Vaccine 30 (2012) 7147–7152

Contents lists available at SciVerse ScienceDirect

Vaccine

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

Monitoring of progress in the establishment and strengthening of national immunization technical advisory groups

Philippe Duclos[a,*], Stephanie Ortynsky[b,1], Nihal Abeysinghe[c,2], Niyazi Cakmak[d,3], Cara Bess Janusz[e,4], Barbara Jauregui[e,5], Richard Mihigo[f,6], Liudmila Mosina[d,7], Nahad Sadr-Azodi[g], Yashohiro Takashima[h,8], Laure Dumolard[a,9], Marta Gacic-Dobo[a,10]

[a] *Immunization, Vaccines and Biologicals, World Health Organization, 20 Avenue Appia, CH-1211 Geneva 27, Switzerland*
[b] *University of Saskatchewan, 85 Riverside Terrace, Yorkton, Saskatchewan S3 N 0G2, Canada*
[c] *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*
[d] *Vaccine-Preventable Diseases and Immunization Programme, Regional Office for Europe, World Health Organization, Schersfigvej 8, 2100 Copenhagen, Denmark*
[e] *Pan American Health Organization/World Health Organization, 525 23 Street NW, Washington, DC 20037, USA*
[f] *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*
[g] *Vaccine Preventable Disease 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*
[h] *Expanded Programme on Immunization, Regional Office for the Western Pacific, World Health Organization, United Nations Avenue, Manila 1000, Philippines*

ARTICLE INFO

Article history:
Received 10 February 2012
Received in revised form 28 March 2012
Accepted 4 April 2012
Available online 19 April 2012

Keywords:
WHO–UNICEF Joint Reporting Form
National technical advisory group on immunization
Monitoring

ABSTRACT

The majority of industrialized and some developing countries have established technical advisory bodies to guide and formulate national immunization policies and strategies. These are referred to as National Immunization Technical Advisory Groups (NITAGs), WHO and its partners have placed a high priority on assisting in the establishment or strengthening of functional, sustainable, and independent NITAGs. To enable systematic global monitoring of the existence and functionality of NITAGs, in 2010, WHO and UNICEF included related questions in the WHO–UNICEF Joint Reporting Form (JRF) that provides an official means for WHO and UNICEF to collect indicators of immunization programme performance.

This paper presents the status of NITAGs based on the analysis of the 2010 JRF. Although 115 countries (64% of responders) reported having a NITAG in 2010, only 50% of countries reported the existence of a NITAG with a formal administrative or legislative basis. Despite limitations in the ability to compare 2010 JRF data with that from a 2008 global survey, it appears that substantial progress has been achieved globally over with 43 committees reporting affirmatively about six NITAG process indicators, compared with 23 in the 2008 survey. Impressive progress has been observed in the proportion of countries reporting

Abbreviations: AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; JRF, Joint Reporting Form; NITAG, National Immunization Technical Advisory Group; SIVAC, Supporting Independent Immunization and Vaccine Advisory Committees; SEAR, South-East Asia Region; WPR, Western Pacific Region.

* Corresponding author. Tel.: +41 22 791 4527; fax: +41 22 791 4227.
E-mail addresses: duclosp@who.int (P. Duclos), stephanie.ortynsky@usask.ca (S. Ortynsky), abeysinghen@searo.who.int (N. Abeysinghe), nca@euro.who.int (N. Cakmak), januszc@paho.org (C.B. Janusz), jauregub@paho.org (B. Jauregui), mihigor@afro.who.int (R. Mihigo), mol@euro.who.int (L. Mosina), sadrazodin@emro.who.int (N. Sadr-Azodi), takashimay@wpro.who.int (Y. Takashima), dumolardl@who.int (L. Dumolard), gacicdobom@who.int (M. Gacic-Dobo).
[1] Tel.: +1 306 374 5355.
[2] Tel.: +91 11 2330 9511.
[3] Tel.: +45 39 17 14 74.
[4] Tel.: +1 202 974 3744.
[5] Tel.: +1 202 974 3413.
[6] Tel.: +242 47 241 39926; fax: +242 47 241 39641.
[7] Tel.: +45 39 17 15 03.
[8] Tel.: +63 2 528 9746.
[9] Tel.: +41 22 791 4413.
[10] Tel.: +41 22 791 2873.

http://dx.doi.org/10.1016/j.vaccine.2012.04.015

NITAGs with formal terms of reference (24% increase), a legislative or administrative basis (10% increase), and a requirement for members to disclose their interests (14% increase). Some of the poorest developing countries now enjoy support from a NITAG which meet all six process indicators. These may serve as examples for other countries.

