ELSEVIER



# Vaccine

journal homepage: www.elsevier.com/locate/vaccine

# Progress in the establishment and strengthening of national immunization technical advisory groups: Analysis from the 2013 WHO/UNICEF joint reporting form, data for 2012



<sup>a</sup> Immunization, Vaccines and Biologicals, World Health Organization, 20 Avenue Appia, CH-1211 Geneva, Switzerland

<sup>b</sup> Vaccine Preventable Diseases, Immunization & Vaccine Development, World Health Organization, Regional Office for South East Asia, World Health House, Mahatma Gandhi Marg, New Delhi, 110002, India

<sup>c</sup> Agence de Médecine Préventive, 164 Rue de Vaugirard, 75015 Paris, France

<sup>d</sup> Pan American Health Organization/World Health Organization, 525 23 Street NW, Washington DC 20037, USA

<sup>e</sup> Routine Immunization & New Vaccines Introduction, Immunization and Vaccine Development Cluster, Regional Office for Africa, World Health

Organization, P.O. Box: 6, Cité de Djoué, Brazzaville, Congo

<sup>f</sup> Vaccine-Preventable Diseases and Immunization Programme, Regional Office for Europe, World Health Organization, Schersfigvej 8, 2100 Copenhagen, Denmark

<sup>g</sup> Expanded Programme on Immunization, Regional Office for the Western Pacific, World Health Organization, United Nations Avenue, Manila 1000, Philippines

<sup>h</sup> Vaccine Preventable Diseases and Immunization Programme, World Health Organization, Regional Office for the Eastern Mediterranean, Abdul Razzak Al-Sanhouri St, P.O. Box 7608 Nasr City, Cairo 11371, Egypt

## ARTICLE INFO

Article history: Received 6 June 2013 Received in revised form 20 August 2013 Accepted 27 August 2013 Available online 20 September 2013

Keywords: WHO/UNICEF Joint Reporting Form National Immunization Technical Advisory Group (NITAG) Monitoring Evidence-based decision making

# ABSTRACT

The majority of industrialized and some developing countries have established National Immunization Technical Advisory Groups (NITAGs). To enable systematic global monitoring of the existence and functionality of NITAGs, in 2011, WHO and UNICEF included related questions in the WHO/UNICEF Joint Reporting Form (JRF) that provides an official means to globally collect indicators of immunization program performance. These questions relate to six basic process indicators.

According to the analysis of the 2013 JRF, data for 2012, notable progress was achieved between 2010 and 2012 and by the end of 2012, 99 countries (52%) reported the existence of a NITAG with a formal legislative or administrative basis (with a high of 86% in the Eastern Mediterranean Region – EMR), among the countries that reported data in the NITAG section of the JRF.

There were 63 (33%) countries with a NITAG that met six process indicators (47% increase over the 43 reported in 2010) including a total of 38 developing countries. 11% of low income countries reported a NITAG that meets all six process criteria, versus 29% of middle income countries and 57% of the high

Abbreviations: AFR, African Region; AMR, Region of the Americas; CDC, Centers for Disease Control and Prevention; DoV, Decade of Vaccines; EMR, Eastern Mediterranean Region; EUR, European Region; GVAP, Global Vaccine Action Plan; JRF, Joint Reporting Form; NITAG, National Immunization Technical Advisory Group; SIVAC, Supporting Independent Immunization and Vaccine Advisory Committees; SEAR, South-East Asia Region; UNICEF, United Nations Children's Fund; WHA, World Health Assembly; WHO, World Health Organization; WPR, Western Pacific Region.

\* Corresponding author. Tel.: +41 22 791 4527; fax: +41 22 791 4227.

*E-mail addresses*: duclosp@who.int (P. Duclos), dumolardl@who.int (L. Dumolard), abeysinghen@searo.who.int (N. Abeysinghe), aadjagba@aamp.org (A. Adjagba), januszc@paho.org (C.B. Janusz), mihigor@afro.who.int (R. Mihigo), mol@euro.who.int (L. Mosina), takashimay@wpro.who.int (Y. Takashima), ozturkm@emro.who.int (M.H. Öztürk).

