
Adverse Event

Diphtheria vaccine (WHO position paper)

(W)ith the increasing number of doses (of diphtheria toxoid) that are now recommended, reactogenicity is likely to increase. Although further purification of extraneous proteins residing in the toxoid may help to ameliorate this problem, optimal future diphtheria vaccines should provide protection of longer duration, with fewer injections.

[WER 2006, vol. 81, 3, pp 24-32](#)
page 31

Global Advisory Committee on Vaccine Safety, 23 December 2004

On the basis of all the available data, GACVS concluded that there is no evidence to support a causal association between the administration of hexavalent (DTaP-Hib-IPV-HepB) vaccines and SUD (sudden unexplained death.) In response to the potential signal observed in the second year of life, the Committee encouraged studies to be conducted that are designed to provide more powerful evidence on the presence or absence of an association.

[WER 2005, vol. 80, 1, pp 3-7](#)
page 6

BCG

BCG vaccine (WHO position paper)

Improved TB vaccines are widely seen as a key element for successful TB control, and the development of efficient, safe and affordable vaccines against TB must remain a global priority.

[WER 2004, vol. 79, 4, pp 27-38](#)
page 28

Global Advisory Committee on Vaccine Safety, 34 December 2003

There are few population-based data on the effectiveness, or otherwise, of BCG vaccine in preventing severe tuberculosis in HIV-positive infants. Given the high prevalence of HIV and tuberculosis in certain countries and of the current development of new tuberculosis vaccines, some of which are based on BCG, GACVS advises no change in the current recommendations for BCG immunization of infants in countries with a high prevalence of tuberculosis and that population-based studies should be undertaken to determine the efficacy and safety of BCG and related vaccines in HIV-negative and HIV-positive children in countries with a high endemic rate of tuberculosis.

[WER 2004, vol. 79, 3, pp 16-20](#)
page 19

Cholera

State of the art of new vaccines: research and development

Although the whole-cell injectable vaccine (against cholera) is no longer recommended, it still is commercially available in some countries.

[WHO/IVB/06.01](#)
page 4

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[WHO/IVB/06.01](#)
page 5

Contraindications

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Diphtheria

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GACVS

Global Advisory Committee on Vaccine Safety, 910 June 2005

[WER 2005, vol. 80, 36, pp 242-247](#)
page 243

GACVS acknowledged the excellent safety and efficacy profile of the (live attenuated) SA 14-14-2 (Japanese encephalitis) vaccine but nonetheless recommended more detailed study of the following: the safety profile in special risk groups including immunocompromised people and pregnant women; whether viral shedding occurs in vaccinees and the potential implications of such shedding; further analysis of sequential or co-administration of JE and measles vaccines; the interchangeability of inactivated and live JE vaccines; the safety of vaccine administration to infants aged under 1 year; and the implications for the efficacy and safety of the vaccine in infants with maternal antibodies against JE virus.

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General

Rotavirus vaccines, an update (WHO position paper)

[WER 2003, vol. 78, 1, pp 2-3](#)
page 3

WHO strongly recommends the rapid development of new and safe vaccine candidates against rotavirus disease and parallel evaluation of new candidates in developed and developing countries.

WHO also encourages measures to establish the burden of rotavirus disease in developing countries in order to provide the necessary information for advocacy and risk-benefit analyses, the outcome of which may vary with the epidemiological and socioeconomic setting

Global Advisory Committee on Vaccine Safety, 1011 June 2004

[WER 2004, vol. 79, 29, pp 269-272](#)
page 270

Validated animal models for adjuvant safety testing do not exist, yet they will be required for future vaccine research and development. Short-term and long-term safety evaluation and prediction are important, as is the evaluation of the pharmacokinetics of the adjuvant alone. (GACVS suggested that) WHO might promote research and further develop guidelines on adjuvant safety.

BCG vaccine (WHO position paper)

[WER 2004, vol. 79, 4, pp 27-38](#)
page 28

Improved TB vaccines are widely seen as a key element for successful TB control, and the development of efficient, safe and affordable vaccines against TB must remain a global priority.

Influenza vaccines (WHO position paper)

[WER 2005, vol. 80, 36, pp 279-287](#)
page 287

WHO strongly encourages the implementation of epidemiological surveillance, disease burden assessments and, where appropriate infrastructure is available, demonstration projects to estimate the impact of vaccination on disease in poor countries.