1. Background

The majority of industrialized and now a number of developing countries have formally established technical advisory bodies, referred to as National Immunization Technical Advisory Groups (NITAGs), to guide and formulate national immunization policies and strategies. NITAGs or their equivalents are established to advise governments, policy-makers and programme managers on technical issues related to national immunization programmes, including recommendations on vaccine introduction and immunization schedules [1,2]. Their recommendations should be evidence-based and brought about by transparent processes [3].

In view of the complex and vast bodies of evidence available to policy decision-makers, the role of a NITAG in a country becomes particularly relevant. Although each WHO Member States' NITAG may have a slightly different mandate, the independent expert members are responsible for an overall similar set of objectives. These include the assessment of new evidence for existing or new vaccines, as well as reviewing and recommending evidence-based immunization policies and strategies, to ministries of health and government officials for their priority-setting and programmatic considerations [4].

A major advantage of having a NITAG resides in the transparency and credibility that it brings to the decision-making process, which duly impacts the national immunization programme and the government at large. Highly credible decisions can positively impact perceptions by immunization partners, health professionals and the public, both within and outside the country, thereby lending additional weight to proposed changes to the immunization programme, securing of government or donor funding, receiving support from professional organizations and ensuring public uptake of new recommendations.

WHO and its partners, such as the USA Centers for Disease Control and Prevention, the Pan American Health Organization's ProVac Initiative and the more recently established SIVAC (Supporting Independent Immunization and Vaccine Advisory Committees) Initiative by the Agence de Medecine Preventative and the International Vaccine Institute, have placed a high priority on supporting the enhancement for the capacity for national evidence-based decision-making processes and are assisting in the establishment and strengthening and promotion of functional, sustainable, and independent NITAGs [3]. The monitoring of the global situation and current progress with respect to national decision-making mechanisms for immunization-related recommendations is therefore essential.

In 2008, a comprehensive global survey was conducted in all WHO Member States to collect data on national decision-making processes aimed at guiding immunization policies. The survey gathered information on the presence, characteristics and processes of NITAGs [2]. Due to a similar initiative already initiated in the WHO European (EUR) Region, the survey was based on two questionnaires. One was completed by Member States of the African (AFR), American (AMR), Eastern Mediterranean (EMR), South-East Asia (SEAR) and Western Pacific (WPR) Regions, and the other questionnaire by countries in EUR [2]. While 60% (103 out of 174 countries) of those that answered the questionnaire reported the existence of a NITAG (with a high of 72% in WPR and a low of 32% in AFR). One third of NITAGs did not have formal terms of reference, 30% indicated no legislative or administrative basis for establishing the committee. Almost two thirds did not require the members to declare conflicts of interest. Overall, only 23 countries (16% of all countries participating in the survey) reported the existence of a NITAG meeting six process indicators used as proxies to measure the functionality of the Member States' NITAG [2].

Since 2008, some WHO regions have established standards and started monitoring the progress of countries in establishing or strengthening NITAGs. Furthermore, in an effort to enable systematic global monitoring of the existence and functionality of NITAGs, WHO and UNICEF included questions about NITAGs in the 2010 WHO–UNICEF Joint Reporting Form (JRF).[11] The JRF is a standardized questionnaire, developed by WHO and UNICEF, that is sent annually to all Member States and provides an official means for WHO and UNICEF to conduct joint data collection on immunization coverage, reported cases of vaccine-preventable diseases and immunization schedules, and indicators of immunization programme performance and delivery strategies [5]. The NITAG questions include a set of indicators reflecting similar questions used for the 2008 global survey. These initial indicators were selected as a starting point, and there are ongoing efforts to develop and propose outcome indicators to complement the process indicators initially included.

The purpose of this paper is to present the 2010 status of NITAGs based on the analysis of the 2010 JRF NITAG indicators and to review progress since the 2008 global survey.

2. Methods

The data for this analysis were derived from the 2010 JRF.

Questions relating to NITAGs included a question 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.

Countries were also asked to indicate if information about the NITAG was publicly available on a website in order to facilitate exchange of relevant information between countries.

