

The role of diagnostic testing in the Canton of Valais in the context of socio-economic implications of the COVID-19 pandemic

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Abstract

Diagnostic testing for COVID-19 disease has received a broad attention in society, especially during the 1st wave in spring 2020. The limited testing capacities, transmissibility of SARS-CoV-2 as well as the absence of a facile sample collection method and adequate Point of Care (POC) diagnostic devices has raised both concerns in society and the need for innovation. Mandated by the HES-SO Valais-Wallis we have conducted a workshop with stakeholders from different institutions such as nursing home, border control, asylum center, security agency, government public protection office, penitentiary and hospital, in order to investigate organizational, logistical, data management, psychological and ergonomic requirements and constraints particularly during the early lockdown relaxation phases. After a first analysis of the workshop data, a questionnaire was designed and sent out to the participants and their organizations to refine and validate the replies. Among the main findings of our research following items stand out:

- diagnostic testing is seen as an important tool to help ensure the safety of employees and to manage human resources
- notably, self-testing and testing by staff are favored over services by an external provider
- ease-of-use, assay performance (e.g. sensitivity), reliability, measurement speed, and especially portability is viewed as important
- the majority of participants expressed the opinion that the test costs exceeding CHF 10.- should be covered by the public domain

Main Goal & Research Question

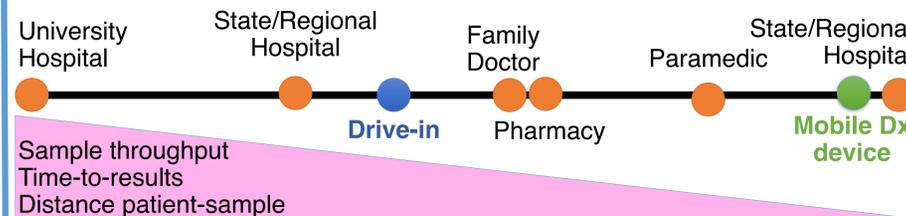
To understand their needs and specific requirements for an efficient and rapid local diagnostic infectious disease testing

What are the needs of professionals regarding screening?

Technologies



Background - POC



Stakeholders



Discussion Results

	Isolation / Quarantine	Management HR	Psychological aspects	Legal aspects (responsibilities)	Confidential	« User » management	Monitoring	Concerns
Border Control	+++	+++	+++	+++				+++
Security Ag.	+++	+++	+	+++				+++
Penitentiary	+++	+++	+++	+++		++		++
Asylum Centers	+++	+	+	+++	++	+++	+	++
Triage Centers	+++	+	++	++	+	+		++
Nursing Homes	+++	+	++	+		+++	+	+
Hospitals	+++	+	+	+	+	+	+	+
Government offi.	+			+++	+		+++	+

* Reasons and Needs behind the screening

To detect and avoid propagation, manage absenteeism due to quarantine or fear of contamination, as well as the necessary organizational changes (e.g. teleworking, changes in schedules, special documents, etc.) generated an increase in workload.

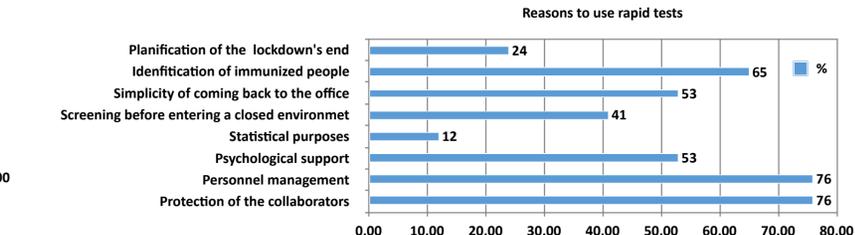
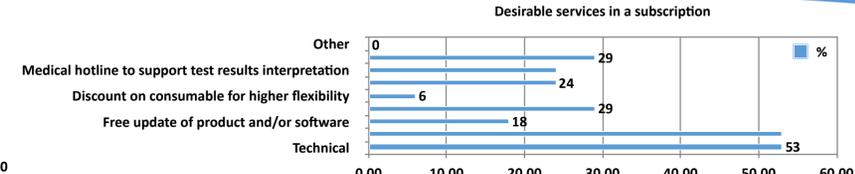
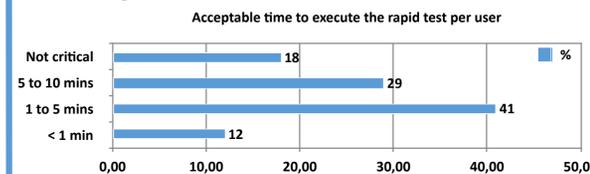
* Interest of a screening system

Point of care test devices are often considered with positive valence because it is perceived as a means of protection to avoid contact with positive individuals, consequently, to reduce psychological tensions. For staff members, this allows to anticipate, monitor and better manage absenteeism.

* Features of a screening system

The majority require a simple test that does not increase the workload, is reliable, fast, and portable (possibly). Attention should be given to the notions of security, data protection, medical secrecy, the risk of over-interpretation and analysis errors.

Survey Results



* Recommended people to screen :

Employees, family members, and eventually friends. According to the stakeholders, the person taking test should be able/ accountable to preserve confidentiality : self-testing, testing by staff or an external service provider.

* Features and ergonomomy :

Common agreement on realizing a 2-stem max self-test device (i.e., pregnancy test or a blood glucose). The portable aspect of the device would be a real asset. Simplicity, reliability, sensitivity and speed are the essential features.

* Financial support :

A majority of respondents believe that the cost of the test should not exceed 10 CHF, if more expensive, it should be covered by public system.

Methodology

To discuss the management of Covid-19, we invited ~15 representatives of Valaisan and Bernoise institutions in a workshop followed by a structured survey. In particular, the event articulated as follows:

- Introductory talk about the measure to be adopted from the institution during the pandemic time
- Discussion about the need for tools and procedures for screenings
- Survey in the form of both closed and open answers
- Data analysis with particular focus on quantitative results and new possibilities/opportunities

In particular, discussion and survey investigated:

- Reasons motivating the screening
- Recipients of the screening
- Screenings' responsables and executors
- Screenings' needs
- Operational costs

Conclusions & Perspectives

Screening played a rather marginal role during confinement. Few tests performed, few cases identified. Testing was generally delegated to external physicians.

Pandemic management measures focused on protective equipment and social distancing. Temperature taking was used by several institutions, but received mixed reviews.

Future needs for testing:

- Reassure staff and clients (e.g. the client of a security company, the inmates of a prison, ...)
- Reduce the length of absences in the event of suspected contamination.
- Crucial staff management in 24/7 "work" places (prisons, security, border guards, asylum, hospital, EMS, ...)
- Rapid implementation of isolation measures.

The findings from our pilot survey with a restricted investigatory time-window and a limited number of regional stakeholders warrant further expansion (across the Romandie or Switzerland) and a more refined research on requirements to support the necessary technological developments towards truly customer-centered products and services for future infectious disease outbreaks.

Acknowledgments

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