Further exploration of the safety and cost-effectiveness of introducing influenza vaccination into national immunization programmes is clearly warranted

Introduction of inactivated poliovirus vaccine into oral poliovirus vaccine-using countries (WHO position paper)

[WER 2003, vol. 78, 28, pp 241-250](#)
page 249

WHO recognizes that IPV may have an important role in the post-certification era and encourages operational studies and pilot projects to provide better understanding of the performance of this vaccine in different areas. WHO is particularly interested that opportunities for IPV introduction be fully exploited to study the effects on seroconversion and document its impact on VAPP and on the circulation of OPV-derived polioviruses.

Rubella vaccines (WHO position paper)

[WER 2000, vol. 75, 20, pp 161-169](#)
page 162

The global burden of CRS (congenital rubella syndrome) has been sufficiently characterized to justify advocating for its control and prevention. However, additional disease burden studies are required to further refine estimates at national and regional levels, particularly in developing countries. Such studies will facilitate comparison between rubella control efforts and other health priorities, and make cost-effectiveness assessments more precise.

Typhoid vaccines (WHO position paper)

[WER 2000, vol. 75, 32, pp 257-264](#)
page 258

Although both the Ty21a and the Vi polysaccharide (typhoid) vaccines are safe and of acceptable efficacy in individuals above 5 years of age, further controlled studies on the respective value of these vaccines for large-scale vaccination of children below 5 years of age, both in endemic and epidemic settings, are encouraged.

In spite of positive developments in this field, improved vaccines against typhoid fever are needed. Such vaccines should confer high levels of durable protective immunity in all age groups, preferably without the need for booster doses, and be affordable in the populations at greatest need.

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[WER 2006, vol. 81, 3, pp 24-32](#)
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[WER 2004, vol. 79, 3, pp 16-20](#)
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Creating national and regional frameworks to support HIV vaccine development in developing countries (Report from a WHO-UNAIDS consultation)

WHO-UNAIDS held a consultation in Lausanne, Switzerland from 26 to 28 August 2004 to discuss the impact of gender, age, and ethnicity on HIV vaccines. The overarching themes included the need for more research and attention toward recruiting female volunteers and ensuring gender-sensitive approaches among all levels of trial staff and oversight bodies, the need to further define and discuss informed consent issues and community involvement, and the need to address gaps in scientific research.

[WHO/IVB/05.17](#)
page 5

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[WHO/IVB/05.17](#)
page 41

The following policy recommendations (from a WHO-UNAIDS consultation) were made with the goal of changing existing global, national, or regional policies.

- 1) Integrate national AIDS vaccine plans within overarching national AIDS strategies.
- 2) Align/integrate major HIV vaccine research into the national prevention, treatment and care framework and other public health research initiatives.
- 3) Develop national policies on treatment and care of study volunteers who seroconvert during trials.
- 4) Incorporate into national AIDS vaccine plans general principles and policies for negotiating with AIDS vaccine clinical trial promoters (funders and researchers) about treatment and care for intercurrent infections.
- 5) Review clinical trials legislation, where present, to ensure that HIV vaccine and microbicide trials are adequately addressed/covered.
- 6) Address HIV/AIDS vaccine development within the context of poverty alleviation efforts.

Vaccine introduction guidelines. Adding a vaccine to a national immunization programme: decision and implementation

[WHO/IVB/05.18](#)
page 47

Further studies are needed to document the safety of administering Japanese encephalitis (JE) vaccine concomitantly with the measles vaccine. If the first dose of JE vaccine could be given at the same visit with the first dose of measles, this will fit better into the schedule of the national immunization programme (NIP) and may help to increase coverage.

Typhoid vaccines (WHO position paper)

[WER 2000, vol. 75, 32, pp 257-264](#)
page 263

While waiting for improved vaccines against typhoid fever, further assessment of the protective efficacy of the currently-licensed vaccines in the youngest age groups seems warranted.

Influenza vaccines (WHO position paper)

[WER 2005, vol. 80, 36, pp 279-287](#)
page 280

Furthermore, studies are strongly encouraged to characterize risk factors and the impact of influenza in resource-limited countries. Studies to evaluate the effectiveness of vaccines in such populations are recommended.

Hepatitis A vaccines (WHO position paper)

[WER 2000, vol. 75, 5, pp 38-44](#)
page 42

Post-marketing surveillance studies are needed to monitor vaccine-induced long-term protection, and to determine the need for booster doses of vaccine.

WHO-UNICEF-UNFPA joint statement on the use of auto-disable syringes in immunization services

[WHO/V&B/99.25](#)
page 3

WHO and UNICEF recommend that:

Urgent attention should be given to develop improved means for effective, safe and environmentally acceptable waste processing and final disposal of auto-disable syringes.

