

The Community Health Worker Model: A Grass-Roots Approach for Measles Prevention in Refugee Camps

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ABSTRACT

Syria's protracted civil war has resulted in massive population movements into refugee camps. Such movements, in conjunction with lower vaccination rates, potentiate infectious disease outbreaks. Measles transmission is a continuous threat in refugee camps, and a sustainable approach to providing preventative medicine in camps is warranted. The community health worker model can be used to identify unvaccinated persons, detect probable cases and refer individuals to health clinics within the camps for prophylaxis and medical care, respectively. Through this grass-roots approach, community health workers become an on-the-ground surveillance system that can determine demographic trends and facilitate public health responses to potential outbreaks.

RÉSUMÉ

L'interminable guerre civile en Syrie a entraîné des déplacements massifs de population vers des camps de réfugiés. De tels mouvements de population, en concomitance avec de plus faibles taux de vaccination, accroissent les risques de flambées épidémiques. La transmission de la rougeole est une menace continue dans les camps de réfugiés, et une solution durable dans l'administration de médecine préventive dans ces camps est justifiée. Le modèle des agents de santé communautaires peut être adopté pour identifier les personnes non vaccinées, détecter les cas probables et adresser ces individus aux cliniques de santé des camps pour qu'ils puissent y recevoir de la prophylaxie et des soins médicaux, respectivement. Grâce à cette approche locale, les agents de santé communautaires forment un système de surveillance sur le terrain qui permet de déterminer les tendances démographiques et de faciliter les interventions de santé publique contre les épidémies potentielles.

BACKGROUND

Syria is at the epicentre of one of the worst humanitarian crises of the 21st century [1]. The prolonged civil war has mobilized mass migrations, with neighbouring countries alone harbouring over 4 million refugees [1]. The Syrian experience has created a need for rethinking the global relief process, as renewed infectious disease threats are proving unmanageable under the current regime of refugee management practices.

With large population movements, in conjunction with a disrupted pharmaceutical industry [2], communicable diseases can cross international borders [3]. The resurgence of previously contained infectious diseases serves as a reminder of the vulnerability of the many fragile health systems, such as Syria's [3].

Most mortality cases in refugee camps are caused by diarrheal diseases, pneumonia, measles and malaria [4]. In Syria's case, measles is the primary infectious concern, where up to 7000 cases were reported in 2013 [5]. Current estimates remain unknown due to the lack of epidemiological surveillance. Neighbouring countries are naturally concerned [3], and the destabilization of their health infrastructures is a possibility [6].

The significance of measles in refugee camps is three-fold: 1) rou-

tine vaccinations are not up-to-date [2]; 2) porous camp borders allow influx of new, perhaps unimmunized, persons [3]; and 3) measles is one of the most contagious communicable diseases [7,8].

An improvement in the infectious disease management process in refugee camps must be considered, with the Syrian experience as a model for improvement. This paper outlines a strategy to employ community health workers (CHW) specifically to assuage the spread of infectious diseases in refugee camps, with specific attention to the threat of measles in Syrian camps. Increased reliance on CHWs will facilitate the following: prevention of measles contagion through early identification of unvaccinated individuals, case detection and subsequent referral to a treatment centre, and establishing a surveillance system.

COMMUNITY HEALTH WORKERS

CHWs act as the interface between health providers and the community within the realm of primary health care (PHC) [9]. As CHWs come from the same background as the population they serve, translation of health information within lingual and cultural considerations is possible [10]. PHC is advocated as the vehicle of access to basic health services and most applicable in refugee camps [11-13]. Theoretically, the CHW model can

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be applied in refugee camps to facilitate access to PHC. Few studies have investigated the use of CHWs in refugee camps [14, 15], with no published study considering measles prevention specifically. While evaluation processes for CHW implementation have not been well explored nor elucidated [15], there is sufficient evidence to suggest that an increased reliance on local resources, particularly CHWs, to sustain health in refugee camps, is warranted.

IDENTIFICATION OF UNVACCINATED PERSONS

CHWs provide a practical approach to measles prevention within refugee camps. Measles epidemics are a major public health concern in populations with poor vaccination coverage [4]. Given that over 50% of children born since the conflict origin are not vaccinated against preventable diseases [16], it is a logical conclusion that more unvaccinated individuals are entering overcrowded camps [3].

CHWs facilitate the identification of unimmunized persons [10]. Assuming that the approximate layout and magnitude of the camp is known, each CHW would be responsible for a predetermined zone. Since CHWs would be well-acquainted with families living in each area, a rapport could be established [10], allowing improved consistency in follow-up.

CHW presence has shown to increase immunization rates [17]. In one study, a CHW intervention improved rates by 39% in 4 months in low-income communities in Karachi, Pakistan [18]. Although measles often targets children due to their increased vulnerability [19], all family members should be vaccinated to reduce the viral reproductive capacity [20,21]. With immunization being a key mechanism for measles control [19], CHWs can assist in acquiring the minimum 95% vaccination rate to ascertain herd immunity [22].