The JRF is sent officially to the Ministries of Health and completed by the person serving as immunization manager/focal point for immunization at the national level. As part of the JRF process, there is no correction of the information provided unless there is interaction with countries, and the countries themselves opt to correct their answers. After the initial receipt of the JRF, there is an

[11] The set of NITAG-related questions was piloted in the JRF used in the European Region in 2009.

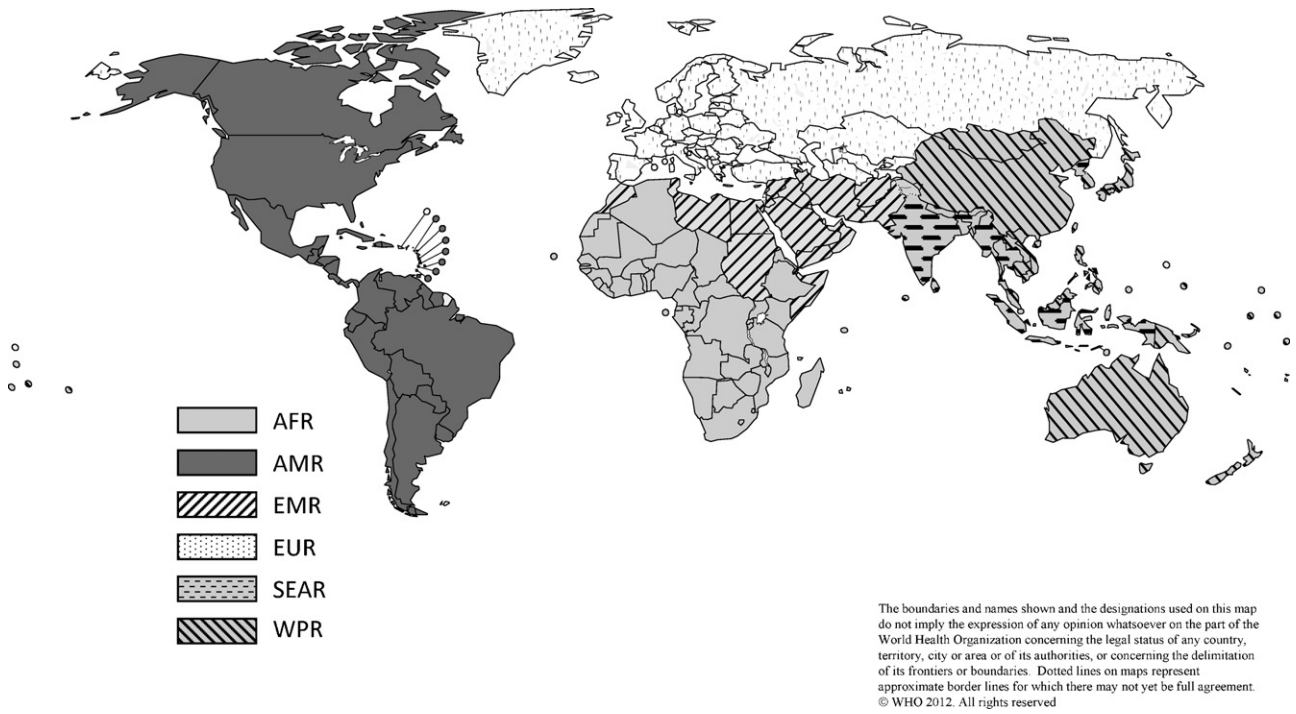

Fig. 1. WHO regions as of March 2012.

attempt to identify logical flaws and erroneous answers, which are then brought to the attention of countries via the WHO regional and country offices. This report reflects any correction that was applied as part of the process but, in the data analysis, no attempt has been made to correct false entries based on additional sources of information, including published reports of papers on advisory committees, and we have relied on the final data provided by the countries.

The denominator used to calculate the proportion of NITAGs in existence was the number of countries that had submitted the 2010 JRF and completed the NITAG-related section. For countries indicating existence of NITAGs, there was further analysis of the six NITAG process indicators. Blank answers were discarded from the analysis.

The results were stratified by WHO regions (see Fig. 1) [6], development status [7] and World Bank national income status categories [8], eligibility for funding by the GAVI Alliance which includes all countries with less than, or equal to, US$ 1500 of Gross National Income (GNI) per capita in accordance with World Bank data for the latest available year [9], and population size. Population figures used are those from the UN population division [10].