<sup>1</sup> Tel.: +41 22 791 4413.

<sup>2</sup> Tel.: +11 2330 9511.

- <sup>5</sup> Tel.: +47 241 39926; fax: +47 241 39641.
- <sup>6</sup> Tel.: +45 39 17 15 03.
- 7 Tel.: +63 2 528 9746.
- <sup>8</sup> Tel.: +20 2 22765196.

0264-410X © 2013 The Authors. Published by Elsevier Ltd. Open access under CC BY-NC-ND license. http://dx.doi.org/10.1016/j.vaccine.2013.08.084





<sup>&</sup>lt;sup>3</sup> Tel.: +33 626972730.

<sup>&</sup>lt;sup>4</sup> Tel.: +1 202 974 3744.

income ones. Countries with smaller populations reported the existence of a NITAG that meets all six process criteria less frequently than more populated countries (23% for less populated countries versus 43% for more populated ones).

However, progress needs to be accelerated to reach the Global Vaccine Action Plan (GVAP) target of ensuring all countries have support from a NITAG. The GVAP represents a major opportunity to boost the institutionalization of NITAGs. A special approach needs to be explored to allow small countries to benefit from sub-regional or other countries advisory groups.

© 2013 The Authors. Published by Elsevier Ltd. Open access under CC BY-NC-ND license.

## 1. Introduction

In May 2012, the World Health Assembly (WHA) endorsed the Decade of Vaccines (DoV) Global Vaccine Action Plan (GVAP) [1]. Under the first strategic objective of the plan it is stated:

"National legislation, policies and resource allocation decisions should be informed by credible and current evidence regarding the direct and indirect impact of immunization. Much of the evidence base exists but does not reach policy-makers, as those who generate the evidence are not always those who interact with these decision-makers. . . . Independent bodies such as regional or NITAGs that can guide country policies and strategies based on local epidemiology and cost effectiveness should be established or strengthened, thus reducing dependency on external bodies for policy guidance." . . .

The existence of a NITAG is one of the critical indicators featured in the GVAP Monitoring and Accountability Framework and each year a progress report including focus on the NITAGs will be discussed by the Strategic Advisory Group of Experts on Immunization for submission to WHO Executive Board and to the WHA [2].

NITAGs are aimed at guiding the formulation of national immunization policies and strategies to advise policy-makers and programme managers on technical issues related to national immunization programmes, including recommendations on vaccine introduction and immunization schedules [3,4]. Their recommendations should be evidence-based and generated through transparent processes [5]. Every country which has an ambition for a strong national immunization programme should benefit from a NITAG.

Consistent with the GVAP, WHO and its partners place high priority on supporting the enhancement of the capacity for evidence-based decision making processes and the establishment and strengthening of functional, sustainable, and independent NITAGS [5].

In an effort to enable systematic global monitoring of the existence and functionality of NITAGs, WHO and UNICEF included questions about NITAGs in the 2011WHO/UNICEF JRF [3]. The JRF is a standardized questionnaire, developed by WHO and UNICEF, that is sent annually to all Member States and provides an official means to collect data on immunization coverage, reported cases of vaccine-preventable diseases, immunization schedules, among other indicators on immunization programme performance [6]. While there are more comprehensive set of indicators developed to assess NITAGs, a set of six process indicators was selected for inclusion in the JRF to allow for global monitoring of progress [7].

In 2012, we reported on the introduction of a monitoring process for the establishment and strengthening of NITAGs and provided a global status report for 2010 data [3]. The purpose of this paper is to present the 2012 status of NITAGs based on the analysis of the JRF NITAG indicators and to review progress since 2010.

## 2. Methods

Data for this paper were compiled from the 2011, 2012 and 2013 JRF which collect data representing the country situation by end of 2010, 2011, and 2012, respectively.

