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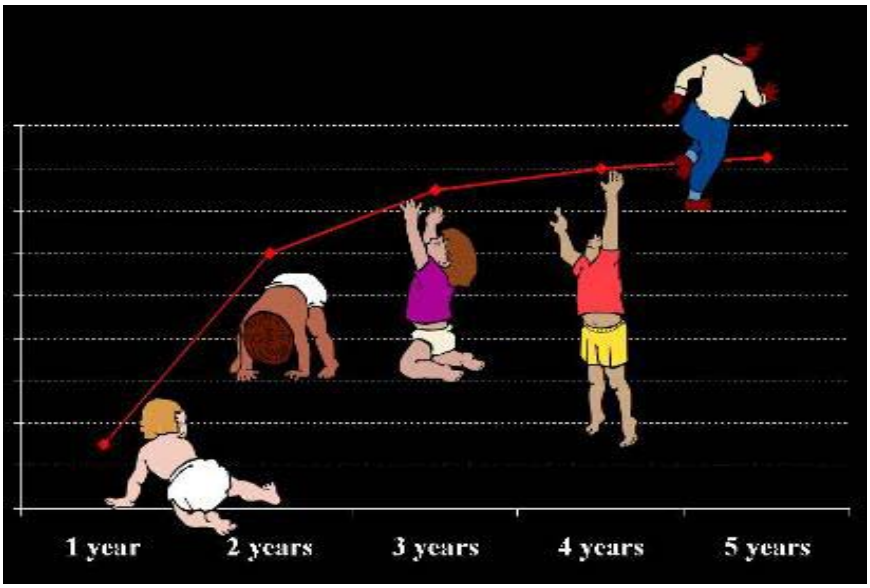
PROMOTION OF THE NEW WHO CHILD GROWTH STANDARDS

December 9-10, 2004
Cuernavaca, Mexico



Regional Meeting Report

Nutrition Unit
Family and Community Health Area
Pan American Health Organization/
World Health Organization (PAHO/WHO)

Pan American Health Organization
Washington, D.C.
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This meeting report was prepared by Ms. Sunny Kim, Technical Officer, of the PAHO Nutrition Unit.

CONTENTS

ACRONYMS

Anthropometric indicators:

W/A	Weight-for-age
L/A	Length (height)-for-age
W/L	Weight-for-length (height)

AIN	Integrated Child Care (Atención Integral del Niño)
ALAPE	Latin American Pediatric Association
BMI	Body mass index
CDC	U.S. Centers for Disease Control and Prevention
CHD	Coronary heart disease
CINyS	Research Center in Nutrition and Health (Centro de Investigación en Nutrición y Salud)
EPI	Expanded Program on Immunization
IMCI	Integrated Management of Childhood Illnesses
INSP	National Institute of Public Health, Mexico (Instituto Nacional de Salud Pública)
IUNS	International Union of Nutritional Sciences
MDG	Millennium Development Goals
MGRS	Multicentre Growth Reference Study
NCD	Non-communicable disease
NCHS	U.S. National Center for Health Statistics
NGO	Non-governmental organization
PAHO	Pan American Health Organization
PEM	Protein energy malnutrition
SD	Standard deviation
SCN	U.N. Subcommittee on Nutrition
SLAN	Latin American Nutrition Society (Sociedad Latinoamericana de Nutrición)
UNU	United Nations University
WHO	World Health Organization

BACKGROUND[1]

Growth references are among the most commonly used and most valuable tools for assessing the health and well-being of individuals, groups of children, and the communities in which they live.

Given the importance of normal growth as a summary indicator for health and in keeping with its normative function, the WHO periodically convenes Working Groups and Expert Committees to examine issues related to anthropometry. The WHO Multicentre Growth Reference Study (MGRS) is a direct result of the deliberations of the Working Group on Infant Growth in the early 1990s.

This Working Group was charged with developing recommendations for the appropriate uses and interpretation of anthropometry in infants and young children, i.e., for individuals and populations in diverse operational settings; identifying and/or developing reference data for anthropometric indicators; providing guidelines on their uses; and identifying crucial issues and gaps in knowledge in need of further development. From the beginning of its deliberations, the Working Group focused on incongruities presented by the apparent poor growth of healthy breastfed infants of well-nourished women living in favorable environments. These inconsistencies focused the Working Group's attention on an evaluation of the current international reference, the U.S. National Center for Health Statistics (NCHS)/WHO International Growth Reference, and the growth pattern of breastfed infants studied under relatively highly controlled conditions. The Working Group's analysis and interpretation of findings led it to conclude that new references were necessary and that it was time to consider the production of references that would more closely approximate standards, i.e., to describe how children should grow in all settings rather than a description of how children grow in specific setting and time.