3. Results

As of 31 December 2011, 191 of 193 (99%) Member States had completed the 2010 JRF,[12] and 181[13] (94%)[14] provided a response to at least one of the NITAG-related questions of the JRF. Of the 10 countries, which did not complete the questions pertaining to NITAG indicators, seven were from EUR. Two countries indicated having a NITAG but did not give additional information.

A total of 115 (64%) countries reported having a NITAG in 2010, of which 91 (79%) countries reported the issuance of a legislative or administrative basis for the advisory group, and 101 (88%) countries reported the existence of formal terms of reference. In addition, 82 (71%) had at least five areas of expertise represented in the group as core membership during 2010. The areas of expertise most frequently cited as part of the core membership included: public health [107 (93%) countries]; epidemiology [105 (91%) countries]; paediatrics [105 (91%) countries]; infectious diseases [102 (89%) countries], and immunology [75 (65%) countries]. Other specific areas of expertise were represented in 69 (60%) of the committees as part of core membership and these included: cardiologists; family physicians; health economists; microbiologists; laboratory technicians; neurologists; nurses; pharmacists; vaccinologists; virologists; logisticians; hepatologists; travel medicine specialists; neonatologists; pneumophtysiologists; school-health specialists; vaccine procurement; gynaecologists programme managers; payment centres; planning; research; financing; communication specialists; mathematical modellers; ethicists; drug regulators, health-service delivery and data management specialists.

One hundred and one (88%) NITAGs met at least once during the preceding year with a mode of two and a median of three meetings a year (range: 1–47 and in 75% of cases the committee met 5 times or less a year). For 61 (53%) NITAGs, members are required to declare any conflict of interest. Forty-three committees (37%) complied with all six process indicators.[15] Overall, 88% of the total

[12] The Member States who have yet to submit a 2010 JRF include Libyan Arab Jamahiriya and Monaco.

[13] Includes Cameroon and Ukraine who indicated (in the JRF or by email) that they had a NITAG, although they did not complete the rest of the questions.

[14] Member States that have not completed NITAG portion of JRF include Austria, Greece, Haiti, Palau, Serbia and Montenegro, The former Yugoslav Republic of Macedonia, Turkmenistan, United Arab Emirates (the) and Uzbekistan.

[15] Argentina, Australia, Bahrain, Bhutan, Brazil, Bulgaria, Canada, Chile, China, Colombia, Côte d'Ivoire, Cuba, Czech Republic (the), Denmark, Estonia, France, Germany, Iceland, Indonesia, Iran (Islamic Republic of), Israel, Malta, Mexico, Mongolia, Morocco, Nepal, Netherlands (the), New Zealand, Paraguay, Peru, Portugal, Qatar, Republic of Korea (the), Singapore, Slovakia, Sudan (the), Switzerland, Syrian Arab Republic (the), Thailand, Tunisia, Turkey, United States of America (the) and Zambia.

Table 1
Analysis of the NITAG 2010 JRF data at global level and by WHO region.

Countries reporting/WHO Member States	Indicator	Region						
		Overall *N* = 181/193 (94%)	AFR *N* = 46/46 (100%)	AMR *N* = 34/35 (97%)	EMR *N* = 19/21 (90%)	EUR *N* = 45/53 (85%)	SEAR *N* = 11/11 (100%)	WPR *N* = 26/27 (96%)
Existence of a NITAG	Number of countries	115	19	20	19	32	9	16
	% of countries which responded	64	41	59	100	71	82	62
	% of the entire population covered	88	55	91	98	62	99	99
Existence of a NITAG with formal terms of reference	Number of countries	101	16	17	19	29	7	13
	% of countries reporting the existence of a NITAG	88	84	85	100	91	78	81
	% of countries which responded	56	35	50	100	64	64	50
Existence of a NITAG with a legislative or administrative basis	Number of countries	91	15	16	16	27	6	11
	% of countries reporting the existence of a NITAG	79	79	80	84	84	67	69
	% of reporting countries	50	33	47	84	60	55	42
	% of the entire population covered	66	52	91	90	50	28	98
Existence of a NITAG with ≥five areas of expertise represented	Number of countries	82	10	16	12	28	8	8
	% of countries reporting the existence of a NITAG	71	53	80	63	88	89	50
Existence of a NITAG which met at least once in 2010	Met at least once in 2010	101	17	18	15	30	7	14
	% of countries reporting the existence of a NITAG	88	89	90	79	94	78	88
Existence of a NITAG for which the agenda and background documents distributed ≥one week prior to meetings	Number of countries	96	16	17	16	28	7	12
	% of countries reporting the existence of a NITAG	83	84	85	84	88	78	75
Existence of a NITAG whose members required to disclose conflict of interest	Number of countries	61	7	12	12	17	4	9
	% of countries reporting the existence of a NITAG	53	37	60	63	53	44	56
Existence of a NITAG meeting all six criteria above	Number of countries	43	2	10	7	14	4	6
	% of countries reporting the existence of a NITAG	37	11	50	37	44	44	38
	% of reporting countries	24	4	29	37	31	36	23
	% of the entire population covered	45	4	86	31	32	19	80