Questions relating to NITAGs included a query on the existence of a NITAG and a set of six process indicators pertaining to the characteristics and functioning of the NITAG:

- 1. Legislative or administrative basis for the advisory group.
- 2. Formal written Terms of Reference.
- 3. Diverse expertise/representation among core members (in terms of paediatrics, public health, infectious diseases, epidemiology, immunology or other health-care professionals).
- 4. Number of meetings per year.
- 5. Circulation of the agenda and background documents at least one week prior to meetings.
- 6. Mandatory disclosure of any conflict of interest.

More specific information on the JRF and the data collection process was previously published for 2010 data [3].

The denominator used to calculate the proportion of NITAGs in existence was the number of countries that completed the NITAGrelated section of the 2013 JRF. For countries indicating existence of NITAGs, there was further analysis of the six NITAG process indicators.

The results were stratified by WHO regions (see Fig. 1) [8], development status [9] and World Bank national income status categories [10], eligibility for funding by the GAVI Alliance which includes all countries with less than, or equal to, US\$ 1520 of Gross National Income (GNI) per capita in accordance with World Bank data for the latest available year [11], and population size. Population figures used are those from the UN population division [12].

# 3. Results

By 15 August 2013, 188 of 194 (97%) Member States had completed the 2013 JRF,<sup>9</sup> data for 2012 and 183 (94%)<sup>10</sup> provided a response to at least one of the NITAG-related questions of the JRF.

Among the countries that did not report their JRF or their JRF data for 2012, Cape Verde, Finland, Marshall Islands, Russian Federation, the former Yugoslav Republic of Macedonia, Turkey, Ukraine and the USA had reported last year NITAG data. The data for 2011 was included in the 2012 data set for these countries. Therefore, data for 191 Member States was available for the analysis.

Table 1 presents the 2012 status of the NITAG-related indicators at the global and at the regional levels.

Fig. 2 presents the distribution of countries according to the reported existence of a NITAG with a legislative or administrative basis.

Table 2 presents the analysis of the NITAG-related indicators stratified by development status, World Bank income groups, eligibility for financial support from the GAVI Alliance and population size.

Notable progress was achieved between 2010 and 2012, and 99 (52%) countries overall reported the existence of a NITAG with a

<sup>&</sup>lt;sup>9</sup> The Member States who have yet to submit a 2013 JRF include Austria, Cape Verde, Finland, Monaco, the former Yugoslav Republic of Macedonia and Turkey.
<sup>10</sup> Member States that have not completed the NITAG portion of JRF include Marshall Islands, Russian Federation, Serbia, Ukraine and USA.

#### Table 1

# Analysis of the NITAG 2013 JRF, data for 2012 at global level and by WHO region.

		Region						
Countries reporting/WHO Member States	Indicator	OVER ALL N = 191/194 (98%)	AFR <i>N</i> =46/46 (100%)	AMR <i>N</i> =35/35 (100%)	EMR <i>N</i> = 22/22 (100%)	EUR <i>N</i> = 50/53 (94%)	SEAR <i>N</i> = 11/11 (100%)	WPR N=27/27 (100%)
Existence of a NITAG	Number of countries	116	13	19	21	38	10	15
	% of countries which responded	61%	28%	54%	95%	76%	91%	56%
	% of the entire population covered	89%	57%	91%	98%	67%	99.9%	99%
Existence of a NITAG with formal terms of	Number of countries	104	12	15	20	35	10	12
reference	% of countries reporting the existence of a NITAG	90%	92%	79%	95%	92%	100%	80%
	% of countries which responded	54%	26%	43%	91%	70%	91%	44%
Existence of a NITAG with a legislative or	Number of countries	99	10	15	19	35	9	11
administrative basis	% of countries reporting the existence of a NITAG	85%	77%	79%	90%	92%	90%	73%
	% of reporting countries	52%	22%	43%	86%	70%	82%	41%
	% of the entire population covered	85%	43%	90%	96%	65%	97%	98%
Existence of a NITAG with >= five areas of	Number of countries	106	10	17	20	36	10	13
expertise represented	% of countries reporting the existence of a NITAG	91%	77%	89%	95%	95%	100%	87%
Existence of a NITAG which met at least	Number of countries	103	12	16	18	38	8	11
once in 2012	% of countries reporting the existence of a NITAG	89%	92%	84%	86%	100%	80%	73%
Existence of a NITAG for which the agenda	Number of countries	104	10	18	19	36	10	11
and background documents distributed >= one week prior to meetings	% of countries reporting the existence of a NITAG	90%	77%	95%	90%	95%	100%	73%
Existence of a NITAG whose members	Number of countries	76	6	13	15	24	7	11
required to disclose conflict of interest	% of countries reporting the existence of a NITAG	66%	46%	68%	71%	63%	70%	73%
Existence of a NITAG meeting all six	Number of countries	63	3	13	13	22	5	7
criteria above	% of countries reporting the existence of a NITAG	54%	23%	68%	62%	58%	50%	47%
	% of reporting countries	33%	7%	37%	59%	44%	45%	26%
	% of the entire population covered	52%	7%	88%	83%	41%	20%	81%