Conclusions and recommendations from the Strategic Advisory Group of Experts (SAGE) - 10-11 April 2006

[WER 2006, vol. 81, 21, pp 210-220](#)
page 218

(Regarding pandemic influenza vaccine, more) research is therefore needed in 4 major areas: correlates for protection, novel adjuvants, whole virion vaccines, and immunogenicity and growth of vaccine strains.

Conclusions and recommendations from the Strategic Advisory Group of Experts (SAGE) - 10-11 April 2006

[WER 2006, vol. 81, 21, pp 210-220](#)
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SAGE recognized the critical role that WHO should play in the international coordination of research and evaluation of influenza pandemic vaccines.

Conclusions and recommendations from the Strategic Advisory Group of Experts (SAGE) - 10-11 April 2006

[WER 2006, vol. 81, 21, pp 210-220](#)
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(Regarding influenza vaccine development,) SAGE encouraged manufacturers and national regulatory authorities to strengthen mechanisms to rapidly share the results of clinical trials with the global community.

SAGE stressed the importance of investigating the use of pandemic vaccines to prime populations against H5N1 viruses and to anticipate the regulatory and other criteria relevant to their use;

State of the art of new vaccines: research and development

[WHO/IVB/06.01](#)
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State of the art of new vaccines: research and development

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(I)n 2002 WHO recommended that demonstration projects with oral cholera vaccines be performed in populations at risk living in endemic settings.

State of the art of new vaccines: research and development

[WHO/IVB/06.01](#)
page 14

A head-to-head comparison of the Ty21a and Vi vaccines has been proposed by WHO in order to make future recommendations for countries severely affected by typhoid.

Japanese encephalitis vaccines (WHO position paper)

Optimal national vaccination strategies depend on reliable information concerning the duration of protection and, additionally, whether repeated exposure to natural infection is required for long-term protection (following JE immunization.). Similarly, further information is needed on possible impact of cross-reacting flavivirus antibodies (e.g. dengue virus antibodies) on the outcome of primary JE immunization.

[WER 2006, vol. 81, 34/35, pp 331-340](#)
page 339

Conclusions and recommendations from the meeting of the immunization Strategic Advisory Group of Experts (SAGE) - November 2006

WHO's global action plan identifies 3 main approaches that may be used to increase the capacity for producing pandemic influenza vaccines. These are: increase seasonal vaccine uptake to stimulate market forces and increase production capacity, increase or establish production capacity for pandemic vaccines in industrialized and developing countries independent of the demand for seasonal influenza vaccine, and implement research and development of vaccines based on new technologies.

[WER 2006, vol. 82, 1, pp 1-16](#)
page 6

WHO has developed procedures to facilitate the rapid transfer of strains and the release of sequence information and details of the procedures could be found on WHO's web site (http://www.who.int/csr/disease/avian_influenza/guidelines/h5n1sequences2006_08_23/en/index.html).

Conclusions and recommendations from the meeting of the immunization Strategic Advisory Group of Experts (SAGE) - November 2006

SAGE recommends that while influenza vaccine research has considerable momentum, investigation into the development of vaccines against subtypes with pandemic potential other than H5N1 should continue (for example, H7).

[WER 2006, vol. 82, 1, pp 1-16](#)
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So far, mainly healthy adults have been enrolled in clinical trials with H5N1 candidate vaccines. SAGE stresses the importance of evaluating their safety and immunogenicity in children and immunosuppressed individuals.

Conclusions and recommendations from the meeting of the immunization Strategic Advisory Group of Experts (SAGE) - November 2006

[WER 2006, vol. 82, 1, pp 1-16](#)
page 9

Clinical efficacy has been demonstrated in 2 schedules (for PCV-7, the 7-serotype conjugate pneumococcal vaccine) : a 6-week, 10-week, 14-week schedule and a 2-month, 4-month, 6-month schedule, which was followed by a booster dose at 12-15 months of age. Further information on the cost effectiveness of other potential schedules (for example, using different numbers of doses or different intervals between doses, and with and without boosters) should be obtained. Other schedules (such as 2 doses in a primary series plus a booster dose) are being used in some countries, whose experiences may be important as GAVI-supported countries begin introducing PCV-7 or review its use. Although a late dose (around the first birthday) may be challenging operationally for GAVI-eligible countries, there may be suitable opportunities when a dose of PCV-7 could be given, such as at the same time as measles vaccination. Countries should evaluate this information once it is available and select the most appropriate schedule based on the anticipated impact, cost effectiveness and programmatic feasibility.

