

Isfahan COvid-19 REgistry (I-CORE): Design and methodology

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Health authorities usually exploit after-action reports to collect data on their experience in responding to public health emergencies. To develop an effective approach to manage and learning from health emergencies, we have launched Isfahan COvid-19 REgistry for data collection during routine clinical care as a first “critical incident registry” in Iran. Registries can be employed to explain the natural history of the disease, learn about a particular disease in terms of patient outcomes, the cost-effectiveness of clinical management, monitoring the quality of health-care service, and developing research hypotheses.

Key words: Coronavirus, Covid-19, Isfahan, Isfahan Covid-19 registry, methodology, registry

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INTRODUCTION

Primary epidemiologic and clinical investigations are critical to be established early in an outbreak of a new virus. The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), a new betacoronavirus, caused an easy spreading disease called coronavirus disease 2019 (COVID-19).^[1] The disease has spread globally since 2019 based on the World Health Organization (WHO) reports, resulting in the 2019–2020 coronavirus pandemic.^[2]

The current emergence of COVID-19 means that many aspects of the disease including transmission patterns, severity, clinical features, and risk factors remain unclear.

Studies to assess the epidemiology and clinical characteristics of cases in different settings are therefore

critical to furthering our understanding of this virus and associated disease. They will also provide the robust information needed to refine the parameters to feed in forecasting models.

Registries are structured systems that use observational study methods to gather consistent demographic and clinical history and fate data to assess identified outcomes for a population defined by a particular disease, condition, or exposure and serve programmed scientific, clinical, or policy purpose (s). Studies derived from well-designed and well-performed patient registries can provide decisive data of patient exposures and outcomes. They also can assess the quality and cost-effectiveness of health services and formulate imperative evidences for policy/decision-making purposes. Registries are also working for quality improvement as a result of feedback of data.

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Isfahan COvid-19 REgistry (I-CORE) enables data collection during health-care service delivery, empowering the observational studies of disease and treatment as an effective tool for many purposes such as recognizing variations in treatment and outcomes; safety screening finding factors that determine prognosis; and reporting quality of care, including the desirability of care and disproportion in the delivery of care.

To the best of our knowledge, I-CORE is the first comprehensive COVID-19 registry database, established in Iran. This article describes the design of I-CORE in Isfahan, as a “critical incident registry” experience.

MATERIALS AND METHODS

I-CORE is a registry in which all confirmed and probable cases of COVID-19 acute respiratory disease data according to the WHO interim guidance for global surveillance^[3] from hospitals or syndromic surveillance system are collected. It was initiated and launched in February 2020.

All patients with laboratory confirmation of infection with the SARS-CoV-2, regardless of clinical signs and symptoms, defined as confirmed cases.

All patients without conclusive laboratory confirmation of infection with the COVID-19 virus but one of the below clinical condition were defined as probable cases:

1. Patients with acute respiratory illness and with no other etiology that fully explains the clinical presentation and a history of travel to or residence in a country, area, or territory that has reported local transmission of COVID-19 disease during the 14 days prior to the onset of symptoms
2. Patients with any acute respiratory illness and who has been a contact of a confirmed or probable case of COVID-19 disease during the 14 days prior to the onset of symptoms
3. Patients with severe acute respiratory infection and who requires hospitalization and who has no other etiology that fully explains the clinical presentation.

Data are collected, according to the established protocol and glossary, using the WHO protocol and questionnaires.^[4]

The quality control committee, consisting of vice-chancellor of research, vice-chancellor of health, and vice-chancellor of treatment of Isfahan University of Medical Sciences, specialized physicians, hospitals infection control nurses, and health information technology staffs was developed.

Ethics approval was obtained from the Ethics Committee of Isfahan University of Medical Sciences (IR.MUI.MED.REC.1398.652).

RESULTS

By March 11, there were 3083 registered patients with a diagnosis of confirmed and probable COVID-19 (56% men and 44% women) of whom 611 registered as confirmed cases (61% men and 39% women). The mean (standard deviation) and median of age of confirmed cases were 58.44 (17.0) and 60 years, respectively, as well as the youngest and oldest confirmed patients were 14 and 99 years, respectively. Around 5.6% of the confirmed cases died with a median age of 72-year-old, while 32.2% of whom were discharged from the hospital with the median age of 56 years. Figure 1 presents the number of confirmed cases and death among registered patients from February 18 to March 11, 2020. The most registered confirmed cases (45%) lived in the center of Isfahan Province, of whom 54.5% were admitted in two main Covid-19 referral hospitals.

DISCUSSION

Despite technical progression in the pathogens specification, outbreaks of enigmatic illnesses continue to arise. COVID-19 outbreak with unusual epidemiologic characteristics should be tracked with further urgency, and investigators should scrutinize the probability of newly engineered pathogens.^[5]

The uncommonness of serious public health emergencies has complicated the improvement of public health emergency preparedness systems. We have developed a searchable dataset by type of events, contextual factors, geographic data, patient clinical features, and outcome to share lessons learned from COVID-19 outbreak and to enable comparisons.

Traditional surveillance and expert clinicians will always play a serious role in the perfect management of the patients and

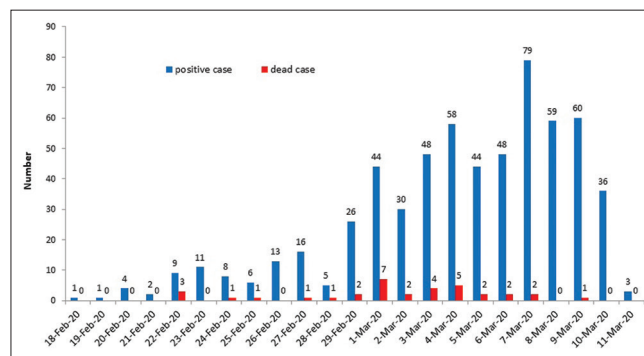


Figure 1: Number of daily registered confirmed case and death from February 18 to March 11, 2020

public health emergencies. However, registries are excellent tools that clearly have a role in detecting and monitoring outbreaks. The work to be done over the future months is to augment our data integration infrastructure, develop and refine our methods, and organize secondary studies based on new questions raised during patient data gathering.

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Conflicts of interest

There are no conflicts of interest.

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