Delegating prevention procedures to CHWs allows clinicians to remain within health centres. The measles vaccine requires specific storage guidelines, thus having a mobile clinician on the ground conducting a door-to-door strategy is impractical, as environmental conditions can decrease vaccine potency [23-25]. CHWs can direct individuals to the facility, where they can be vaccinated without the risk of decreasing vaccine potency [26]. Following the referral, with a timeline of when to go to the clinic, follow-up visits by the CHWs would be necessary to determine whether all unimmunized persons have been vaccinated. Repeated visits are unfeasible for an understaffed and overstressed health care team to undertake [27]. Thus, CHWs uphold the right to preventative medicine [28], which coincides with the human right to health services.

INTERVENTION THROUGH SYMPTOM IDENTIFICATION

CHWs provide minimal health interventions within the context of small-scale projects that have a positive long-term impact [29]. With the first sign of measles typically being a high fever [19], a literate CHW can easily measure body temperature if provided with basic training and a functional thermometer [30]. By informing CHWs of signs and symptoms, they can refer individuals to the health facility for a more exhaustive exam and conclusive diagnosis [29]. As clinics may receive cases during the infectious phase [31], CHWs provide an on-the-ground detection mechanism [32]. Proactive detection procedures facilitate the identification of potential cases and ensure persons are brought to the clinic for medical care and standard isolation practices [31].

Following the identification and referral to the camp health centre, CHWs can conduct contact-tracing protocols [32]. Health care teams maximize the mitigation of measles contagion by tracing persons at risk [33], and dedicated CHWs can relieve this task from clinicians, thereby allowing them to treat urgent cases in the clinic. Unimmunized persons can be given a measles vaccination up to 72-hours post-exposure [24]. As this practice requires prompt action and dialogue between CHWs responsible for different zones, an environment of responsibility and self-reliance is created [34].

RESOURCE ALLOCATION IN AT-RISK REGIONS

The use of CHWs to gather data on measles risk factors provides the ability to characterize the demographics of the population at-risk and subsequent health planning methods [35]. Although epidemiologic assessment is important in emergency contexts [36,37], such assessments are of equal importance in managing health in long-term camps [38]. With Syrian refugee camps quickly becoming long-term settlements rather than transient habitations, such surveillance investigations are essential in determining population health status [35]. Trend analyses in camp zones facilitate geographical documentation of seasonal and epidemic patterns of measles [35]. If CHWs are able to gather this information, clinicians are subsequently made aware of disease patterns and become better equipped to provide quality care [35]. Additionally, the CHW-facilitated monitoring system can identify potential outbreaks and call for a large-scale public health intervention [35].

Furthermore, CHWs contribute to security. Given that refugee camps are often adjacent to international borders, there is a greater risk of cross-border epidemics with large population movements [3]. With medical attention in clinics often diverted to life-threatening conditions, preventative medicine is given lower priority in favour of more curative therapies [39-41]. This effort is hampered by the presence of uncoordinated efforts by

short-term humanitarian relief personnel, possibly leading to the depletion of scarce resources [34]. Through trend analyses enhanced by CHW activities, health care teams are better able to anticipate the measles burden and subsequently allocate resources to proper preventative measures [35]. CHWs serve not only as the interface between the health system and the community [9], they remain the lifeline of preventative medicine and by association, outbreak prevention.

POTENTIAL LIMITATIONS OF THE CHW MODEL

Numerous limitations exist and must be considered prior to implementing a CHW model. The vulnerability of this model is increased for the following reasons: the absence of community participation, attrition rates of CHWs, and lack of stewardship [42].

Firstly, the number of CHWs required for large refugee camps is an important consideration. As it may be unfeasible for CHWs to conduct repeated body temperature measurements in unimmunized persons, community buy-in becomes increasingly important. Although CHWs would be trained in the signs and symptoms to look for, this information should be relayed to a family representative to continuously monitor their family members on days where they are not visited by a CHW.

Secondly, although the logistics of using CHWs in refugee camps is not well-defined, remuneration of CHWs in non-refugee camp settings optimizes the success of a program [43]. Within the resource-limited setting of a refugee camp, CHW motivation may diminish. Hence, non-financial incentive mechanisms may need to be developed [44].

Thirdly, appropriate stewardship is required to mitigate the limitations mentioned above [42]. Refugee camps bring together health professionals from different areas for short-term relief efforts [34], which inhibit the formation of a proper network of leadership figures to continuously run the program in long-term settlements. Prior to implementing a CHW program in a refugee camp, an organizational structure needs to be in place to ensure sustainability [42].

CONCLUSION

Measles immunization campaigns by CHWs can mitigate the potentiation of an outbreak. The provision of health care in long-term refugee camps requires a strong community-based approach [35], and the CHW model is intrinsically community-based. By capitalizing on the rapport and trust established between CHWs and recipients [10], there is an increase in compliance in seeking immunization and treatment [17]. This compliance may not occur if foreign medical personnel, unaccustomed to local cultures,

conduct outreach initiatives [34].

By being relatively inexpensive to implement, train, hire and supervise [45], CHWs provide a cost-effective extension to preventative medicine and PHC in refugee camps, particularly with respect to common infectious diseases, such as measles.

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