global population lives in a country supported by a NITAG and 45% in a country with a NITAG that meets all six process indicators.

Table 1 presents the detailed analysis of the NITAG-related indicators at the global and at the regional levels.

Twenty countries responded positively to their advisory group having a website or webpage, and eighteen provided a related link. The amount of information provided on each website, however, was quite variable, some of the links only lead to a general Ministry of Health website. Links to the most useful websites are available from the SIVAC resource centre at http://www.nitag-resource.org/en/home/index-home.php.

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.

4. Discussion

Results have to be taken with caution. Firstly, a number of countries did not provide answers to the NITAG-related questions. Secondly, the analysed data is derived from information officially reported by the countries, which further depends on the knowledge, recollection and interpretation of the person completing the form (i.e. most commonly the national immunization manager or his/her delegate). In this respect it is possible that some questions were misunderstood or misinterpreted since the NITAG-related questions were newly introduced in the JRF in 2010. For example, it is possible that an affirmative answer to the existence of a NITAG could have been provided when people were actually referring to an Inter-agency Coordinating Committee which main purpose is to coordinate and support funding, planning, implementation and advocacy [3]. This is likely to have influenced answers for regions where such committees are commonly in existence (i.e. AFR) and could result in an overestimate of the existence of NITAGs.

Overall, 50% of countries reported the existence of a NITAG with a formal administrative or legislative basis, and 56% the existence of a NITAG with formal terms of reference. These data should be less amenable to reporting bias, and therefore closest to the true figure. There is a substantial difference, and a more optimistic figure, both at the global and regional level, when we look at the overall proportion of population versus the proportion of countries supported by a NITAG. Indeed, small countries, including some of the Caribbean islands, other small islands from the Pacific region, and some other small countries, are less likely to have a NITAG. This is supported by the differential analysis according to population size which reveals that only 68% of the less populated countries

Table 2
Analysis of the NITAG 2010 JRF data by development status, World Bank income status, GAVI Alliance eligibility, and population size.

	Development status [7]				WB income status [8][b]			GAVI eligible countries [9]	Population size [10]	
	Least developed	Economy in transition	Developing	Developed economy	Low income	Middle income	High income		Less than 7,418,400[a]	Greater than or equal to 7,418,400
Reporting countries total	47/48 (98%)	13/18 (72%)	86/89 (97%)	35/38 (92%)	39/40 (98%)	92/99 (93%)	46/50 (92%)	70/72 (97%)	90/96 (94%)	91/97 (94%)
NITAG total	23/47 (49%)	6/13 (46%)	57/86 (66%)	29/35 (83%)	17/39 (44%)	62/92 (67%)	35/46 (76%)	39/70 (56%)	50/90 (56%)	65/91 (71%)
Formal terms of reference	20/23 (87%)	5/6 (83%)	49/57 (86%)	26/29 (90%)	15/17 (88%)	54/62 (87%)	32/35 (91%)	34/39 (87%)	42/50 (84%)	59/65 (91%)
Legislative or administrative basis for NITAG	16/23 (70%)	4/6 (67%)	45/57 (79%)	25/29 (86%)	12/17 (71%)	48/62 (77%)	31/35 (89%)	27/39 (69%)	34/50 (68%)	57/65 (88%)
At least five areas of expertise represented	14/23 (61%)	5/6 (83%)	38/57 (67%)	24/29 (83%)	11/17 (65%)	40/62 (65%)	31/35 (89%)	24/39 (62%)	36/50 (72%)	46/65 (71%)
Met at least once in 2010	21/23 (91%)	5/6 (83%)	47/57 (82%)	27/29 (93%)	16/17 (94%)	53/62 (85%)	32/35 (91%)	34/39 (87%)	43/50 (86%)	58/65 (89%)
Agenda and background documents distributed one week prior to meetings	19/23 (83%)	4/6 (67%)	47/57 (82%)	25/29 (86%)	16/17 (94%)	48/62 (77%)	32/35 (91%)	33/39 (85%)	40/50 (80%)	56/65 (86%)
Required to disclose conflict of interest	11/23 (48%)	0/5 (0%)	30/57 (53%)	19/29 (66%)	6/17 (35%)	31/62 (50%)	24/35 (69%)	16/39 (41%)	20/50 (40%)	41/65 (63%)
Meeting all six criteria above	4/23 (17%)	0/5 (0%)	23/57 (40%)	15/29 (52%)	2/17 (12%)	21/62 (34%)	20/35 (57%)	8/39 (21%)	12/50 (24%)	31/65 (48%)

