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Mass Vaccination in Iranian Populations Against Rubella and Measles*

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Abstract: The aim of this study was to evaluate the role of Iranian military troops and the volunteers (Militants) in Mass National campaign against Measles and Rubella which was highly reported to national and International authorities recently across the country as well as Iran's Neighbors. This retrospective study was performed in order to collect any data which obtained in mass vaccination campaign during four weeks activity (from 5 December 2003 till 4 January 2004) based on documents and coverage of vaccination rate in two aspects: either in non military activities and military activities and data was analyzed with excel 10.0. The result of this study indicated that 6796654 (20.6%) out of 33000000 of the population was vaccinated by Iranian Military forces in particular Islamic Revolutionary Guards Corps and their volunteers (Militants) with their facilities. This successful program could be used in other regions when the health condition requires stabilizing.

Key words: Measles, mass vaccination, Islamic Republic of Iran, military troops militants

Introduction

Measles is among the leading causes of death worldwide and is responsible for more deaths than road traffic accidents or lung cancer (Murray and Lopez, 1997). In many industrialized countries, high levels of immunization over a number of years have led to a dramatic reduction in measles incidence. However, measles cases continue to occur, but countries, such as I.R. of Iran, where endemic measles transmission has some outbreaks regarding measles infection in different part of country were reported before campaign (from 5 December 2003 till 4 January 2004). In addition in some countries adequate levels of immunization coverage have not been maintained and measles continues to circulate widely. These cases of measles can lead to serious complications and deaths as recently demonstrated in outbreaks been interrupted and cases are linked to importations (De Serres *et al.*, 2000). In addition, countries such as Italy and Germany, where adequate levels of immunization coverage have not been maintained and measles continue to circulate widely. These cases of measles can lead to serious complications and deaths as recently demonstrated in outbreaks in Ireland (McBrien *et al.*, 2003), Germany (Siedler *et al.*, 2006) and the Netherlands (Wallinga *et al.*, 2005). However, The measles incidence has been reduced from 193 in 100,000 people in 1981 to 6.8 in 100,000 people in 2001 in the Eastern Mediterranean Region and its all. Because of good supplemental vaccination campaigns for measles which have been conducted since 1994 in 14 of the 18 polio free countries. The World Health Organization Eastern Mediterranean Region has declared a goal of measles elimination (McIntyre *et al.*, 2000). However in 1997, the Eastern Mediterranean Region (EMR) of the World Health Organization proposed a resolution to eliminate measles by 2010

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(Gaafar *et al.*, 2003). Thus in I.R. of Iran conducted a National Measles Control Campaign (MCC) in 1998 as part of a long-term strategy to eliminate measles from I.R. of Iran. The measles control program was set up at the end of 2003, with good memory of the last vaccination program which demolished the polio infection in Iranian population which was carried out during 1996 successfully. This campaign consisted of changing the scheduled age of the second dose from 12 years to 4 years, as well as a catch-up campaign for children aged 5-12 years.

The aim of this study was to describe the biggest mass vaccination of measles in Iran and role of Iranian military forces and their volunteer (Militants) in the campaign which have never been reported so far. The plan of vaccination was designed by Iran Ministry of Health based on WHO Protocol in order to cover the populations who are at risk of the infection.

Materials and Methods

Before implementation of the campaign, routine measles vaccination coverage was 90%. The number of suspected cases on measles was a problem during last two decades (1978-2003) (Fig. 1 and 2). Therefore, the campaign was designed.

In the plan of vaccination the following data were considered and included the programmed. It should be noted that at the time of vaccination the population of Iran has been estimated 66,479,838 people, including 44,371,993 urban populations and 22,107,845 rural populations. Towards the execution of measles and Rubella national vaccination the following strategies were taken into account by Ministry of Health: The establishment of the immunization committee to determine the subject age group of measles and Rubella vaccination program was carried out initially and also the establishment and strengthening of political commitment among high rank authorities and politicians was approached too. For success in the program planning in order to quantify public awareness towards the necessity of vaccination and encouraging them to inject vaccines was designed as well. The attraction of private, inter and intra sectors and their cooperation was considered in the program and finally the consolidating of patient care system was focal.