Conclusions and recommendations from the meeting of the immunization Strategic Advisory Group of Experts (SAGE) - November 2006

[WER 2006, vol. 82, 1, pp 1-16](#)
page 15

SAGE recognized the importance of activities targeting capacity building and the development of clinical trial sites to ensure that all phases of clinical trials could be conducted in a way that meets the highest scientific, legal, ethical and regulatory standards as well as ensuring that communities are involved in the process. It will be important to develop such sites in developing countries where future vaccines would offer the most benefit.

Recognizing the complex scientific questions that need to be addressed with novel vaccine technologies, SAGE encourages efforts to facilitate close interaction and early discussions between researchers and national regulatory authorities. Additional training of members of national regulatory authorities in scientific aspects should also be included in the training programmes that are being implemented by WHO and other international sponsors.

SAGE expressed its support for the work of WHO in the area of developing vaccines against HIV, TB and malaria in close cooperation with other international and national partners and confirmed the critical role WHO has in developing relevant policies, norms and standards to facilitate the highest scientific, regulatory and ethical standards of clinical trials worldwide.

Japanese encephalitis vaccines (WHO position paper)

[WER 2006, vol. 81, 34/35, pp 331-340](#)
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Improved methods of JE surveillance including standardized, JE virus-specific laboratory tests are critical for characterizing the epidemiology, measuring the burden of disease, identifying high-risk populations and documenting the impact of control measures. The recommended standards for JE surveillance are discussed in a separate WHO document. (WHO-recommended standards for surveillance of selected vaccine-preventable diseases. Geneva, World Health Organisation, 2003 (WHO/V&B/03.01))

JE surveillance is critical for characterizing the epidemiology, measuring the burden of disease, identifying high-risk areas and areas of new disease activity, as well as for documenting the impact of control measures (page 340.)

Japanese encephalitis vaccines (WHO position paper)

[WER 2006, vol. 81, 34/35, pp 331-340](#)
page 338

(For cell culture-derived, live attenuated JE vaccine,) carefully planned studies are required to establish firm recommendations on the optimal immunization schedule.

Creating national and regional frameworks to support HIV vaccine development in developing countries (Report from a WHO-UNAIDS consultation)

[WHO/IVB/05.17](#)
page 21

In July 2003 WHO-UNAIDS organized an Intercurrent Infection Consultation with participants from funding agencies in microbicides, vaccines, and behavioral intervention trials; from organizations involved with HIV treatment and care; participants in HIV prevention research, community members, ethicists and legal experts, country representatives, and UN agency representatives.

In conclusion, the consultation agreed on the following points.

- Volunteers who become infected during a trial should have access to good quality care within the framework of WHO guidelines for resource-constrained settings.
- Approaches for care and treatment should be reached before a trial starts, and they need to be legally enforced beyond political changes in leadership.
- Funding mechanisms for care and treatment should be explored and formal agreements reached among participating organizations.
- Prevention trials ought to contribute constructively to infrastructure (human capacity, laboratory strengthening, etc.).
- In situations where good quality treatment and care is not available through the health system for trial participants, then alternatives need to be explored. This may include developing specific financial funds to cover drugs and care, obtained through overheads.
- Although the World Bank and Global Fund to fight AIDS, TB and Malaria do not specifically fund research, they can provide resources to develop human capacity (training) and clinical and laboratory infrastructure which will both support research as well as treatment and care outside of the trial context.
- For people found to be HIV-infected during trial recruitment, as well as partners/family members of volunteers who become HIV infected during trials, provision should be made for appropriate treatment and care through local facilities. If these are absent or sub-standard, stakeholders need to agree on separate arrangements to care for these people.

HIV

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HIV/AIDS and immunosuppression

Global Advisory Committee on Vaccine Safety, 34 December 2003

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Conclusions and recommendations from the meeting of the immunization Strategic Advisory Group of Experts (SAGE) - November 2006

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SAGE recommends that while influenza vaccine research has considerable momentum, investigation into the development of vaccines against subtypes with pandemic potential other than H5N1 should continue (for example, H7).

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JE**Global Advisory Committee on Vaccine Safety, 910 June 2005**

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Vaccine introduction guidelines. Adding a vaccine to a national immunization programme: decision and implementation

[WHO/IVB/05.18](#)
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Japanese encephalitis vaccines (WHO position paper)

[WER 2006, vol. 81, 34/35, pp 331-340](#)
page 338

(For cell culture-derived, live attenuated JE vaccine,) carefully planned studies are required to establish firm recommendations on the optimal immunization schedule.

Pentavalent

Global Advisory Committee on Vaccine Safety, 23 December 2004

[WER 2005, vol. 80, 1, pp 3-7](#)
page 6

On the basis of all the available data, GACVS concluded that there is no evidence to support a causal association between the administration of hexavalent (DTaP-Hib-IPV-HepB) vaccines and SUD (sudden unexplained death.) In response to the potential signal observed in the second year of life, the Committee encouraged studies to be conducted that are designed to provide more powerful evidence on the presence or absence of an association.

