



## Role of National Immunization Technical Advisory Group on improvement of immunization programmes in the Islamic Republic of Iran

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### ABSTRACT

The National Immunization Technical Advisory Group (NITAG) was established in Iran in 1982 and has made many important technical recommendations (e.g., regarding polio eradication, introduction of new vaccines, organizing special studies) that have contributed to a dramatic decline in vaccine preventable disease burden. The NITAG consists of experts from the Ministry of Health and Medical Education (MOHME), vaccine manufacturers, and medical universities with national Expanded Program of Immunization (EPI) staff serving as the secretariat. It is not completely independent from MOHME or EPI. It meets on a quarterly basis, and publishes national guidelines and immunization schedules that are updated regularly. Although primarily an advisory body, representation from MOHME members, including the EPI manager, ensures almost universal implementation of NITAG recommendations.

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## 1. Introduction

### 1.1. Socio-demographic context

The Islamic Republic (I.R.) of Iran is located in the Eastern Mediterranean Region (EMR), bounded in the north by Turkmenistan, the Caspian Sea, Azerbaijan and Armenia, in the east by Afghanistan and Pakistan, in the south by the Persian Gulf and the Oman Sea and in the west by Iraq and Turkey. A semi-arid plateau, with high mountain ranges and bare desert, the country experiences extreme weather conditions having implications for service delivery.

Administratively the country is divided into 30 provinces, 350 districts, 885 cities and approximately 68,000 villages. It is clas-

sified as an upper middle-income country with Gross National Income per capita at US\$10,800 in 2007 based on World Bank estimates [1].

The total population has doubled over the past three decades, estimated at 70 million in 2006. Urban dwellers account for 67% of Iran's total population. The crude birth rate per 1000 population was 18.1 in 2006 with a crude death rate of 5 per 1000, with a population growth rate of 1.4% (Fig. 1).

### 1.2. Immunization programme

Immunization in Iran is one of the oldest public health interventions. Iran gave its first immunization against smallpox, in 1829. In June 1941, a law passed by the parliament stressed the importance of vaccination against smallpox. According to Article 16, parents were held legally responsible for ensuring the complete vaccination of their children. Educational authorities were required to obtain vaccination certificates for all students prior to registration at school and all employers in both government and private sectors were required to obtain similar certificates for their new employees.

Following Iran's endorsement of the Alma-Ata Declaration on Primary Health Care (PHC) in 1978, the Expanded Program of Immunization (EPI) was accepted as one of the main components of PHC and since 1984 chancellors of the Universities of Medical Science and Health Services were given the responsibility for

*Abbreviations:* CCDC, Center for Communicable Diseases Control; DPT, diphtheria, tetanus and pertussis; EMR, Eastern Mediterranean Region; ECBS, Expert Committee on Biological Standardization; EPI, Expanded Program of Immunization; Hib, Haemophilus influenzae type b; GACVS, Global Advisory Committee on Vaccine Safety; I.R. Iran, Islamic Republic of Iran; MOHME, Ministry of Health and Medical Education; MMR, measles, mumps and rubella; NITAG, National Immunization Technical Advisory Group; OPV, oral polio vaccine; PHC, primary health care; RCC, Regional Certification Committee for polio eradication; SAGE, Strategic Advisory Group of Experts; SIA, supplementary immunization activities; WHO, World Health Organization.

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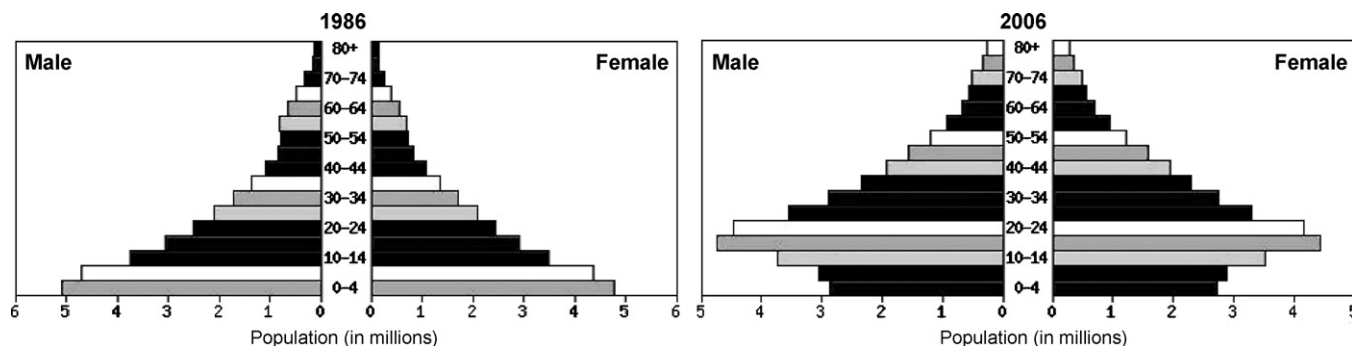