In response to these findings and recommendations, WHO convened a group in 1995 to develop a protocol for the development of new growth references. In 1997, WHO, in collaboration with a number of institutions worldwide, began to conduct a community-based, multi-country study to develop new international growth references for infants and young children. With its strong study design, sampling that assure inclusion of different ethnic population groups, standardized training of personnel, and solidarity in the data collected, the MGRS is expected to provide a technically sound set of tools for assessing the growth and development of children worldwide. Data collection was completed in late 2003, and by the end of 2005, operational materials (growth charts, software, and training materials) are expected to be prepared to begin dissemination and implementation at the country level. The Project Timeline is shown in Figure 1.

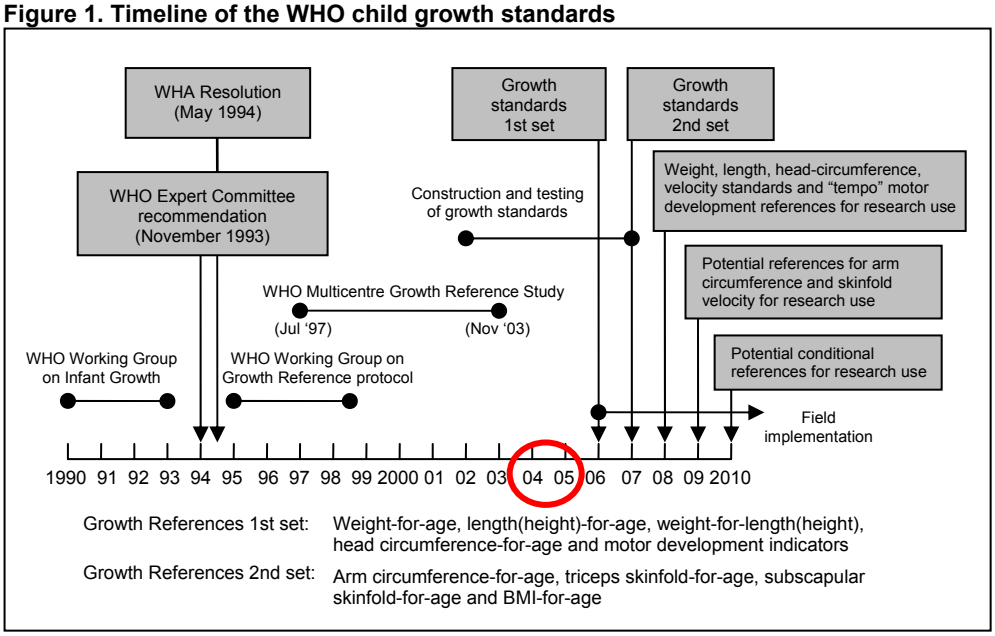
In preparation for the implementation phase and as part of a broader global work plan, PAHO/WHO conducted a regional consultation with the purpose of promoting the new WHO child growth standards by sharing details of the MGRS, reviewing the current use of growth charts and practices in child growth monitoring, discussing the implications of implementing the new standards, and elaborating a dissemination strategy for adopting them in the Americas Region. Inasmuch as the new standards are expected to be an invaluable tool for taking actions to improve child health, their implementation will require extensive commitment and integrated coordination involving various international, national and local partners as well as different sectors. The regional consultation, the first in the Region and as part of a worldwide process, was organized by the PAHO Nutrition Unit with key members of the MGRS Executive Committee and hosted by the Research Center in Nutrition and Health of the National Institute of Public Health of Mexico (Centro de Investigación en Nutrición y Salud, Instituto Nacional

[1] Excerpts adapted from: Garza C and de Onis M. "Rationale for developing a new international growth reference" Food and Nutrition Bulletin, 2004 March, vol.25, no.1 (Supplement 1), S5-S14.

de Salud Pública, CINyS/INSP). The two-day meeting was held on December 9-10, 2004, in Cuernavaca, Mexico.