Pneumococcal

Conclusions and recommendations from the meeting of the immunization Strategic Advisory Group of Experts (SAGE) - November 2006

[WER 2006, vol. 82, 1, pp 1-16](#)
page 9

Clinical efficacy has been demonstrated in 2 schedules (for PCV-7, the 7-serotype conjugate pneumococcal vaccine) : a 6-week, 10-week, 14-week schedule and a 2-month, 4-month, 6-month schedule, which was followed by a booster dose at 12-15 months of age. Further information on the cost effectiveness of other potential schedules (for example, using different numbers of doses or different intervals between doses, and with and without boosters) should be obtained. Other schedules (such as 2 doses in a primary series plus a booster dose) are being used in some countries, whose experiences may be important as GAVI-supported countries begin introducing PCV-7 or review its use. Although a late dose (around the first birthday) may be challenging operationally for GAVI-eligible countries, there may be suitable opportunities when a dose of PCV-7 could be given, such as at the same time as measles vaccination. Countries should evaluate this information once it is available and select the most appropriate schedule based on the anticipated impact, cost effectiveness and programmatic feasibility.

Policy

Rotavirus vaccines, an update (WHO position paper)

[WER 2003, vol. 78, 1, pp 2-3](#)
page 3

WHO strongly recommends the rapid development of new and safe vaccine candidates against rotavirus disease and parallel evaluation of new candidates in developed and developing countries.

WHO also encourages measures to establish the burden of rotavirus disease in developing countries in order to provide the necessary information for advocacy and risk-benefit analyses, the outcome of which may vary with the epidemiological and socioeconomic setting

BCG vaccine (WHO position paper)

[WER 2004, vol. 79, 4, pp 27-38](#)
page 28

Improved TB vaccines are widely seen as a key element for successful TB control, and the development of efficient, safe and affordable vaccines against TB must remain a global priority.

Influenza vaccines (WHO position paper)

WHO strongly encourages the implementation of epidemiological surveillance, disease burden assessments and, where appropriate infrastructure is available, demonstration projects to estimate the impact of vaccination on disease in poor countries.

Further exploration of the safety and cost-effectiveness of introducing influenza vaccination into national immunization programmes is clearly warranted

[WER 2005, vol. 80, 36, pp 279-287](#)
page 287

Introduction of inactivated poliovirus vaccine into oral poliovirus vaccine-using countries (WHO position paper)

WHO recognizes that IPV may have an important role in the post-certification era and encourages operational studies and pilot projects to provide better understanding of the performance of this vaccine in different areas. WHO is particularly interested that opportunities for IPV introduction be fully exploited to study the effects on seroconversion and document its impact on VAPP and on the circulation of OPV-derived polioviruses.

[WER 2003, vol. 78, 28, pp 241-250](#)
page 249

Rubella vaccines (WHO position paper)

The global burden of CRS (congenital rubella syndrome) has been sufficiently characterized to justify advocating for its control and prevention. However, additional disease burden studies are required to further refine estimates at national and regional levels, particularly in developing countries. Such studies will facilitate comparison between rubella control efforts and other health priorities, and make cost-effectiveness assessments more precise.

[WER 2000, vol. 75, 20, pp 161-169](#)
page 162

Typhoid vaccines (WHO position paper)

Although both the Ty21a and the Vi polysaccharide (typhoid) vaccines are safe and of acceptable efficacy in individuals above 5 years of age, further controlled studies on the respective value of these vaccines for large-scale vaccination of children below 5 years of age, both in endemic and epidemic settings, are encouraged.

In spite of positive developments in this field, improved vaccines against typhoid fever are needed. Such vaccines should confer high levels of durable protective immunity in all age groups, preferably without the need for booster doses, and be affordable in the populations at greatest need.

[WER 2000, vol. 75, 32, pp 257-264](#)
page 258

Diphtheria vaccine (WHO position paper)

(W)ith the increasing number of doses (of diphtheria toxoid) that are now recommended, reactogenicity is likely to increase. Although further purification of extraneous proteins residing in the toxoid may help to ameliorate this problem, optimal future diphtheria vaccines should provide protection of longer duration, with fewer injections.