Fig. 1. Age distribution of the population in the Islamic Republic of Iran 1986–2006.

Table 1

The history of immunization programmes including the introduction of new vaccines and immunization milestones and achievements.

Milestone/achievement	Year
First small pox vaccination	1829
Domestic vaccine production	1944
Start of compulsory school- and job-entry check	1945
Establishment of National Immunization Technical Advisory Group	1982
Establishment of Expanded Program of Immunization	1984
Addition of hepatitis B vaccine	1993
National Immunization Day for polio eradication	1993
Validation of maternal and neonatal tetanus elimination	1995
Certification of 'polio free' status	2001
Mass campaign for measles elimination	2003
Introduction of measles–mumps–rubella vaccine	2004
Addition of Haemophilus influenzae type b vaccine as combination vaccine with diphtheria–tetanus–pertussis and hepatitis B	2010

its implementation. Table 1 shows the history of immunization programmes including the introduction of new vaccines and immunization milestones and achievements. Table 2 shows the 2009 Iranian schedule of routine childhood immunization.

## 2. Origin of the National Immunization Technical Advisory Group

The first immunization committee in Iran was established in 1982 prior to the initiation of EPI. This committee had the following members:

- Under-secretary for Health Affairs, Ministry of Health.
- Director General, Center for Communicable Disease Control (CCDC), Ministry of Health.
- Head of Immunization Department, CCDC.
- Head of Razi Vaccine Research and Serum Production Institute.

Table 2

Immunization schedule of Expanded Program of Immunization programme in Iran, 2009.

Age of vaccination	Type of vaccine <sup>a</sup>
At birth	BCG, OPV, HepB
2 months	OPV, DTwP, HepB
4 months	OPV, DTwP
6 months	OPV, DTwP, HepB
12 months	MMR
18 months	OPV, DTwP, MMR
6 years	OPV, DTwP

<sup>a</sup> BCG, Bacillus Calmette–Guérin; OPV, oral polio vaccine; HepB, hepatitis B vaccine; DTwP, diphtheria tetanus and whole cell pertussis vaccine; MMR, measles–mumps–rubella vaccine.

- Head of Pasteur Institute of Iran.

In 1985, the committee was reconstituted and renamed the NITAG with integration of Medical Education into the Ministry of Health to form the Ministry of Health and Medical Education (MOHME). Accordingly the membership of the NITAG was revised to include pediatrician(s), infectious disease specialist(s), virologist(s), community medicine specialist(s), epidemiologist(s) and other public health experts. These members are nominated by the Director General of CCDC and approved by the Deputy Minister of Health. As of January 2010, The NITAG consists of 17 members. The NITAG was established following approval of the EPI programme by the Cabinet of Ministers with the mandate to provide evidence-based advice to the MOHME on national immunization policy.

### 2.1. Terms of reference and process of meetings

The NITAG has carried out the following activities:

- Revising and updating the immunization schedule.
- Making recommendations for introduction of new vaccines into the immunization programme.
- Consulting about supplementary immunization activities.
- Making technical recommendations in line with global elimination and eradication targets.
- Responding to questions received from medical universities linked to decision making at national level.

The NITAG has provided, and revised seven times, a “National Guideline and Schedule of Immunization”, with the latest edition published in 2009 for use by medical professionals, health care workers and medical students. NITAG produces minutes of its meeting, which are disseminated to senior authorities in the MOHME but are not publicly distributed.