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. © WHO 2012. All rights reserved

Fig. 1. WHO regions as of March 2012.



Fig. 2. National Immunization Technical Advisory Groups (NITAGs) in 2011 by WHO regions.

•										
	Development S	Status [7]			WB Income Sta	atus [8] <sup>a</sup>		GAVI Eligible Countries [9]	Population Size	[10]
	Least developed	Economy in transition	Developing	Developed economy	Low income	Middle income	High income		Less than 7,789,876 <sup>b</sup>	Greater than or equal to 7,789,876
Reporting Countries Total	49/49 (100%)	17/18 (94%)	89/89 (100%)	36/38 (95%)	36/36 (100%)	99/100 (99%)	53/55 (96%)	57/57 (100%)	96/97 (99%)	95/97 (98%)
NILAG LOTAL/NO. REPORTING (%) Formal terms of reference/No.	18/49 (37%) 17/49 (35%)	10/1 / (53%) 9/17 (53%)	49/89 (55%) 49/89 (55%)	3 1/36 (86%) 29/36 (81%)	13/36 (36%) 13/36 (36%)	62/99 (63%) 53/99 (54%)	41/53(77%) 38/53(72%)	25/57 (40%) 25/57 (44%)	42/96 (44%)	00/95 (09%) 62/95 (65%)
reporting (%) Legislative or administrative basis for NITAG/No. reporting (%)	13/49 (27%)	9/17(53%)	48/89 (54%)	29/36 (81%)	10/36 (28%)	50/99 (51%)	39/53 (74%)	21/57 (37%)	39/96 (41%)	60/95 (63%)
At least five areas of expertise	14/49(29%)	10/17 (59%)	53/89 (60%)	29/36 (81%)	9/36 (25%)	59/99 (60%)	38/53 (72%)	21/57 (37%)	45/96 (47%)	61/95(64%)
represented/190. reporting (%) Met at least once in 2012/No. reporting	12/49 (24%)	10/17(59%)	50/89 (56%)	31/36 (86%)	10/36 (28%)	53/99 (54%)	40/53 (75%)	20/57 (35%)	42/96 (44%)	61/95 (64%)
Agenda and background documents distributed one week prior to	14/49(29%)	9/17 (53%)	52/89 (58%)	29/36 (81%)	11/36 (31%)	53/99 (54%)	40/53 (75%)	22/57 (39%)	44/96 (46%)	60/95 (63%)
meetings/No. reporting (%) Required to disclose conflict of interset No. reporting (%)	11/49(22%)	3/17(18%)	37/89 (42%)	25/36 (69%)	7/36 (19%)	36/99 (36%)	33/53 (62%)	13/57 (23%)	26/96 (27%)	50/95 (53%)
Meeting all six criteria above/No. reporting (%)	6/49 (12%)	3/17(18%)	32/89 (36%)	22/36 (61%)	4/36 (11%)	29/99 (29%)	30/53 (57%)	9/57 (16%)	22/96 (23%)	41/95(43%)
<sup>a</sup> The denominator is not the 194 WHO <sup>h</sup> <sup>b</sup> This figure was selected as being the m	Member States, bi edian of the total	ut 191 countries f I population for th	or which the Wo ne 194 WHO Men	orld Bank is provie nber States.	ling the informat	ion, as of July 201	3. Information o	n status is missing	for the Cook Island	ls, Nauru, and Niue.

