The challenges of the outbreak: the Italian COVID-19 integrated surveillance system

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Background:
In Italy, the National surveillance of all SARS-CoV-2 laboratory-confirmed cases was established on 27 February 2020, building on a previously existing laboratory network focused on suspected and confirmed COVID-19 severe respiratory infections.

Methods:
The integrated epidemiological and microbiological surveillance systematically collects and analyzes information on all SARS-CoV-2 confirmed cases. Regional reference laboratories analyze samples, inform Local Health Authorities of the results and coordinate data flow between cases, hospitals and GPs. Regions provide data through a web interface connected to a dedicated IT platform or by sending a dataset. The Infectious Diseases Department at Istituto Superiore di Sanità processes and analyzes data, producing reports on a daily and weekly basis, as well as indicator analyses based on the monitoring of

"phase 2" (post-lockdown). Moreover, mathematical models are constructed daily on these data.

Results:

Since the beginning of the epidemic, the surveillance system recorded 238.901 COVID-19 cases and 33.369 deaths on 19-6. Main challenges were the coordination of different actors, hampered by the decentralization of health to the Regions, and data interpretation due to the delay in the detection of cases and deaths. Besides the COVID-19 surveillance, we planned ad hoc studies and periodic surveys: health care workers, long term care facilities, clusters and red zones, health system resilience monitoring.

Conclusions:

COVID-19 surveillance is an essential tool to inform the public about the epidemic trend and provide support to public health response. We urge upon all relevant stakeholders a reflection on important issues such as defining ethical boundaries for data scavenging during emergencies, how existing laws on data protection could affect record linkage among different existing datasets to assess diseases and other variables for correlation, or which ethical approaches on open data would apply to our setting.

Key messages:

- A strong and adequately funded public health system in place allows an efficient response in times of epidemics both in terms of data collection and public health response, policy and decisions.
- COVID-19 epidemic showed us all the limits of a regionalized health system which was not entirely coordinated between periphery and central institutions.