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Letter to the Editor

Iranian First-Line Health Care Providers Practice in COVID-19 Outbreak

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Dear Editor-in-Chief

The World Health Organization declared COVID-19 as a pandemic on March 11, 2020. In Iran, more than 70 000 confirmed COVID-19 cases and more than 4200 deaths (case fatality rate=6.2%) were reported by April 11, 2020. Recently, a study demonstrated each death or confirmed case of COVID-19 is likely to represent 600 to 1,000 infected cases in the general population (1).

The Iranian health system is based on Health Care Networks. In Iran, medical universities are responsible authorities for medical services in each province by many various types of Health Service Providers (HSPs) (2, 3). The rural Community-based Health Workers (CHWs) (*Behvarz*) and urban CHWs (*Morageb-e Salamat*) are low cost and the main first-line HSPs in Iran. The report of COVID-19 cases is based on definite cases. Due to the low sensitivity of diagnostic tests and the high portion of false negatives and the long gap between the diagnostic procedure and the confirmed result, it seems that the role of first-line HSPs on the early finding of suspected cases and rapid assessment of contact tracking is critical for the interruption of the transmission chain. This paper was aimed to explain the CHWs practice in COVID-19 outbreak in Iran.

Data were extracted from the Iranian Ministry of Health reports and SIB system. Following the outbreak spreading, the Iranian Ministry of Health was mobilized the first-line CHWs in four pillars.

Pillar 1: **Phone screening**; All households' heads contact on the 4030 line by rural and urban CHWs based on their covered population. COVID-19 symptoms including fever, chills, dry cough, difficulty breathing, and sore throat were asked from heads of households in their family members. The high-risk population including diabetes and hypertension, pulmonary, immunodeficiency, pregnant women, and the elderly, are in prioritizing. The case finding and early detection of suspicious symptoms among the general population have increased the trend of confirmed cases since late March, despite the home quarantine, type and temporal trend of the outbreak (Table 1).

Pillar 2: **Contact tracing** with confirmed cases and follow up monitoring of people in close contact with the confirmed cases are identified and screened by CHWs, to reduce the risk of transmission. Daily phone education is performed in confirmed cases and their family members and follow-upping about isolation principles, and the prevention of disease-transmitting.

Table 1: Daily confirmed and deaths by COVID-19 in Iran, Feb 25 to Apr 10, 2020

Date	*Daily confirmed cases*	*Daily confirmed deaths*	*Case fatality rate*
25-Feb	34	3	15.79
26-Feb	44	4	13.67
27-Feb	106	7	10.61
28-Feb	143	8	8.76
29-Feb	205	9	7.25
01-Mar	385	11	5.52
02-Mar	523	12	4.4
03-Mar	835	11	3.3
04-Mar	586	15	3.15
05-Mar	591	15	3.04
06-Mar	1234	17	2.61
07-Mar	1076	21	2.49
08-Mar	743	49	2.95
09-Mar	595	43	3.31
10-Mar	881	54	3.62
11-Mar	958	63	3.93
12-Mar	1075	75	4.26
13-Mar	1289	85	4.52
14-Mar	1365	97	4.8
15-Mar	1209	113	5.19
16-Mar	1053	129	5.69
17-Mar	1178	125	6.11
18-Mar	1192	147	6.54
19-Mar	1046	149	6.98
20-Mar	1237	149	7.29
21-Mar	966	123	7.55
22-Mar	1028	129	7.79
23-Mar	1411	127	7.86
24-Mar	1762	122	7.79
25-Mar	2206	143	7.69
26-Mar	2389	157	7.6
27-Mar	2926	144	7.35
28-Mar	3076	139	7.11
29-Mar	2901	123	6.89
30-Mar	3186	117	6.64
31-Mar	3180	141	6.5
01-Apr	2988	138	6.38
02-Apr	2875	124	6.26
03-Apr	2715	134	6.19
04-Apr	2560	158	6.19
05-Apr	2483	151	6.19
06-Apr	2274	136	6.18
07-Apr	2089	133	6.18
08-Apr	1997	121	6.19
09-Apr	1634	117	6.21
10-Apr	1972	122	6.2

Pillar 3: **Hotlines** 4030 and 190 with more than 10 000 lines and also health centers direct phone lines to respond to all aspects of COVID-19 questions of the general population about contagious, prevention, mental health, and nutrition.
Pillar 4: **Inactive case finding** and COVID-19 services in all days of the week are provided by the first-line CHWs in comprehensive health centers functioning 16 and 24 hours per day.
According to the Iranian Ministry of Health report, out of the total Country population, almost 88% were phone screened. Out of them, were reported without problem 87.6%, need home care 23.75%, referral to selected hospitals 4.47, and dual-drug remains in outpatients 0.58% on April 10, 2020.
There appears CHWs practices are increased early identification of infected cases. The outcomes of this early diagnosis have reduced person-to-person transmission, increased identification in the early stages, and reduced hospital admissions, and also patient contact with hospital staff.

Conflict of interest

The authors declare that there is no conflict of interests.

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