formal legislative or administrative basis and 104 (54%) countries reported the existence of a NITAG with formal terms of reference. In 2012, there were 63 countries (33%) with a NITAG that met all six process indicators<sup>11</sup> (a 5% increase from the 43 in countries with a NITAG that met all six process indicators in 2010 and an absolute 46% in the number of countries that met the 6 process indicators – in a 2008 global survey using a different methodology and with a lower response rate only 23 countries had indicated the existence of a NITAG that met 6 fairly similar indicators [3]) including a total of 38 developing countries. Eleven percent of low-income countries, 29% of middle-income countries, and 57% of high-income countries reported having a NITAG meeting all six process criteria. Overall, 85% of the total global population lives in a country served by a NITAG with a formal legislative or administrative basis including 52% who live in a country with a NITAG that meets all six process indicators. Twenty-three percent of countries with smaller populations (less than the median population of WHO member States) reported the existence of a NITAG that meets all six process indicators, compared with 43% of more populated countries.

EMR had the highest proportion of countries reporting the existence of a NITAG that met all six process indicators (59%) and AFR the lowest (7%). EMR had also the greatest percentage (86%) of countries that had a NITAG based on a formal legislative decree (22% in AFR, 41% in WPR, 43% in AMR (both regions affected by number of small countries), 70% in EUR, and 82% in SEAR).

For countries reporting the existence of a NITAG, 106 (91%) had at least five areas of expertise represented in the group's core membership during 2012. The areas of expertise most frequently cited included: public health [111 (96%) countries]; epidemiology [107 (92%) countries]; paediatrics [112 (97%) countries]; infectious diseases [112 (97%) countries], and immunology [86 (74%) countries]. Other specific areas of expertise were represented in 92 (79%) of the committees as part of core membership.<sup>12</sup>

One hundred and three (89%) NITAGs met at least once during 2012 with a mode of two and a median of four meetings a year (range: 1 to 40 and in 85% of cases the group met five times or less a year). The agenda and background documents for meetings are reported to be circulated one week or more prior to the meetings for 104 (90%) NITAGs. Members are required to declare any conflict of interest for 76 (66%) NITAGs.

## 4. Discussion

As highlighted in a previous report [1] and despite the very high response rate, results are subject to some limitations. First, some countries did not provide answers to the NITAG-related questions in the most recent JRF, and there is some variation among the countries that provided answers to the NITAG-related questions for the

Analysis of the NITAG 2013 JRF, data for 2012 by development status, World Bank income status, GAVI Alliance eligibility, and population size.

<sup>&</sup>lt;sup>11</sup> Afghanistan, Andorra, Argentina, Australia, Bahrain, Belgium, Bhutan, Bosnia and Herzegovina, Brazil, Canada, Chile, China, Colombia, Côte d'Ivoire, Cuba, the Czech Republic, Democratic People's Republic of Korea, Denmark, Egypt, El Salvador, Estonia, France, Germany, Honduras, Iceland, Indonesia, Iran (Islamic Republic of), Ireland, Israel, Jordan, Kazakhstan, Lithuania, Luxembourg, Malaysia, Malta, Mexico, Mongolia, Morocco, Mozambique, Nepal, the Netherlands, New Zealand, Oman, Pakistan, Panama, Peru, Portugal, Qatar, Republic of Korea, Romania, Saudi Arabia, Singapore, Slovakia, the Sudan, Switzerland, the Syrian Arab Republic, Thailand, Tunisia, the United Kingdom of Great Britain, the United States of America, Uruguay, Uzbekistan and Zambia.

