandemic preparedness plan are coordinated by the Federal Commission on pandemic preparedness and management. In 2020, of its fourteen members, five were medical doctors, all of them infectious disease specialists. An evaluation mandated by the Federal Office of Public Health [8] highlighted the planned coordination bodies such as this commission never took their place in the management of the crisis. Instead, *ad hoc* task forces composed of self-appointed experts counselled the health authorities. General practitioners were initially not included in those task forces, although they were invited to join at the end of 2020. GPs were not involved in designing the test strategy, and only partially involved in designing its deployment. Most COVID-19 cases were diagnosed outside GP practices, often in dedicated test centers (including community pharmacies).

2.1.2. GPs' participation in the canton of Vaud

When the pandemic began in the canton of Vaud, the public health authorities invited GPs to participate in the management of their COVID-19 suspected patients and to continue caring for their non-COVID-19 patients. These requests were not mandatory, and GPs were free to organize themselves as they wished in the face of this challenge. The only constraint for the practice was to be able to organize separate pathways for COVID and non-COVID-19 patients. This occurred however after a first period, from March 16 to April 27, in which medical practices were asked "to forego all non-urgent medical treatments and procedures" (period restricted to emergency activities). COVID consultations were reimbursed on the same basis as any other consultation, with partial deductibles paid by patients up to the annual cap.

Our survey [6,7] showed that the vast majority of practices (98 %) remained open during the period restricted to emergency activities; and 64 % of those practices chose to receive their suspected COVID-19 patients for testing. Many GPs organized specific testing pathways inside their practices (77 %) or outside their practices (8 %) for these patients. Practices that were unable or unwilling to accept COVID-19 suspects referred the majority of these patients to testing centers (hospital or dedicated ambulatory centers). The management of COVID-19 suspected patients by general practices has faded over time: six months after the first wave, 45 % of practices continued to manage suspected patients as in the first wave and 40 % preferred to refer them to a testing center. In addition, when able to, as suggested by the public health authorities at the end of June, only 29 % of practices proposed a fast-track testing, without the need for a medical consultation. Finally, as requested by the professional organization of physicians of the canton during the period of restricted urgent activity, 67 % of practices contacted their vulnerable patients to make sure they were fine.

According to GPs, in terms of communication to family medicine professionals in the first wave, there was a general sense of cacophony. It was not so much the clarity of the information transmitted but rather the gap with the reality on the ground, the multiplicity of sources, and the dissemination channels adopted. On this last point, the absence of a direct circuit from public health to physicians was regretted by GPs. Indeed, the mode of communication involving third partie such as professional association has been questioned. And finally, the multiplicity of actors issuing recommendations was pointed out as deleterious.

3. Adaptation of practices in general medicine-Teleconsultations and resourcefulness!

On the national level, with the extraordinary situation, declared by the Swiss government on March 16th, 2020, health providers were asked to report non-urgent consultations. Data collected in the Swiss sentinel surveillance system Sentinella, based on approximately 180 GP practices, documented the almost 50 % drop in face-to-face consultations [9]. Still, during the first week after the government's decision, about 40 % of physicians declared to see COVID-19 suspects themselves, despite often lacking protection material, a proportion that declined to 20 % end of May 2020. In some cantons, visits to nursing homes by GPs, considered as regular home visits, were also reduced [8], while in other cantons specific teams were set up to reinforce nursing homes. A first temporary guidance advising care organization in the ambulatory sector was released by the Federal Office of Public Health (FOPH) on April 4th, 2020. On April 17th, the 2nd COVID-ordinance made it mandatory for health structures, including general practices, to adhere to infection prevention and control recommendations, which led to a national protection plan for private practices that was regularly updated until the end of the particular situation. A survey conducted in Sentinella documented the change in the measures between 2019 and 2021, with improvement in hand hygiene, mask wearing, ventilation and cleaning habits, and patient distancing [10].

In the canton of Vaud, 78 % of practices stated that they had modified their work organization to meet the needs of their non-suspect COVID-19 patients [6,7]. Thus, teleconsultations (mainly by telephone, and very few by videoconference) were developed during the period of restriction to urgent activities; however, this approach faded with the resumption of activities (completely abandoned by 48 % of practices in autumn 2020). Nevertheless, the follow-up of COVID patients was mostly done remotely, by telephone. Finally, 19 % of practices reported that they had to reorganize because of the vulnerability of some of their professionals or their desire not to be exposed to the virus. In addition, as mentioned in a previous section, practices that received suspected COVID-19 patients had to reorganize either their premises (creating separate pathways for COVID and non-COVID patients) or their workday (time slots dedicated to COVID patients).