### 2.2. Members

The new members of the NITAG are nominated by the Director, CCDC and approved by the Deputy Minister of Health. Members are recruited initially for a 3-year period, but there are no term limits. There are three ex-officio members representing the Pasteur Institute of Iran, the Razi Vaccine Research and Serum Production Institute and the CCDC. They can participate in discussions actively and may vote like other members to reach consensus. Non-government members do not receive any payment for serving on the immunization advisory group but membership is considered prestigious.

### 2.3. Secretariat

The national EPI manager oversees all preparatory work for advisory group meetings. Based at the CCDC, MOHME, the Secretariat – assisted by two experts from the EPI department – provides logistical support to the NITAG including compilation of all requested scientific documents and materials for the meetings. The Secretariat conveys the NITAG's recommendations to the MOHME and medical universities, while also conveying questions raised by the universities to the advisory group.

### 2.4. Frequency of meetings

NITAG meetings are held at the CCDC on a quarterly basis, with additional meetings as requested by the CCDC. In these meetings only members are allowed to participate, with the minutes disseminated to committee members. During 2008, five meetings were held.

### 2.5. Scope of the NITAG

Vaccines and immunization are the only topics within the NITAG's scope of work. Examples of topics discussed and decisions taken include the introduction of measles, mumps and rubella (MMR) vaccine in 2004, the revision of the vaccine schedule in 2008, a recommendation to vaccinate family members of patients testing positive for hepatitis B and at risk health care workers, meningococcal vaccination for all soldiers (bivalent vaccine) and pilgrims (tetravalent vaccine), checking and completing the vaccination schedule of all students prior to school enrollment, vaccination against tetanus for all industry workers, mass immunization against measles for all children aged 9 months to 14 years in 35 districts with less than 85% coverage in 1996, mass immunization against measles and rubella in December 2003 in the entire population aged 5–25 years old, and recommendations on pentavalent or tetravalent vaccine formulations containing Haemophilus influenzae type b (Hib) vaccine in combination with diphtheria, tetanus and pertussis (DPT) and hepatitis B vaccines. To guide evidence-based decision making, the advisory group also has recommended national disease burden surveys in children for Hib (2004–2005), rotavirus gastroenteritis (2009) and nasopharyngeal carriage of *Streptococcus pneumoniae* (2009).

### 2.6. Setting of the NITAG's agenda

The agenda for NITAG meetings is adopted by the advisory group in line with the needs of the country or according to specific proposals from medical universities, MOHME, or WHO.

### 2.7. Development of recommendations and the basis for decision making

To develop technical recommendations and guidelines, the NITAG uses as sources of expert information scientific textbooks, results of local research projects, WHO position statements, and information posted on the websites of WHO, the US Centers for Disease Control and Prevention, and other reputable organizations. In addition, the following criteria are important for making technical recommendations: the pattern of disease morbidity and mortality in the country, hospitalization rates, disability adjusted life years (DALYs) or quality adjusted life years (QALYs), epidemic potential of the disease, international commitment to disease eradication or elimination, or equity issues. In addition, the NITAG considers economic issues including vaccine cost, overall programme costs, results from different economic evaluations (cost-effectiveness, cost-benefit, cost-utility, and others), affordability, and financial

sustainability. Whenever the advisory group requires an economic evaluation for its recommendations, the CCDC is asked to conduct an economic survey or study to obtain the relevant information. The advisory group's recommendations are primarily based on local evidence but regional data also are used if necessary.

### 2.8. Making recommendations

Recommendations of the advisory group are almost always made by consensus but on rare occasions when members do not agree, open voting is used to obtain the majority's decision. When recommendations are finalized, the CCDC is responsible for their dissemination to the decision makers. Recommendations are then published in a guideline booklet and distributed to public health personnel and medical professionals.

### 2.9. Role of the committee in the ultimate decision-making process

The EPI manager and the Director General of CCDC are members of the NITAG and the recommendations are addressed to them. The Director General of CCDC in turn informs the MOHME for implementation of recommendations. Implementation is then considered an obligation since the EPI programme already has government approval.

### 2.10. Communication activities

The minutes of meetings are prepared and distributed to the members of the NITAG for their information. The recommendations are also disseminated to the relevant authorities and responsible decision-making bodies for their information and necessary action. The NITAG does not issue any publications. However, the MOHME publishes the "National Guideline and Schedule of Immunization" which is regularly updated every 2–3 years based on the most recent developments in immunization.