Representatives of the Maternal and Child Health, Nutrition, and/or Immunization Programs of the Ministries of Health and representatives of national pediatric societies from eight Latin American countries were gathered to exchange experiences and lessons learned, and discuss actions to improve assessment and monitoring of child growth. (See List of Participants in Annex 1) Participants from the United Nations University (UNU), International Union of Nutritional Sciences (IUNS), University of Chile, Epidemiological Research Center of Brazil, and the Latin American Pediatric Association (ALAPE) also participated to provide their technical expertise and perspectives for the development of a regional adoption framework and dissemination strategy. As activities in monitoring and promoting child growth involve a wide array of governmental departments, health professionals, academic institutions, and other national and international partners, participants representing these various entities were invited to dialogue and propose how to advocate and plan for the implementation of the new child growth standards in the different arenas. (See Meeting Agenda in Annex 2)

Figure 1. Timeline of the WHO child growth standards



Source: de Onis et al, 2004.

MEETING OBJECTIVES

The objectives of the Regional consultation were:

1. Discuss the need for new child growth standards through the presentation of the planning, design and methodology of the WHO Multicentre Growth Reference Study;
2. Review the current growth monitoring practices in the countries of the Americas in order to guide the development of the most appropriate adoption framework for the Region;
3. Discuss the implications of implementing the new growth standards, and identify any concerns and recommendations for implementation in the context of primary health services; and
4. Elaborate the next steps.

SESSION 1: INTRODUCTION TO CHILD GROWTH AND THE WHO MULTICENTRE GROWTH REFERENCE STUDY (MGRS)

IMPACT OF EARLY GROWTH ON HEALTH OVER THE LIFE COURSE

Summary

Genetic patterns in interaction with early diet, infection and other environmental factors have short- (e.g., brain development, muscle and bone growth, body composition, and metabolic programming) and long terms effects on health and development (e.g., cognitive and intellectual capacity, immunity, work capacity, non-communicable disease, and the ageing process). Any essential nutrient can condition abnormal embryonic and organ growth and development. The timing of nutrient deficit or excess is critical in affecting cell replication, migration, apoptosis, and maturation. Furthermore, genetic polymorphisms affecting nutrient metabolism transport or tissue levels can modulate these effects. Both nutrients and toxicants interact in defining normal and abnormal growth, and nutrients and hormones affect growth in the processes of cell determination, multiplication, and expansion. The programming of growth velocity is also defined by early diet and introduction of foods.

In terms of growth faltering, faltering of weight begins at about 3 months of age and continues rapidly until about 12 months. Thereafter, it continues to decline at a slower pace until about 18 months with a subsequent catch-up pattern. Linear growth faltering is different, as it starts to falter immediately after birth and continues into the 3rd year of life. Stunting in length after 2-3 years is permanent. Anthropometric data during recovery from protein energy malnutrition (PEM) verify that fat recuperates quickly but height does not. Infant malnutrition was also observed to affect cellular brain growth, with limited brain growth in groups below -2 SD in linear growth.

The consequences of linear growth retardation include:

(a) higher risk of death under poor environmental conditions;
(b) lower scores in cognitive developmental tests (IQ) and school performance, particularly higher rates of drop outs;
(c) decreased lean body mass, lower aerobic capacity affecting physical work, including economic and athletic performance; and
(d) higher risk of labor complications and retarded fetal growth (trans-generational effect of poor early growth).

In 2003, 60% of the deaths among all children under five were associated with under-nutrition. Mortality risk increases exponentially with poor nutrition. The population attributable risk of death among infants is much higher for moderate under-nutrition than for severe conditions. Mild to moderate malnutrition is linked to a significantly higher risk of death as most deaths (80%) from PEM are mild to moderate. Therefore, programs targeting mild to moderate malnutrition are more cost effective than those targeting severe PEM. The largest impact on mortality is achieved if targeted to populations with high mortality and high severity of PEM.

Early adverse growth preludes to various adult diseases or non-communicable diseases (NCD) such as coronary heart disease (CHD) and hypertension later in life, and an association with higher body mass index (BMI) at childhood leading to impaired glucose tolerance or diabetes. CHD is associated with low birth weight. Studies have shown that irrespective of size at birth, low weight gain in infancy is also associated with increased risk of NCDs. Rapid weight gain after 6 years of age is associated with

further increase in risk, and the adverse effects of rapid childhood weight gain on risk of CHD are already apparent at age 3 years, specifically in boys who were thin at birth.

The effects of growth are also trans-generational. Poor maternal nutrition and environmental circumstances affect not only the vitality and health of the woman but also the birth weight and length of her offspring. Other inter-generational effects include catch-up weight (not height), which can lead to visceral obesity, high blood pressure, diabetes, and energy excess.