<sup>&</sup>lt;sup>12</sup> Other areas of expertise mentioned included: vaccinology; family medicine; cardiology; neurology – including paediatric neurology; internal medicine; hepatology; travel medicine; neonatology; pneumo-phtysiology; gynaecology; school-health; microbiology including virology; health-service delivery and immunization programme management. The following professional categories were also included in some of the NITAGs: health economists; mathematical modellers; nurses; pharmacists; logisticians; vaccine procurement; vaccine safety specialists; programme planners; research scientists; communication specialists; lawyers; ethicists; drug regulators; data managers; and laboratory technicians.

2012 JRF and the 2013 JRF. Further the list of countries/member states is not totally stable and in 2011 South Sudan became a new member state located in the EMR WHO region. Second, because the analysis focused on data officially reported by the countries, without a systematic secondary validation process with national counterparts (although this is done in some regions), it may not reflect the actual situation in the countries. Data accuracy depends on the knowledge, recollection and interpretation capabilities of the person completing the form; since the introduction of the NITAG-related questions in the IRF is still relatively recent, it is possible that some questions may have been misunderstood or misinterpreted. For example, in some regions an affirmative answer regarding the existence of a NITAG may have actually referred to an Inter-agency Coordinating Committee (ICC), a committee that coordinates and supports funding, planning, implementation and advocacy [3]. In the 2013 and 2012 JRF, 7 African countries (Benin, Cameroon, Central African Republic, Gambia, Madagascar, Niger and Senegal) explicitly indicated having previously reported the existence of an Inter-agency Coordinating Committee versus a NITAG. As a result it is likely that data for 2012 are more reliable than those from previous years and comparison with previous years has therefore to be taken in this context.

Overall, 54% of countries reported the existence of a NITAG with formal terms of reference, and 52% reported the existence of a NITAG with a formal administrative or legislative basis. These data should be less susceptible to reporting bias, and therefore closest to the actual number with respect to the existence of a NITAG. In turn the number of countries reporting the existence of a NITAG which complies with all 6 JRF indicators is also less susceptible to reporting bias.

Some of the countries rightly reported the existence of a NITAG even if the mandate of the committee was broader than focusing on immunization e.g. extended mandate for broader infectious disease control.

Despite the short period of time and considering that establishing and strengthening NITAGs is a long term process, there seems to have been a constant progress in regards to the establishment of NITAGs over the last couple years. Globally, by the end of 2012 here were 63 NITAGs affirmative about the six NITAG process indicators, compared with 56 and 43 for 2011 and 2010 respectively. However, there continues to be opportunity and need for more progress for strengthening NITAGs as called for by the GVAP. The GVAP represents an important opportunity to accelerate the establishment of NITAGs and continue strengthening the capacity of existing NITAGs.

Because the proportion of countries with a NITAG is greater in the more populous countries than in the less populous ones, the overall proportion of the population supported by a NITAG is substantially greater than the proportion of counties with a NITAG, both at the global and regional levels. If one looks further at the proportion of population covered by a NITAG meeting all six process indicators, then the Americas ranks first among all six regions, with 88% of its population covered and EMR ranks second with 83% of its population covered.

In areas where regional engagement has been strong and there have been strong regional TAG statements with regard to the need to strengthen NITAGs such as in AMR, EMR, EUR and SEAR rapid progress is being achieved. The participation of NITAG chairs at immunization and regional TAG meeting has been in most regions together with fostering of exchanges between NITAGs have been received very positively by all and can contribute to emulating progress.

Beyond progress on meeting the indicator there has been substantial quality improvement in the processes of many NITAGs which are hard to quantify at global level but worth highlighting.

Despite this progress, efforts need to be accelerated to reach the GVAP target of ensuring that all countries have the support of a NITAG. Such progress is particularly necessary in the AFR and WPR regions. Essential to progress is the need for concerted advocacy from all partners, including clear communication about the difference responsibilities of NITAGs and ICCs. Systematic communication and advocacy from all partners in support of NITAG strengthening. In this context it should be clear that introduction of new vaccines in a country does not in any way diminish the need for the establishment/strengthening of NITAGs. Very limited financial support to help provide technical support to middle income countries has hampered progress.