### 2.11. Conflict of interest

The issue of conflict of interest has been taken seriously since August 2009, when all members of the NITAG were requested to sign and submit the forms on "Declaration of interest and Declaration of conflict of interest". However, in the past, as all members of the NITAG belonged to the MOHME or Universities of Medical Sciences, no declaration of interest was requested.

## 3. Key NITAG recommendations in the past and impact on EPI

Iran has been one of the pioneer Eastern Mediterranean countries in polio eradication and measles elimination programmes. Further to smallpox eradication in 1977, the World Health Assembly passed a resolution in 1988 to eradicate poliomyelitis by the year 2000. The initiative was approved by the NITAG in 1992 and the national poliomyelitis eradication plan was prepared and adopted by the Parliament so as to declare a high level of political commitment for its implementation. Polio eradication strategies were implemented under the active supervision of the NITAG, and with full involvement of the chancellors of Universities of Medical Sciences at provincial level. A high quality of routine and supplementary immunizations, monitoring of vaccine potency, maintenance of cold chain, and maintaining an immunization coverage of 95% or more were among the major contributory factors to polio eradication in Iran in 2001 [2,3].

With the aim to eliminate measles in Iran, the NITAG recommended in January 2002 to launch a mass measles–rubella vaccine

campaign for the population aged 5–25 years in all urban and rural areas throughout the country. Based on the NITAG's recommendation, the MOHME committed to eliminate measles by 2010. In December 2003, a nationwide measles–rubella immunization campaign was conducted targeting 33,579,082 people between the ages of 5 and 25 years with a 98% coverage rate in the target population. As mentioned above, the NITAG role in this project include providing recommendations on the following:

- Defining the target age group based on measles epidemiology in Iran.
- Use of measles–rubella vaccine for supplementary immunization activities and the additional impact of the rubella component on congenital rubella syndrome elimination.
- Development of a surveillance system for adverse events following immunization.
- Strengthening of cold chain.
- Introducing MMR vaccine instead of measles vaccine after the campaign.

In addition, members of the NITAG participated in communication activities for raising the awareness and motivation of the community to accept vaccine. Implementation of a comprehensive strategy for measles elimination in Iran has remarkably reduced the incidence of measles and rubella to <1 case per 1,000,000 per year [4]. Rubella susceptible pregnant women who were inadvertently vaccinated during the campaign were followed through delivery and their neonates were followed up until 1 year of age. There were no cases of congenital rubella syndrome reported [5].

#### 4. Conclusion

The NITAG has a long history in Iran and has played a significant role in policy formulation and priority setting to prevent and control vaccine preventable diseases. It has helped concerned authorities to make evidence-based decisions regarding the choice of vaccines and to develop immunization programmes throughout the country similar to what has been done in other countries [6,7]. Moreover, as many NITAG members come from the Universities of Medical Sciences, they have been able to institutionalize the immunization programme in medical schools, and have also been successful in disseminating public health messages to medical students. The lessons learned from the involvement of medical faculties in the NITAG have been used to involve the medical school professors in other national consultative bodies related to public health, including the communicable and non-communicable diseases control advisory committees for: acute respiratory infection

(ARI), control of diarrhoeal disease (CDD), integrated management of childhood illness (IMCI), HIV/AIDS, malaria, tuberculosis, and others. The impact of their technical input has been reflected in the control, elimination or eradication of a number of major endemic infectious diseases in the country. To have successful immunization programmes, all countries should tackle technical, logistical, political and social obstacles that impede progress. WHO provides its recommendations via three main advisory groups: (1) the Strategic Advisory Group of Experts (SAGE); (2) the Global Advisory Committee on Vaccine Safety (GACVS); and (3) the Expert Committee on Biological Standardization (ECBS) [8]. The establishment and success of the advisory groups in WHO and other NITAGs in other countries globally has played a role in the recommendation by the Eastern Mediterranean Regional Office of WHO that all countries should establish or strengthen their Immunization Technical Advisory Groups at national level [9].

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#### Conflict of interest statement

The authors state they have no conflict of interest.

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