[a] This figure was selected as being the median of the total population for the 181 countries that responded to the NITAG questions in the JRF.
[b] The denominator is not the 193 WHO Member States, but 189 countries for which the World Bank is providing the information. Information on status is missing for the Cook Islands, Nauru, Niue and Tuvalu.

and therefore smaller countries report the existence of a NITAG with a legislative or administrative basis versus 88% for the more populated countries. In some of these less populated settings, the country may rather opt to rely on a subregional decision-making mechanism (e.g. in the Caribbean region). This in turn may explain the relatively smaller percentage of AMR countries reporting the existence of a NITAG compared to other regions (59% and the second lowest reported percentage). In fact, when one looks at the proportion of population covered by a NITAG, this proportion then increases to 91% for AMR countries which turns into a much better rank compared with other regions. 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 no less than 84% of its population covered.

In an attempt to review progress made since 2008, the results of the 2008 global survey were compared to those we presented in the results section; however this comparison should be interpreted with great caution as the two survey methods varied significantly from each other. The data collected in 2008 focused on documenting processes by which countries make recommendations regarding vaccines used in routine immunization schedules using both qualitative and quantitative methods, whereas the JRF is mainly a quantitative data-collection instrument based primarily on six process indicators specific to the functioning of NITAGs.

An example of the limitation of comparing the data from 2008 and 2010 is that 15 of the countries that reported positively to having a NITAG in 2008 reported the absence of a NITAG in 2010. In one country we could verify that this was true and due to political turmoil, but in the rest of the cases it was impossible to validate why they would have indicated the presence of a NITAG in 2008 and then later dissolved it in 2010. This could be the true reflection of further committees dissolution due to a lack of stability in some countries. This could also be due to countries overstating the existence of a NITAG committee in the 2008 survey.

Comparing the two methods showed that there were different terminologies used. In the 2008 global questionnaire, NITAGs were defined as national expert advisory bodies that primarily make technical recommendations on immunization policies to the national government [3]. JRF questions pertaining to this subject queried outright whether the country had a technical advisory group on immunization in 2010. The difference in wording could have been a cause for confusion for respondents of the two different survey methodologies. There is therefore the possibility that the definition of a NITAG was unclear to some respondents.

On the 2010 JRF, 94% Member States completed the NITAG-related questions. This compares favourably with the response rate of 76% secured during the 2008 survey [2].

Having reviewed the limitations of this comparative analysis, it appears nevertheless that there is a substantial increase in the number of countries reporting the existence of a NITAG, from 89 in 2008 to 115 in 2010. Although there seems to have been only limited progress globally in the overall proportion of countries reporting the existence of a NITAG, it should be noted that the completion rate for the 2010 survey was higher than for the 2008 survey and this probably therefore represents a more robust estimate. Indeed, a substantial proportion of countries which did not complete the 2008 survey were countries with a small population, and less likely to have a NITAG, and therefore the estimate may have been an overestimate of the actual proportion of countries that had a NITAG.

There seems to have been striking progress, with regards to the establishment of NITAGs in some settings, in particular in the EMR region, with 100% of responding countries reporting the existence of a NITAG – the United Arab Emirates did not submit a reporting form in 2010; although the country is now in the process of establishing a NITAG, such a committee did not exist in 2010. Globally, there are now 43 committees reporting affirmatively

about the six NITAG process indicators, compared with 23 in the 2008 survey. Although there does not seem to have been much progress between 2008 and 2010 with respect to the proportion of committees meeting at least once on a yearly basis, agendas and background documents being distributed prior to the meetings, and the existence of at least five areas of expertise represented in the NITAG, it must be noted that the first of these indicators was already quite high, and that for the latter two (circulation of documents one week ahead of the meeting and areas of expertise specified) the criteria used were more stringent than they were in the analysis of the 2008 survey. This may account for the apparent decrease for these two latter indicators.