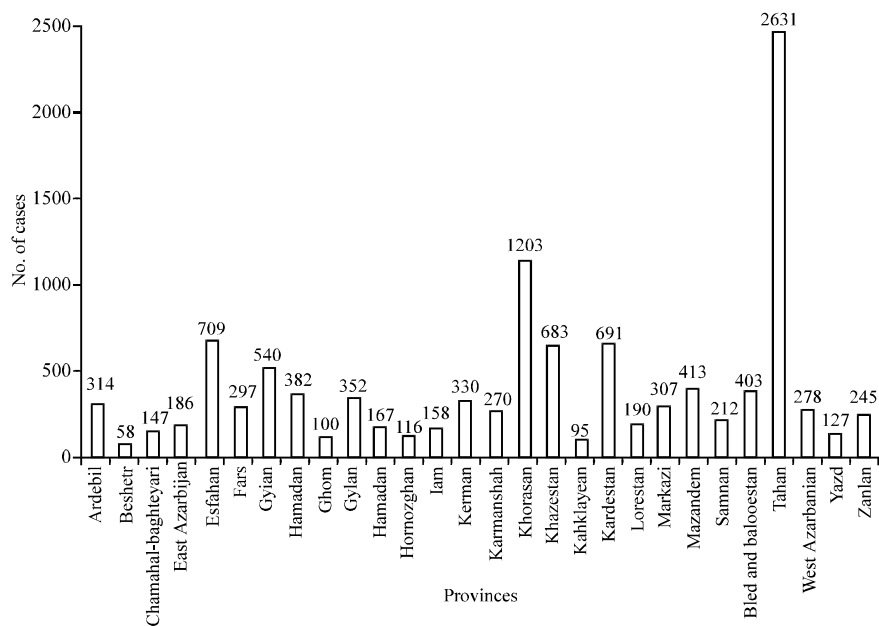


Fig. 1: The number of measles cases and percentage during last 10 year (1992-2002) in I.R. Iran

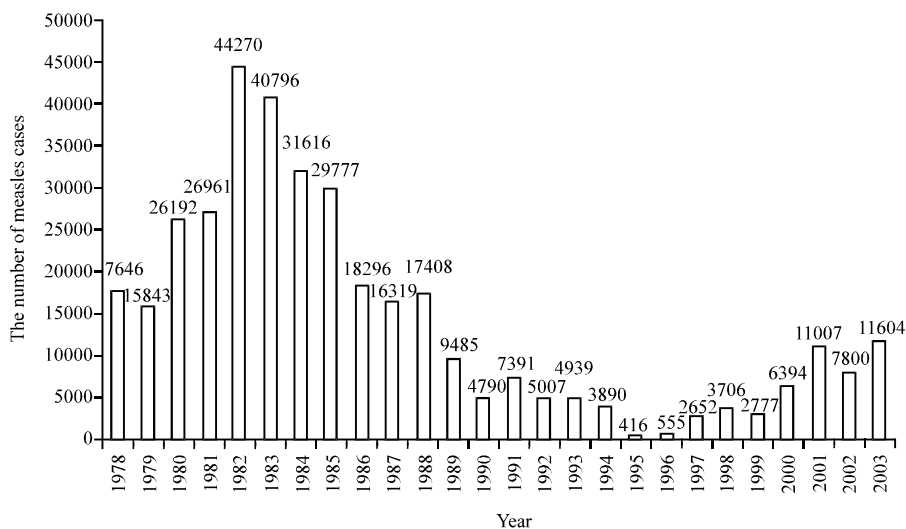


Fig. 2: The number of suspected cases on measles which was reported during last two decades (1978-2003)

Trailing the strategies used, the following processes were carried out across the country. The first endeavor was to establish concord with the country's high rank officials and in particular military officials (i.e., Military volunteer Militants). The next process was to establish required concord with related organizations and organs. This was taken care of successfully. Afterwards, setting up of operational committees including executive, technical, scientific, informational and educational committees was carried out. Continuing our efforts, we supplied and distributed necessary vaccines, syringes and equipment to the target population. Such equipment was purchased from India (Pasture institute) for 33000000 doses.

Following that stage, the estimation and provision of the required equipment and facilities was completed. Upon the completion of the previous phase, the supplying of related educational textbooks was accomplished. Necessary in reaching our desired goals, the holding of educational and explanatory workshops at different personnel and operational levels ran smoothly.

The advertising and public educational programs came next. The estimation and provision of credit needed for the plan which was critically central was among the final steps. And last but not least the preparation of monitoring and evaluation programs and planning of data collection and operation analysis procedures were performed.

In addition, the action and activities carried out by Iranian military forces and their volunteer (militants) as the follows: Firstly, the establishment of Executive immunization committee in the Militants (volunteer military) force. Secondly the attendance of high commander corps representative in National Executive immunization committee before and during mass vaccination campaign (from 5 December 2003 till 4 January 2004). Thirdly the establishment and strengthening of commander and Military Health service managers across the country. Fourthly, planning to organize vaccination team often to help directly Iran ministry of or indirectly to achieve vaccination ideally. Fifthly, planning to educate the target groups regarding measles vaccination and also planning to educate the vaccination teams in the military personnel in order to achieve the program nicely. As well as planning to advertise the program on TV or radio and other mass media facilities. Finally, planning to enforce military personnel and their equipment facilities including 13450 team of vaccination, using 1153 Ambulance and 14898 cars during the national campaign.