[WER 2006, vol. 81, 3, pp 24-32](#)
page 31

Creating national and regional frameworks to support HIV vaccine development in developing countries (Report from a WHO-UNAIDS consultation)

[WHO/IVB/05.17](#)
page 5

WHO-UNAIDS held a consultation in Lausanne, Switzerland from 26 to 28 August 2004 to discuss the impact of gender, age, and ethnicity on HIV vaccines. The overarching themes included the need for more research and attention toward recruiting female volunteers and ensuring gender-sensitive approaches among all levels of trial staff and oversight bodies, the need to further define and discuss informed consent issues and community involvement, and the need to address gaps in scientific research.

Creating national and regional frameworks to support HIV vaccine development in developing countries (Report from a WHO-UNAIDS consultation)

[WHO/IVB/05.17](#)
page 41

The following policy recommendations (from a WHO-UNAIDS consultation) were made with the goal of changing existing global, national, or regional policies.

- 1) Integrate national AIDS vaccine plans within overarching national AIDS strategies.
- 2) Align/integrate major HIV vaccine research into the national prevention, treatment and care framework and other public health research initiatives.
- 3) Develop national policies on treatment and care of study volunteers who seroconvert during trials.
- 4) Incorporate into national AIDS vaccine plans general principles and policies for negotiating with AIDS vaccine clinical trial promoters (funders and researchers) about treatment and care for intercurrent infections.
- 5) Review clinical trials legislation, where present, to ensure that HIV vaccine and microbicide trials are adequately addressed/covered.
- 6) Address HIV/AIDS vaccine development within the context of poverty alleviation efforts.

Vaccine introduction guidelines. Adding a vaccine to a national immunization programme: decision and implementation

[WHO/IVB/05.18](#)
page 47

Further studies are needed to document the safety of administering Japanese encephalitis (JE) vaccine concomitantly with the measles vaccine. If the first dose of JE vaccine could be given at the same visit with the first dose of measles, this will fit better into the schedule of the national immunization programme (NIP) and may help to increase coverage.

Typhoid vaccines (WHO position paper)

[WER 2000, vol. 75, 32, pp 257-264](#)
page 263

(W)hile waiting for improved vaccines against typhoid fever, further assessment of the protective efficacy of the currently-licensed vaccines in the youngest age groups seems warranted.

Influenza vaccines (WHO position paper)

[WER 2005, vol. 80, 36, pp 279-287](#)
page 280

Furthermore, studies are strongly encouraged to characterize risk factors and the impact of influenza in resource-limited countries. Studies to evaluate the effectiveness of vaccines in such populations are recommended.

Hepatitis A vaccines (WHO position paper)

Post-marketing surveillance studies are needed to monitor vaccine-induced long-term protection, and to determine the need for booster doses of vaccine.

[WER 2000, vol. 75, 5, pp 38-44](#)
page 42

WHO-UNICEF-UNFPA joint statement on the use of auto-disable syringes in immunization services

WHO and UNICEF recommend that:

Urgent attention should be given to develop improved means for effective, safe and environmentally acceptable waste processing and final disposal of auto-disable syringes.

[WHO/V&B/99.25](#)
page 3

State of the art of new vaccines: research and development

Although the whole-cell injectable vaccine (against cholera) is no longer recommended, it still is commercially available in some countries.

[WHO/IVB/06.01](#)
page 4

State of the art of new vaccines: research and development

In 2002 WHO recommended that demonstration projects with oral cholera vaccines be performed in populations at risk living in endemic settings.

[WHO/IVB/06.01](#)
page 5

State of the art of new vaccines: research and development

A head-to-head comparison of the Ty21a and Vi vaccines has been proposed by WHO in order to make future recommendations for countries severely affected by typhoid.

[WHO/IVB/06.01](#)
page 14

Japanese encephalitis vaccines (WHO position paper)

Optimal national vaccination strategies depend on reliable information concerning the duration of protection and, additionally, whether repeated exposure to natural infection is required for long-term protection (following JE immunization.). Similarly, further information is needed on possible impact of cross-reacting flavivirus antibodies (e.g. dengue virus antibodies) on the outcome of primary JE immunization.

[WER 2006, vol. 81, 34/35, pp 331-340](#)
page 339

Conclusions and recommendations from the meeting of the immunization Strategic Advisory Group of Experts (SAGE) - November 2006

[WER 2006, vol. 82, 1, pp 1-16](#)
page 6

WHO's global action plan identifies 3 main approaches that may be used to increase the capacity for producing pandemic influenza vaccines. These are: increase seasonal vaccine uptake to stimulate market forces and increase production capacity, increase or establish production capacity for pandemic vaccines in industrialized and developing countries independent of the demand for seasonal influenza vaccine, and implement research and development of vaccines based on new technologies.

WHO has developed procedures to facilitate the rapid transfer of strains and the release of sequence information and details of the procedures could be found on WHO's web site (http://www.who.int/csr/disease/avian_influenza/guidelines/h5n1sequences2006_08_23/en/index.html).