During the phase of restrictions on urgent activities, the volume of activity of the practices decreased considerably (44 % of practices reported a decrease of more than 50 %). This decrease in activity was the result, on the one hand, of the cancellation of consultations considered non-urgent by physicians and, on the other hand, of a significant decrease in patient demand (55 % of practices reported a decrease in patient demand of over 50 %). In order to cope with the changes in activities, some practices had to implement temporary unemployment, especially during the phase of restrictions to urgent activities. Finally, due to the drop in activity, financial losses were declared by more than

nine practices out of ten (100 % for pediatric practices), over the whole of the first wave (mid-March to end of May 2020). Among them, nearly a third of practices declared a loss of more than 50 % over this period.

GPs felt that professionals were very well or well protected during the first wave overall in 72 % of cases. However, as in many countries, access to protective equipment was considered very difficult or difficult by 76 % of practices for gowns, 69 % for glasses, 46 % of practices for masks and 44 % for hydro-alcoholic solutions.

4. Vaccination in the primary care setting

Involvement of GPs in SARS-CoV-2 vaccination in Switzerland varied across cantons. As with many other health-related topics, organization of the SARS-CoV-2 vaccination was a mix between federal and cantonal level, with competencies predefined by the Swiss pandemic plan. Vaccine orders, procurement and dispatch to the cantons was a federal task, while concrete organization of the vaccination was in the hands of the cantons. After vaccine authorization by the Swiss medical agency Swissmedic, the Federal commission for vaccination established vaccine recommendations. This permanent body includes, among its 14 members, one representative of the general internal specialists. This commission also established a four-level priority list to guide cantons in the stepwise deployment of vaccinations, first to individuals aged at least 65 years old, vulnerable individuals, residents and staff of nursing homes, and second other health staff including GPs.

The different interpretation of the priority criteria across cantons led to GPs and GP practice staff being vaccinated at different time points. Often, hospital staff was vaccinated along with priority one group, while GPs awaited their turn for vaccination to be opened to the second priority category. As an example, only 51.3 % of Swiss sentinel GPs were vaccinated according to a survey conducted in March-April 2021, although 89.5 % of the unvaccinated were willing to be vaccinated [10]. In the free-text comments of this survey, physicians expressed frustration at not being considered among the priority groups.

The Federal council decided on the reimbursement scheme and the amount that could be billed by GPs for the act of vaccinating. Professional medical organizations criticized this amount as being too low to cover the actual costs [8]. This may have favored vaccine administration in dedicated centers directly subsidized by the cantons. Indeed, in comparison with other EU and OECD countries, Switzerland ranked rather low in terms of GP compensation [11].

GP involvement in vaccine administration was highly variable across cantons. In some, GP practices were a main actor for vaccinating the population, while in others, their role remained marginal, with most vaccine doses were delivered in dedicated vaccination centers and pharmacies. In another model, GPs were detached to supervise dedicated centers. For example, in the canton of Vaud, less than 1 % (3'935/595'411) of first vaccine doses were administered by private practices in 2021. Most GPs focused on vaccinating their highly vulnerable patients during the spring 2021, but did not contribute much to the vaccination of the general population. Among 35 GPs participating in a sentinel surveillance system, 24 (68.9 %) were administering vaccines in March 2021, but none maintained the activity throughout the year [12]. However, even when not administering vaccines themselves, GPs had an important role in informing and counselling their patients, especially the vulnerable population. COVID vaccination was a topic mentioned in up to 20 % of consultations of the sentinel GP practices during April 2021 [12].

Overall, since the beginning of vaccination, the role of structures other than dedicated centers has remained marginal [12].

By July 4th, 2022, 70.2 % of the Swiss population had received at least one vaccine dose and 43.7 % had received a booster dose, which is low in comparison to most other European and OECD countries [13]. Vaccine coverage by canton ($\geq$ one dose) ranged from 57.5 % to 74.0 %. Heterogeneity in vaccine coverage across cantons has been documented previously with other vaccines in Switzerland, and attributed to differences in health system organization and socio-cultural factors [14].