With the mobilization of military facilities and Iran Ministry of Health the national mass vaccination against Rubella and measles was launched and it was finished within 4 weeks (from 5 December 2003 till 4 January 2004) with participant (including 5443 vaccinators of militants and nearly of 200,000 militants as logistic teams were engaged. This health achievement highly supported by Religious leaders and Governmental Organization as well as military high rank commanders in order to success the program. Fortunately, the mass vaccination completely success as result good coverage of vaccination rate even in the rural and urban area far from center.

Results and Discussion

Due to elimination of two disease of measles and rubella and considering to our international obligations and situation of immunization coverage and also epidemiological study of observed cases of measles disease in recent years, the program of national vaccination of measles and rubella, as the greatest vaccination campaign in the world were took place by administrating of combined vaccine of MR and covered population of 32655194 Iranians and 872143 non Iranians in age groups of 5 to 25 years old during one month from 5 December 2003 till 4 January 2004, by obeying all technical and practical points and precise control and evaluation of local and foreign controllers. In this manner, this campaign has made preparation for eradication of aforesaid diseases in our country and region of East Mediterranean.

The number of measles cases disease during last 10 year (1992-2002) which was shown in Fig. 1. The number of suspected cases on measles which was reported during last two decades (1978-2003) was shown in Fig. 2. The measles cases and vaccination coverage by the end of 2002 was shown in Fig. 3.

More than 30 million people are affected each year by measles. In 2003, it was estimated that there were 530 000 measles deaths globally: this translates to more than 1400 deaths every day; 60 people die every hour from measles (Keegan and Bilous, 2004). The overwhelming majority (> 95%) of measles deaths occur in countries with per capita Gross National Income of less than US \$1000 (Hinman and Hopkins, 1998). In countries where measles has been largely eliminated, cases imported from other countries remain an important source of infection (World Health Organization, 2005). Measles is recognized disease in Iran and the vaccination against the disease started from 1967 and in 1996 about 37% of the population threatened by the disease were vaccinated and the number of cases of this disease decreased to 57,547 (88.5% decrease in the number of cases). In the technical aspects of the program a research which was carried out in our Research Center (Ghorbani *et al.*, 2003). The rate of IgG antibody negative before mass vaccination was 22.5% in population with age 19±1.6, fortunately not only the rate of positive IgG antibody has increased to 97.7% in the same age group a month after vaccination among soldiers who had RM vaccine but also the number of cases have fallen down sharply. It should be added in 2004, 752 suspected measles patients were reported to Iran Center of Diseases Control, which showed no cases of death among these patients, however only three cases were positive as confirmed measles based on serological investigation Two out of these three patients were Afghani and the third patient was a woman in age above 25 year who has never been included in vaccination program. This decrease continued with the increase of vaccination the mass vaccination campaign was set up for 33000000 populations; however in comparison this study with the similar mass vaccination campaign.

It should not be undermined in 2004 a year after time of mass vaccination against. The evidence for the success of the programme clearly confirmed by WHO which could be seen in the Fig. 4.

It should be noted that mass vaccination in different countries including Brazil in 1997 was performed for 31000000 populations (Cunha and Dourado, 2004) in Egypt in 2000-2001 for 7.2 million children aged 6-11 year (Abdel Hadi *et al.*, 1991) in Turkey (Topuzoglu *et al.*, 2005) in