Japanese encephalitis vaccines (WHO position paper)

[WER 2006, vol. 81, 34/35, pp 331-340](#)
page 332

Improved methods of JE surveillance including standardized, JE virus-specific laboratory tests are critical for characterizing the epidemiology, measuring the burden of disease, identifying high-risk populations and documenting the impact of control measures. The recommended standards for JE surveillance are discussed in a separate WHO document. (WHO-recommended standards for surveillance of selected vaccine-preventable diseases. Geneva, World Health Organisation, 2003 (WHO/V&B/03.01))

JE surveillance is critical for characterizing the epidemiology, measuring the burden of disease, identifying high-risk areas and areas of new disease activity, as well as for documenting the impact of control measures (page 340.)

Japanese encephalitis vaccines (WHO position paper)

[WER 2006, vol. 81, 34/35, pp 331-340](#)
page 338

(For cell culture-derived, live attenuated JE vaccine,) carefully planned studies are required to establish firm recommendations on the optimal immunization schedule.

Creating national and regional frameworks to support HIV vaccine development in developing countries (Report from a WHO-UNAIDS consultation)

[WHO/IVB/05.17](#)

page 21

In July 2003 WHO-UNAIDS organized an Intercurrent Infection Consultation with participants from funding agencies in microbicides, vaccines, and behavioral intervention trials; from organizations involved with HIV treatment and care; participants in HIV prevention research, community members, ethicists and legal experts, country representatives, and UN agency representatives.

In conclusion, the consultation agreed on the following points.

-Volunteers who become infected during a trial should have access to good quality care within the framework of WHO guidelines for resource-constrained settings.

-Approaches for care and treatment should be reached before a trial starts, and they need to be legally enforced beyond political changes in leadership.

-Funding mechanisms for care and treatment should be explored and formal agreements reached among participating organizations.

-Prevention trials ought to contribute constructively to infrastructure (human capacity, laboratory strengthening, etc.).

-In situations where good quality treatment and care is not available through the health system for trial participants, then alternatives need to be explored. This may include developing specific financial funds to cover drugs and care, obtained through overheads.

-Although the World Bank and Global Fund to fight AIDS, TB and Malaria do not specifically fund research, they can provide resources to develop human capacity (training) and clinical and laboratory infrastructure which will both support research as well as treatment and care outside of the trial context.

-For people found to be HIV-infected during trial recruitment, as well as partners/family members of volunteers who become HIV infected during trials, provision should be made for appropriate treatment and care through local facilities. If these are absent or sub-standard, stakeholders need to agree on separate arrangements to care for these people.

Polio

Introduction of inactivated poliovirus vaccine into oral poliovirus vaccine-using countries (WHO position paper)

[WER 2003, vol. 78, 28, pp 241-250](#)

page 249

WHO recognizes that IPV may have an important role in the post-certification era and encourages operational studies and pilot projects to provide better understanding of the performance of this vaccine in different areas. WHO is particularly interested that opportunities for IPV introduction be fully exploited to study the effects on seroconversion and document its impact on VAPP and on the circulation of OPV-derived polioviruses.

Pregnant Women

Global Advisory Committee on Vaccine Safety, 910 June 2005

[WER 2005, vol. 80, 36, pp 242-247](#)
page 243

GACVS acknowledged the excellent safety and efficacy profile of the (live attenuated) SA 14-14-2 (Japanese encephalitis) vaccine but nonetheless recommended more detailed study of the following: the safety profile in special risk groups including immunocompromised people and pregnant women; whether viral shedding occurs in vaccinees and the potential implications of such shedding; further analysis of sequential or co-administration of JE and measles vaccines; the interchangeability of inactivated and live JE vaccines; the safety of vaccine administration to infants aged under 1 year; and the implications for the efficacy and safety of the vaccine in infants with maternal antibodies against JE virus.

Procurement

Conclusions and recommendations from the meeting of the immunization Strategic Advisory Group of Experts (SAGE) - November 2006

[WER 2006, vol. 82, 1, pp 1-16](#)
page 6

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Rotavirus

Rotavirus vaccines, an update (WHO position paper)

[WER 2003, vol. 78, 1, pp 2-3](#)
page 3

WHO strongly recommends the rapid development of new and safe vaccine candidates against rotavirus disease and parallel evaluation of new candidates in developed and developing countries.