5. Organization of the response to the pandemic and involvement of other healthcare professionals and stakeholders – High involvement of pharmacies

As previously explained, during the first months of the pandemic, mostly between March and June 2020, cantonal authorities were responsible for application of decisions taken at the central level within a restricted framework. On the second phase of the pandemic after June 2020, some cantons started to mobilize professional organization, healthcare institutions and academic experts to participate in regular meetings and to constitute scientific taskforces. This was the case for the canton of Vaud, where weekly online meetings were held to share information, to increase collaboration between the local government and the healthcare providers, and to build a common pandemic strategy and preparedness plan, coordinated by the cantonal public health authority (Cantonal Medical Office). In order to support the local authorities of the canton of Vaud, a cantonal scientific council was created in October 2020. This group of ten experts, coordinated by the Centre for Primary Care and Public Health of the University of Lausanne (Unisanté), had as mission "to propose concrete scientific actions to local authorities and to assess measures through a scientific point of view". The scientific council was composed of several academic experts from different fields of medicine (such as infectious diseases, tropical medicine, and virology) but also from general practice, public health and later sociology.

Within the cantons, the territorial organization of care is traditionally poorly developed in Switzerland. In the end, with a few exceptions (including pharmacies, see below in this section) the pandemic did little to improve the coordination of primary care professionals at a micro territorial level.

Indeed, at the community level, pharmacies were highly involved in the response to the pandemic: at the federal level, new legislation allowed community pharmacies[2] to perform new tasks, such as testing and vaccination. This was then implemented by cantonal authorities, to allow a better coordination based on local and regional needs. Additionally, Swiss community pharmacies were considered as essential shops and remained open, even during the partial lockdown. Each pharmacy had to implement a precautionary measures plan to guarantee patients' and staff members' safety[3]. Since March 2020, community pharmacies provided COVID-19 recommendations and supplied masks and alcohol-based hand sanitizers to the population. In the first weeks of the outbreak, masks and alcohol-based hand sanitizers were not available on the global market. Alcohol-based hand sanitizers were manufactured and supplied by community pharmacies in Switzerland until these products were again widely available. Masks from the Swiss army stock were delivered to health professionals through cantonal organization. For example, in the canton of Vaud, two hospital pharmacies and the academic community pharmacy of Unisanté were required to deliver fixed masks quotas during the first three weeks of the pandemic. To allow a better geographical distribution throughout the canton, this task was later coordinated by civil defense centers, until the masks were again available on the global market [15]. Since then, alcohol-based hand sanitizers and masks can be purchased in community pharmacies and in ordinary shops.

Since October 28th, 2020, community pharmacies were allowed by the Confederation to perform antigenic and PCR-testing, in addition to official testing centers. For PCR-testing, the nasopharyngeal swab was performed in the pharmacies, and the PCR analysis was performed in

[2] as opposed to hospital pharmacies

[3] Swiss Federal Council. Ordinance on Measures to Combat the Coronavirus (COVID-19) (COVID-19 Ordinance 2) of 13 March 2020

recognized laboratories. For antigenic testing, the test was fully managed in pharmacies. Cantons could set the requirement that had to be fulfilled for community pharmacies: for example in Vaud, pharmacies had to announce plans to carry out such tests and to demonstrate that they met requirements relating to the organization of the premises or the management of patient flows. Then the pharmacy staff had to follow a training on the testing procedure, set up by the health authorities and the local pharmacists organization [16]. According to comprehensive registration data, for the whole of 2021, antigenic testing were mainly performed in official testing centers (42 %) and in community pharmacies (25 %), while PCR testing were mainly performed in official testing centers (51 %), hospitals or clinics (11 %), medical practices (10 %), clinical laboratories (5 %) and in community pharmacies (4 %) [12].

Since April 2021, community pharmacies started to dispense COVID-19 self-tests to the population. This task was coordinated at the federal level without implication of the cantons: five tests per person per month were provided by the Confederation to every health-insured individual, with reimbursement limitations that have evolved over time. After 3 months, pharmacies had delivered 21 million self-tests[4].