Requiring the existence of NITAGs for future funding applications from GAVI-eligible countries and communicating about the possibility of accessing GAVI's Heath System Strengthening funds to establish and strengthen NITAGs may be desirable.

A special approach needs to be explored to allow small countries to benefit from sub-regional or other countries advisory groups. Small countries, including some of the Caribbean islands, small island nations in the Western Pacific region, and some other small countries, may not have a large enough population to justify establishment of a NITAG and/or adequate resources to support its establishment. Some of these less populated countries, particularly those in close geographical proximity and which share cultural similarities, similar epidemiologic profiles, or have a tradition of working together on public health issues, may choose to seek guidance from a subregional decision-making mechanism, such as the former Caribbean Epidemiology Centre (now the Caribbean Public Health Agency) or Caribbean EPI Managers Meeting. Such discussions have started in the Americas for the Caribbean and in WPR for the Pacific Islands.

Current challenges to the establishment of NITAGs include the need to ensure adequate expertise, independence from the government, transparency of the process, and quality review of the evidence on which recommendations are based. Meeting the 6 basic process indicators is the first step, and committees that meet with these criteria should continue to be strengthened. Fostering exchanges between NITAGs is an important way to facilitate support and progress. These exchanges should extend to making evidence available to other groups, such as public posting of systematic reviews. Very limited resources are available from partners to support NITAG strengthening in middle income countries, highlighting the need for these countries to capitalize on initiatives such as SIVAC and ProVac. Efforts to establish NITAGs through professional organizations such as academies of paediatrics need to be well-coordinated with the government, to ensure that there is not a development of parallel groups.

Exploring the potential transition from polio or other VPDspecific technical advisory groups (TAGs) where they exist, to NITAGs, is an important consideration.

## **Conflict of interest statement**

Most of the authors are World Health Organization staff members. The opinions expressed in this article are those of the authors and do not necessarily represent the decisions, official policy or opinions of the World Health Organization.

# Acknowledgement

None.

#### References

- World Health Organization. Global Vaccine Action Plan 2011–2020. WHO; 2013 http://www.who.int/immunization/global\_vaccine\_action\_plan/en/
- [2] WHO. Meeting of the Strategic Advisory Group of Experts on Immunization, November 2012 – conclusions and recommendations. Wkly Epidemiol Rec 2013;88:1–16.

- [3] Duclos P, Ortynsky S, Abeysinghe N, Cakmak N, Janusz CB, Jauregui B, et al. Monitoring of progress in the establishment and strengthening of national immunization technical advisory groups. Vaccine 2012;30:7147–52.
- [4] Bryson M, Duclos P, Jolly A, Cakmak N. A global look at national Immunization Technical Advisory Groups. Vaccine 2010;28:A13–7.
- [5] Duclos P. National immunization technical advisory groups (NITAGs): guidance for their establishment and strengthening. Vaccine 2010;28:A18–25.
- [6] World Health Organization. The WHO/UNICEF Joint Reporting; 2013 http://www.who.int/immunization\_monitoring/routine/joint\_reporting/en/ index.html
- [7] Blau J, Sadr-Azodi N, Clementz M, Abeysinghe N, Cakmak N, Duclos P, et al. Indicators to assess National Immunization Technical Advisory Groups (NITAGs). Vaccine 2013, http://dx.doi.org/10.1016/j.vaccine.2013.01.047.
- [8] World Health Organization Countries. http://www.who.int/countries/en/ index.html
- [9] Country classifications in terms of development levels: http://www.un.org/ en/development/desa/policy/wesp/wesp.current/2012country.class.pdf
- [10] The 2011 World Bank Development Indicators Online. http://data. worldbank.org/indicator
- [11] GAVI Alliance. Country Eligibility Policy, http://www.gavialliance.org/about/ governance/programme-policies/country-eligibility/
- [12] United Nations, Department of Economic Social Affairs Population Division. World Population Prospects: The 2010 Revision Highlights and Advance Tables. New York: United Nations; 2011. Working Paper No: ESA/P/WP.220.