WHO also encourages measures to establish the burden of rotavirus disease in developing countries in order to provide the necessary information for advocacy and risk-benefit analyses, the outcome of which may vary with the epidemiological and socioeconomic setting

Rubella

Rubella vaccines (WHO position paper)

[WER 2000, vol. 75, 20, pp 161-169](#)
page 162

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SAGE

Global Advisory Committee on Vaccine Safety, 1011 June 2004

[WER 2004, vol. 79, 29, pp 269-272](#)
page 270

Validated animal models for adjuvant safety testing do not exist, yet they will be required for future vaccine research and development. Short-term and long-term safety evaluation and prediction are important, as is the evaluation of the pharmacokinetics of the adjuvant alone. (GACVS suggested that) WHO might promote research and further develop guidelines on adjuvant safety.

SAGE - recommend to WHO

Conclusions and recommendations from the Strategic Advisory Group of Experts (SAGE) - 10-11 April 2006

[WER 2006, vol. 81, 21, pp 210-220](#)
page 218

SAGE recognized the critical role that WHO should play in the international coordination of research and evaluation of influenza pandemic vaccines.

Conclusions and recommendations from the meeting of the immunization Strategic Advisory Group of Experts (SAGE) - November 2006

[WER 2006, vol. 82, 1, pp 1-16](#)
page 15

SAGE recognized the importance of activities targeting capacity building and the development of clinical trial sites to ensure that all phases of clinical trials could be conducted in a way that meets the highest scientific, legal, ethical and regulatory standards as well as ensuring that communities are involved in the process. It will be important to develop such sites in developing countries where future vaccines would offer the most benefit.

Recognizing the complex scientific questions that need to be addressed with novel vaccine technologies, SAGE encourages efforts to facilitate close interaction and early discussions between researchers and national regulatory authorities. Additional training of members of national regulatory authorities in scientific aspects should also be included in the training programmes that are being implemented by WHO and other international sponsors.

SAGE expressed its support for the work of WHO in the area of developing vaccines against HIV, TB and malaria in close cooperation with other international and national partners and confirmed the critical role WHO has in developing relevant policies, norms and standards to facilitate the highest scientific, regulatory and ethical standards of clinical trials worldwide.

Schedule

Global Advisory Committee on Vaccine Safety, 34 December 2003

[WER 2004, vol. 79, 3, pp 16-20](#)
page 19

There are few population-based data on the effectiveness, or otherwise, of BCG vaccine in preventing severe tuberculosis in HIV-positive infants. Given the high prevalence of HIV and tuberculosis in certain countries and of the current development of new tuberculosis vaccines, some of which are based on BCG, GACVS advises no change in the current recommendations for BCG immunization of infants in countries with a high prevalence of tuberculosis and that population-based studies should be undertaken to determine the efficacy and safety of BCG and related vaccines in HIV-negative and HIV-positive children in countries with a high endemic rate of tuberculosis.

State of the art of new vaccines: research and development

[WHO/IVB/06.01](#)
page 4

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Conclusions and recommendations from the meeting of the immunization Strategic Advisory Group of Experts (SAGE) - November 2006

[WER 2006, vol. 82, 1, pp 1-16](#)
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Clinical efficacy has been demonstrated in 2 schedules (for PCV-7, the 7-serotype conjugate pneumococcal vaccine) : a 6-week, 10-week, 14-week schedule and a 2-month, 4-month, 6-month schedule, which was followed by a booster dose at 12-15 months of age. Further information on the cost effectiveness of other potential schedules (for example, using different numbers of doses or different intervals between doses, and with and without boosters) should be obtained. Other schedules (such as 2 doses in a primary series plus a booster dose) are being used in some countries, whose experiences may be important as GAVI-supported countries begin introducing PCV-7 or review its use. Although a late dose (around the first birthday) may be challenging operationally for GAVI-eligible countries, there may be suitable opportunities when a dose of PCV-7 could be given, such as at the same time as measles vaccination. Countries should evaluate this information once it is available and select the most appropriate schedule based on the anticipated impact, cost effectiveness and programmatic feasibility.

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[WER 2006, vol. 81, 34/35, pp 331-340](#)
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Typhoid

Typhoid vaccines (WHO position paper)

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In spite of positive developments in this field, improved vaccines against typhoid fever are needed. Such vaccines should confer high levels of durable protective immunity in all age groups, preferably without the need for booster doses, and be affordable in the populations at greatest need.

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State of the art of new vaccines: research and development

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[WHO/IVB/06.01](#)
page 14

VPD Surveillance

Influenza vaccines (WHO position paper)

[WER 2005, vol. 80, 36, pp 279-287](#)
page 287

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Further exploration of the safety and cost-effectiveness of introducing influenza vaccination into national immunization programmes is clearly warranted

Japanese encephalitis vaccines (WHO position paper)

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