In defining "optimal nutrition", the paradigm of "bigger is better" has never been tested critically. The current NCHS/WHO references reflect growth under feeding practices of the U.S. community, a population that is now struggling with a significant burden of chronic disease. New growth standards for weight and height/length are needed and should be based on current nutritional and feeding recommendations. "Normal" standards should be validated relative to early and late measures of health, and "optimal" growth should be defined by lower morbidity and healthy lifespan.

NEW WHO CHILD GROWTH STANDARDS: WHY? HOW? WHAT NEXT?[2]

Summary

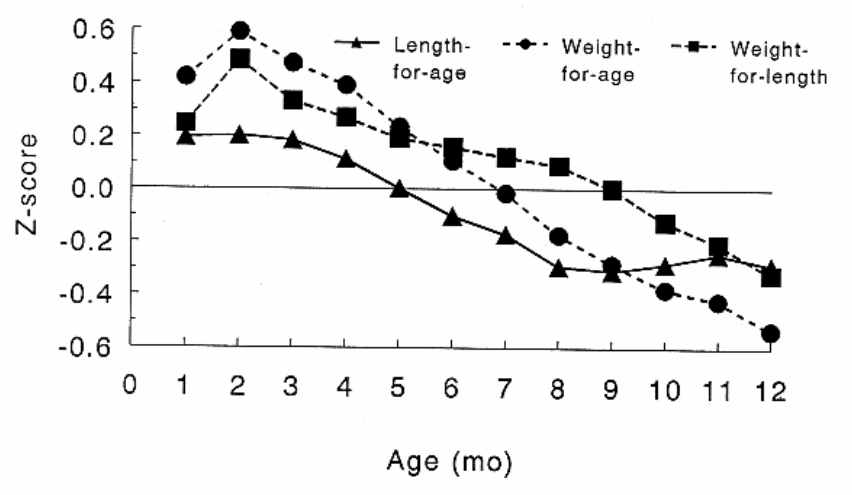
Why?

In 1991-1993, the WHO Working Group on Infant Growth conducted an exhaustive review of the growth pattern of healthy breastfed infants to understand the incongruities presented by the apparent poor growth of healthy breastfed infants of well-nourished women living in favorable environments. This apparent poor growth was inconsistent with the multiple health benefits associated with breastfeeding and other health behaviors associated with these demographic groups and the environments in which they resided. These inconsistencies focused the Working Group's attention on an evaluation of the current NCHS/WHO international reference, which was based on longitudinal data (0 to 23 months) collected from predominately formula-fed infants who resided in a restricted geographic area and were of relatively high socioeconomic backgrounds, and cross-sectional data reflecting representative samples of U.S. children.

The growth of a selected sample of infants, who were exclusively or predominantly breastfed to at least 4 months and who continued breastfeeding for the first 12 months, deviated negatively from the current international reference, and the magnitude of the deviation was sufficiently large to interfere with their nutritional management. The mean Z-scores for length-for-age (L/A), weight-for-age (W/A), and weight-for-length (W/L) of children 1 to 12 months of age, calculated on the basis of the current international reference, are summarized in Figure 2. Rather than the anticipated approximate tracking of early growth trajectories, W/A Z-scores fell progressively from months 2 through 12, Z-scores for W/L showed a similar pattern, and those for L/A fell through 8 months.

[2] Complete information about the MGRS can be found in: de Onis M et al. "The WHO Multicentre Growth Reference Study: Planning, study design, and methodology" Food and Nutrition Bulletin, 2004 March, vol.25, no.1 (supplement 1), S15-S26.

Figure 2. Mean Z-scores of healthy breastfed infants relative to the NCHS/WHO reference



Source: WHO, 1994

The Working Group concluded that new growth references were necessary and that it was time to consider the production of references that would more closely approximate standards, i.e., to describe how children should grow in all settings rather than simply a description of how children grow in a specific setting and time. A "prescription" on how children should growth at any place and time under optimal environmental conditions (e.g., lack of microbiological contamination and smoking) and optimal health attention needed to be developed.

How?