Impressive progress has also been observed over this short period of time in the proportion of countries reporting that their NITAGs have formal terms of reference (24% increase), a formal legislative or administrative basis (10% increase), and a requirement for members to disclose their interests (14% increase). Judging from the comments section of the questionnaire, there also appears to be an upward trend from 2008 of more diverse representation being included as part of the core membership. This not only represents a major achievement to be credited foremost to the countries, but also to WHO and its partners' efforts in supporting the establishment and strengthening of such NITAGs.

However, there continues to be room for much more progress. Examples of areas requiring improvement based on data-analysis findings include, the need to broaden the expertise in many of the groups, and the requirement of the declaration of interests by members. This remains a challenging issue mostly, but not only, in the lowest income countries, and at times requires a major shift in practices.

Using a stable methodology, and in future analysis, the JRF will give us a good basis for the regular monitoring of such progress. Although the six process indicators are a starting point, they provide an indication of functionality of NITAGs, further process indicators could be added to the JRF in the future. The aim, therefore, is to start monitoring and reporting on an annual basis.

The proportion of countries benefiting from the existence of a NITAG increases with higher income status, as a result, more progress is needed for the lowest income countries in comparison to industrialized countries. It is encouraging that more of the very low income countries are now benefiting from support of a NITAG which meets all of the six process indicators. These countries may serve as examples for other WHO Member States.

An increasing number of countries' immunization programmes are supported by a NITAG; however, their effectiveness as an advisory mechanism varies, and there is substantial work ahead to ensure that countries worldwide have the support of national immunization advisory bodies to guide evidence-based policymaking. Although some countries facing major political crisis and civil crisis may not be able to complete the JRF, the expectation would be that all other countries would indeed complete the JRF in its totality, and accurately, and thus contribute to making it a more useful global monitoring tool.

Acknowledgements

To Kamel Senouci and Julia Blau from the SIVAC Initiative and to Jacquie Gindler and Kathy Cavallaro, form the USA Centers for Disease Control and Prevention for their constructive criticism of a draft version of this paper.

To Ezzeddine Mohsni and Nadia Teleb, WHO Regional Office for the Eastern Mediterranean, who respectively initiated the NITAG strengthening activities in the region and provided valuable technical support and direction.

All, except one, 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.

References

[1] Bryson M, Duclos P, Jolly A, Bryson J. A systematic review of national immunization policy making processes. Vaccine 2010;28S::A6–12.
[2] Bryson M, Duclos P, Jolly A, Cakmak N. A global look at national Immunization Technical Advisory Groups. Vaccine 2010;28S:A13–7.
[3] Duclos P. National immunization technical advisory groups (NITAGs): guidance for their establishment and strengthening. Vaccine 2010;28S:A18–25.
[4] Bryson M, Duclos P, Jolly A. Global immunization policy making processes. Vaccine 2010;96:154–9.
[5] World Health Organization. The WHO/UNICEF Joint Reporting. http://www.who.int/immunization_monitoring/routine/joint_reporting/en/index.html [accessed 03.02.12].
[6] World Health Organization Countries. http://www.who.int/countries/en/index.html [accessed 03.02.12].
[7] United Nations The world economic and social survey: 2011.The Great Green Technology transformation, United Nations, Department of Economic and Social Affairs; 2011 (the list is available from pp. XXXIV–XXXV). http://www.un.org/en/development/desa/policy/wess/wess_current/2011wess.pdf [accessed 04.02.12].
[8] The 2011 World Bank Development Indicators Online. http://econ.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,contentMDK:20420458~isCURL:Y~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html [accessed 04.02.12].
[9] GAVI Alliance Country Eligibility Policy. http://www.gavialliance.org/about/governance/programme-policies/country-eligibility/.2011 [accessed 03.02.12].
[10] United Nations, Department of Economic and Social Affairs, Population Division. World population prospects: the 2010 revision, highlights and advance tables. Working Paper No. ESA/P/WP.220; 2011. www.esa.un.org/unpd/wpp/Documentation/pdf/WPP2010_Highlights.pdf [accessed 04.02.12].