Since April 2021, SARS-CoV-2 vaccination has been available in community pharmacies in 24 out of 26 of the Swiss cantons[5]. As for testing, vaccination in community pharmacies was coordinated at the cantonal level after having been authorized at the federal level. For example, in Vaud, pharmacies already authorized to vaccinate had to announce plans to carry out SARS-CoV-2 vaccination. They had to demonstrate their ability to perform a minimum of 100 SARS-CoV-2 vaccination per day during 5 days per week before being considered as eligible. In addition, geographical distribution criteria were taken into account by the health authorities to authorize a pharmacy to perform this vaccination. Then the pharmacy staff had to follow a training on the preparation and administration of these vaccines (i.e. Spikevax® from Moderna in community pharmacy due to logistical and conservation constraints). However, as mentioned earlier, the role of structures other than dedicated vaccination centers has remained marginal, even though this activity was slightly more frequent in pharmacies than in general practices [12].

Finally, although communication to community pharmacists was not explored, the communication process from health authorities to community pharmacists was more straightforward compared to the situation reported by GP and no specific problems or complaints were observed. Indeed, in each canton the health authorities issue authorization to operate a community pharmacy. As regular inspections are performed, contact information of every pharmacy in their respective canton (e.g. approximately 250 in the canton of Vaud) are kept updated by health authorities. Hence, each communication from and to health authorities was centralized by cantonal pharmacists in each canton.

6. Looking back: unexpected consequences and mixed feelings in primary care

Decompensations of chronic diseases, in particular psychological ones, were widely reported by the GPs. Thus, at the end of the first wave, decompensation of pre-existing chronic diseases was reported as frequent (very and fairly) by 20 % of practices (absent by 32 %). The appearance of psychological disorders was reported as frequent by more than half the practices (54 %) [7].

Regarding the management of the pandemic, 76 % of physicians trusted the management by the Confederation and 64 % trusted the management of the pandemic by the public health authorities of the canton. Regarding the information received by practices, about two-thirds of physicians found it too much (62 %), unclear (66 %), and too changing (71 %). However, only one third of them consider that there was not enough responsiveness.

The interviews with GPs highlighted that a feeling of f indifference and abandonment predominated. “"I felt alone but not excluded, because I got feedback from my patients”“"; ”“"I felt that we were all alone, isolated [even though] we really wanted to do things well [and] we invested as much as we could”“"; ”“"We were making decisions ourselves. No one helped us”. In addition, a lack of interest on the part of public health authorities in how the crisis was being managed by first line actors, and especially how it was being experienced in the practices, was noted by GPs. [There was] ”"Little concern from the practices, to know how it was going and what the needs were. We really feel like we were non-existent for them” [7].

GPs who chose to be involved in the crisis management expected that authorities recognized them as major health providers. They expected to be rewarded, not necessarily financially, but through respect and consideration.. Some solutions were proposed by GPs to better anticipate the response to the health crisis, but respecting the choice of GPs to get involved or not. Therefore, as a prerequisite to the preparation of a crisis plan, the identification of the needs and responsibilities of GPs or more widely primary care professionals as well as the distribution of roles in such a situation was proposed. Indeed, physicians are hesitant about the idea of greater involvement of primary care medicine in the pandemic with greater involvement desired by 34 % of physicians (no opinion for 23 % of them) [6]. This reveals a certain level of ambiguity in GPs’ attitudes. They are very much attached to their professional freedom but want to be considered among the healthcare system’s major players. Additionally, the question is also how best to rely on GPs in a sanitary crisis, when they operate in a liberal system. Indeed, the survey data also showed that the involvement of GPs and the activities they carried out were sometimes dictated by financial reasons. In this context, the adherence of professionals may not be so obvious.

Based on interviews with stakeholders conducted as part of a national evaluation, GPs workforce, in contrast with community pharmacies, were insufficiently taken into consideration both for strategic and for operational planning. Pandemic preparedness plans should include ambulatory patient management, not only in dedicated structures separated from routine care. Experiences showed that separating COVID and non-COVID patients was feasible and perceived as a meaningful measure. Whether GPs should be better involved in future strategic planning and operational management of pandemics, both at national and cantonal level, seems obvious but remains uncertain and dependent on many factors.

Human and animal rights

The authors declare that the work described has not involved experimentation on humans or animals.

Informed consent and patient details

The authors declare that the work described does not involve patients or volunteers.

Author contributions

All authors attest that they meet the current International Committee of Medical Journal Editors (ICMJE) criteria for Authorship.

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Declaration of competing interest

The authors declare that they have no known competing financial or personal relationships that could be viewed as influencing the work reported in this paper.

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