The WHO, in collaboration with a number of institutions worldwide, conducted a community-based, multi-country study to develop new growth references for infants and young children - the WHO Multicentre Growth Reference Study (MGRS). The design combines a longitudinal study from birth to 24 months with a cross-sectional study of children aged 18 to 71 months. The pooled sample from the six participating countries (Brazil, Ghana, India, Norway, Oman, and the United States) consists of about 8,500 children. The individual inclusion criteria were absence of health or environmental constraints on growth, adherence to MGRS feeding recommendations, absence of maternal smoking, single term birth, and absence of significant morbidity. In the longitudinal study, mothers and newborns were screened and enrolled at birth and visited at home 21 times: at weeks 1, 2, 4, and 6; monthly from 2 to 12 months; and every 2 months in their second year. In addition to the data collected on anthropometry and motor development, information was gathered on socioeconomic, demographic, and environmental characteristics, perinatal factors, morbidity, and feeding practices. The prescriptive approach taken is expected to provide a single international reference that represents the best description of physiological growth for all children less than five years of age and to establish the breastfed infant as the normative model for growth and development.

Future plans

The development and testing of the various growth references promises to be a complex and challenging task. The wealth of collected data will allow not only the replacement of the current international references on attained growth (W/A, L/A, and W/L) but also the development of new references for triceps and subscapular skinfolds, head and arm circumferences, and BMI. The longitudinal nature of the study will also allow the development of growth velocity curves. Health-care

providers will not have to wait until children cross an attained growth threshold to make the diagnosis of under- or over-nutrition, because velocity references will enable the early identification of children in the process of becoming under- or over-nourished. The documentation of the timing of motor milestones will also provide a unique link between physical growth and motor development. The main drawback of the new growth curves, however, is that they will cover only children up to five years of age, and the need to expand this effort to older children is acknowledged.

The MGRS will provide a technically sound set of tools for assessing the growth and development of children worldwide for many years to come. An important characteristic of the new reference is that it makes breastfeeding the biological "norm" and establishes the breastfed infant as the normative model. Health policies and public support for breastfeeding will be strengthened when breastfed infants become the reference for normal growth and development. By prescribing the nature of the sample, the recommended approach will provide a single international reference that represents the best description possible of growth for all children less than five years of age and approximates the closest attainable "standard" of physiologic growth.

Innovative aspects of the new WHO child growth standards:

- *Prescriptive* focus
- Breastfeeding as the *normative* model
- International sampling (regardless of where a child is born)
- Reference data for evaluation of infant obesity
- Reference data for growth velocity
- Link between physical growth and motor development

The next step will be the implementation of the new standards at the country level. In preparation for this phase, a worldwide survey of national practices in the use and interpretation of growth charts was conducted. The survey highlighted the interest many countries have in adopting the new growth curves when they become available. The results from the survey also indicated that the process of replacing existing growth charts and retraining fieldworkers in the uses and interpretation of new ones must go beyond the simple change of charts, to revisiting growth monitoring practices as a whole. Intensive training efforts at all levels will be required to overcome the difficulties health workers experience with the use and interpretation of growth curves and to disseminate knowledge about effective interventions to prevent or treat either excessive or inadequate growth at both the individual and the population levels.

Fifteen years have passed since the inception of this effort. The completion of weight, length/height, and head circumference standards is anticipated before the end of 2005. The remainder of the standards should be ready by 2006. Of particular concern is the smooth global transition to the new standards by field testing and simulation analyses of provisional standards that take into account the diverse settings in which individual and population assessments occur in both developed and developing countries. These evaluations will be completed before the growth standards are released.

Next steps, 2004-2010:

- Construction of the standards
- Field testing and evaluation of provisional standards
- Development of software to facilitate use at the clinical and public health levels
- Elaboration of training modules
- Revision of interventions to prevent/treat poor growth (due to excess and deficit)
- Elaboration of an implementation strategy at the global and national levels
- Adaptation of the global monitoring system of the MDGs

DISCUSSIONS FOR SESSION 1

- *"Reference" versus "standard"*

The terms "reference" and "standard" were discussed, as they held different meanings. It was explained that the MGRS was originally conceived to develop an international "reference," but the resulting growth curves will be a "standard" given their prescriptive nature. The participants of this meeting unanimously recommended denominating the new growth curves as the "**WHO child growth standards**."

- *Operational tools and materials to be developed*

Computer software will be available for use in surveys, i.e., tools for assessing and monitoring growth at the population level will be available. The tools for individual management at the clinical level will be more complicated, as there are many different types depending on which indicator is used. The growth charts used at the clinical and public health levels are often different (e.g., Tanner is frequently used at the local level to assess growth velocity, while the NCHS is used at the national level to analyze population surveys).

It was recommended that clear guidelines on breastfeeding and complementary feeding accompany the growth charts, specifically included in health cards. Growth charts should include public health prescriptions such as the promotion of breastfeeding, adequate complementary feeding practices, and provision of care and support necessary for optimal growth and development.