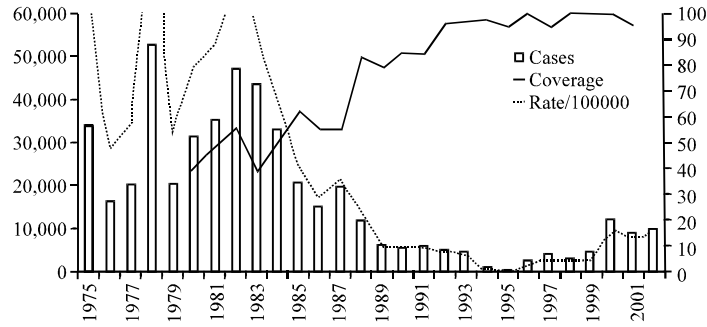


Fig. 3: The measles cases and vaccination coverage by the end of 2002

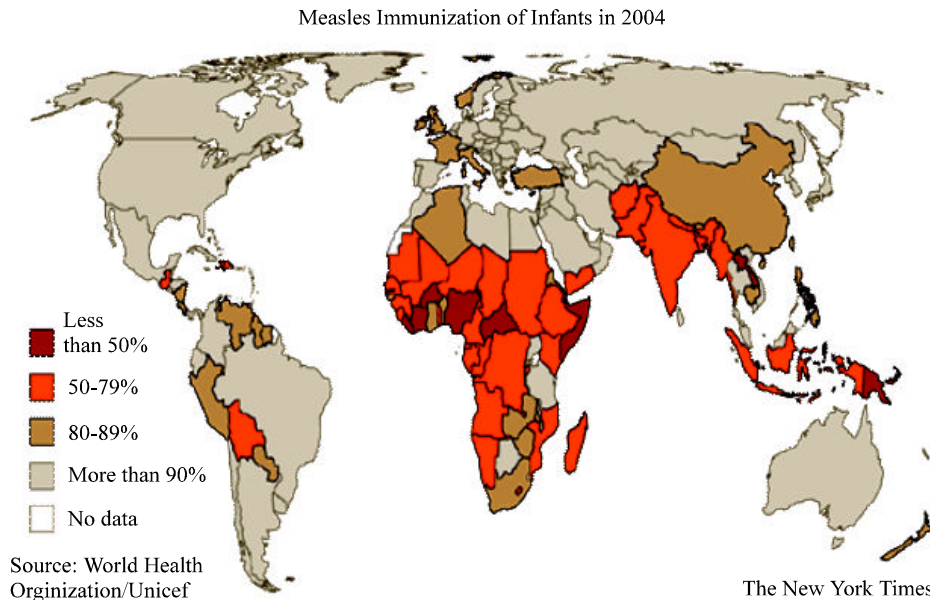


Fig. 4: Immunization coverage with measles containing vaccines in infants, in 2004 in different part of the world (WHO, 2006)

United States (Lorna *et al.*, 2004; Castillo-Solorzano and Andrus, 2004) in South Korea (Sohn, 2000). in the Russia (Lytkina *et al.*, 1998). Asia and Europe (Lopez *et al.*, 2006) Afghanistan (Dadgar *et al.*, 2003) Burkina Faso (Patrick *et al.*, 1998) Americas (Smith *et al.*, 2006) Lusaka, Zambia (Scott *et al.*, 2004) Costa Rica (Calvo *et al.*, 2004) and Kansas (Weibel *et al.*, 1998). In 1994, the Pan American Health Organization (PAHO) established the goal of eliminating measles from the Western Hemisphere by 2000. To reach this goal, PAHO developed a measles-elimination strategy that includes three vaccination components (catch-up, keep-up and follow-up) and integrated. Similar program was carried out in other countries to prevent other communicable diseases but the role of their military personnel was vague whereas in such programs in Iran military personnel contributed significantly.

The advantage of this program was the raising of the coverage rate up to around 100% as a result of the co-operation between Military personnel and the Ministry of Health. In addition, the use of military personnel and their equipments and facilities in public health issue during peacetime could be helpful in the reduction of morbidity and mortality quickly. 6796654 (20.6%) out of 33000000 of

the population was vaccinated by Iranian Military forces in particular Islamic Revolutionary Guards Corps and their volunteers (Militants) with their facilities. This successful program could be used in other regions when the health condition requires stabilizing. The disadvantage of this campaign is the cost which could not be inserted in the budget.

No problems faced, during campaign because of good technical and logistic support as well as good co-operation of mass media adulteries.

Conclusion

33000000 people age 5-25 year old were vaccinated within four weeks based on international health official reports. The good planning, good supporting of Iranian military forces in particular their volunteer which called Militants. Fortunately successful programmed of mass vaccination in Iran not only indicates the biggest mass vaccination in the world but also showed good collaboration in in-sector and out-sector in both national and international level. The role of Military force in particular their volunteer militants well was cleared by official invitation of Iran Ministry of Health as the same as previous mass vaccination against polio in 1994-7 with 99% coverage in round 1 and 100% coverage in round 2 without any positive cases after that mass vaccination. In that mass vaccination 500, 000 militants involved to vaccination of 9000000 of targeted population.

In the last of this study it must be emphasis this report highlights successful aspects of the campaign, including effective planning, cooperation among government ministries, social mobilization, military forces, the use of vaccination teams in the villages and the cities, daily coverage reports from local staff, vaccine safety monitoring and strategies for ensuring a sufficient national health achievements. This campaign will strengthen measles eradication and lead to rubella and elimination in Iran.

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