


LETTER

Iranian national COVID-19 electronic screening system: experience to share

Iranian health authorities confirmed the first cases of coronavirus on 19 February 2020 in Qom. As of 27 February 2020, according to authorities, 82211 cases with COVID-19 have been identified in the country, 5118 of which have died and 57023 have recovered so far.¹ Prevention and identification of the disease has become the most important task in Iran.²

The information of more than 75 million Iranian citizens has previously been registered in an electronic health system, so that every citizen has an electronic health dossier. In early March, Iranian Ministry of Health and Medical Education (MOHME) set up a clinical website (<https://salamat.gov.ir/>) to find citizens infected with COVID-19.³ The government has called on all Iranian citizens to use this clinical self-screening website. Citizens log into the clinical website using the national code and date of birth, then complete a questionnaire related to their symptoms and (figure 1) enter their mobile number and then submit. Citizens with positive symptoms will receive personal and family protection advice in accordance with the MOHME guidelines in the form of Short Message Service (SMS) and will be referred to the nearest selected Comprehensive Health Centers (CHCs) where they are checked by the physician according to the national protocol for COVID-19 and, if necessary, referred to emergency departments of hospitals. Asymptomatic citizens will receive an SMS stating that if you experience symptoms of the disease in the coming days, update your symptom information on the website or refer the selected CHCs. For citizens who do not have access to the internet or are unable to record information about their symptoms on this website, clinical officers (*Behvarz* in Persian) in rural areas and healthcare providers (*Moragheb-e-salamat* in Persian) in urban and suburban areas will perform screening and follow-up based on electronic health records using the 4030 line. Hotline 4030 is a screening line that answers citizens' questions about COVID-19 and provides general and specialised advice, including nutrition and mental health advice. Similarly, these workers contact them on the free-of-charge 4030 line and screen for symptoms; if their symptoms



Self-assessment system for COVID-19

Which of the following symptoms do you have? <input type="checkbox"/> Fever <input type="checkbox"/> Trembling <input type="checkbox"/> Dry cough <input type="checkbox"/> Sore throat <input type="checkbox"/> None
Do you feel shortness of breath? <input type="checkbox"/> Yes <input type="checkbox"/> No
Are you one of the endangered groups as follows? Immunodeficiency: <input type="checkbox"/> Malignancies <input type="checkbox"/> Organ transplantation <input type="checkbox"/> Treated with corticosteroids <input type="checkbox"/> Suffering from HIV <input type="checkbox"/> Chemotherapy
Underlying disease: <input type="checkbox"/> Cardiovascular disease <input type="checkbox"/> Underlying respiratory disease <input type="checkbox"/> Diabetes <input type="checkbox"/> blood pressure
Enter your height: _____ Enter your weight: _____
Is there a suspect / outpatient / hospitalised or discharged person from your family or relatives due to COVID-19 disease? <input type="checkbox"/> Yes <input type="checkbox"/> No
Enter your mobile number: _____



Figure 1 The content of the clinical website (<https://salamat.gov.ir/>). The content of the clinical website was translated from Persian to English in this figure.

are positive, they will be referred to the nearest CHCs. In the selected CHCs, the referrals are examined by the physician and, if required, referred to referral hospitals. Also, the homes of people infected with COVID-19 will be disinfected and other family members will be followed up, isolated and quarantined by health teams selected from among *Behvarzes* and *Moragheb-e-salamat* if needed.

From 4 March to 14 April 2020, more than 70 million people were screened. A significant number of those people had been screened via the Health Ministry's online platform—salamat.gov.ir—and the rest through the information of electronic health dossiers and 4030 phone calls. Among the citizens referred to selected CHCs, about 23.3% required care at home, and 4.5% were referred to referral hospitals.⁴

This system has prevented unnecessary referrals to health centres such as office

and clinics that can increase the risk of infection for healthy people who are then exposed to COVID-positive patients. This system can facilitate disease management and prevent crowding in these centres.

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REFERENCES

- 1 Iranian Ministry of Health and Medical Education. COVID-19 daily epidemiology Journal. Available: http://corona.behdasht.gov.ir/files/site1/files/IRAN_COVID19_Factsheet_N.27____-19April_En.pdf
- 2 Amir-Behghadami M, Janati A. The importance of designing and implementing participatory surveillance system: an approach as early detection and prevention of novel coronavirus (2019-nCov). *Am J Infect Control* 2020. doi:10.1016/j.ajic.2020.03.013. [Epub ahead of print: 01 Apr 2020].
- 3 Home to home program to be launched to combat COVID-19. *Mehrnews* 2020.
- 4 Iranian Ministry of Health and Medical Education. COVID-19 daily epidemiology Journal. Available: http://corona.behdasht.gov.ir/files/site1/files/Factsheet_24-0126-En.pdf [Accessed 17 Apr 2020].