Above all, it was concurred that all materials for use at the primary health care level must be clear, direct, and very simple to interpret and implement.

Once the new growth standards are available, each country will need to decide whether or not to adopt them and determine specifically how to include the information in its health cards. Some countries will make their health cards simpler than others, depending on local circumstances. While some countries have their own national growth references, in general, most countries in the Region are using the NCHS reference and have expressed discontent with the current reference data. It is expected that most countries will adopt the new standards.

In the meanwhile, countries were asked to be patient, as the standards, software, and other operational materials are being carefully field tested during the next months. Although requests to release the standards immediately are already being made, the undergoing work of developing and testing the instruments are essential. It will be important to produce and disseminate adequate and validated materials in order to avoid making constant changes in the future, which carry further implications in both time and cost.

- *Lobbying and advocacy to promote the new growth standards*

In addition to the clinical and public health implications, the political perspectives and implications need to be carefully considered for the implementation phase. There is a tremendous need for sensitizing decision-makers - to disseminate information and educate about the new growth standards even before they are considered for adoption. There is a need to introduce and present the simplest "buy" into the idea in the political realm. As the reasons for developing the new standards and incorporating the measurement of the growth and development indicators are key to advocating for their adoption and use, it was recommended that simple guides or informational sheets be prepared and made

available for wide dissemination. Once the standards are available, their implementation will require a tremendous undertaking of communicating and educating at all levels, including mass communication to the public and training of health professionals and at the community level. Strong lobbying and advocacy in the present will help to ease this implementation phase in the near future.

As the new growth standards imply the redefinition of practices in assessing child growth and integrated child care, they should be elevated for discussion at the highest political level. It was recommended that the new standards be included in the agenda of the PAHO Directive Council and other assemblies with Ministers of Health. It was suggested to raise the issue with Presidents and Congresses in order to reinforce the role and importance of promoting optimal child growth on the political agendas. The World Health Assembly in 2006 was also identified as an important political forum to advance efforts. The MDGs were discussed and recognized as an important strategic arm for lobbying, as politicians are responsible for and committed to achieving these goals. Specifically in terms of the MDG indicators for nutrition, it was recommended to include height, as well as weight measurements. Moreover, actions in advocacy should be extended not only at the political level but also to the public, health professionals, and other partners through the press, public opinion, medical associations, etc.

- *Timeline of the implementation phase*

The question of timing of the adoption and implementation phase was raised. It was also inquired whether countries would have access to information on the standards during the different stages of development.

Again, it was clarified that the operational materials will be finalized before wide dissemination can be considered. As for the adoption and dissemination of the standards at the country level, the timeline is very flexible. The world is incredibly diverse and these efforts will require various actors and numerous partnerships for their successful implementation, so the timing of implement will be determined by each country.

The delegates from Mexico expressed the importance for the entire Americas Region to adopt the new growth standards. Standardized growth standards would facilitate in the exchanging of information and lessons learned among countries.

- *Cost implications in adopting the new standards*

A cost analysis for implementing the new standards at the national and local levels was suggested, taking into consideration the extensive communication and training necessary at all levels. The importance of identifying where or which activities will require the most resources was raised.

Delegates from Bolivia expressed initial concern that the Bolivian government will not likely be able to bear the costs for adopting the new standards (i.e., reproduction of materials, training, communication, etc.).

It was pointed out that most governments are already investing in these programs (i.e., growth monitoring). There is enough motivation to adopt and implement the new standards, but the decision and the investments must be made by individual countries. Although PAHO/WHO will help to provide information and technical support, countries will need to determine whether to move forward with the changes. As a point for clarification, the intensive household visits were conducted as part of the MGRS study, but these activities should not be considered as part of the norm for public health programs.

It was inquired whether donations and funds are currently available for these various activities, particularly in reproduction and distribution of materials and training. It was explained that the principle donors for these activities will be the countries themselves. Countries are the best decision-makers in the use of their own resources. At the global level, the Gates Foundation has provided funds to cover cost for the development of materials, but not for reproduction at the country-level.

- *Information systems*

Countries should maintain adequate systems of registration and data collection. It was also recommended to implement systems of monitoring and supervision in countries in order to document the process and verify the information system. The process of evaluation should be carefully built into the implementation of the new standards with clear indicators. In this way, countries will be able to share their experiences in the process of implementing the new standards and progress in assessing the growth of their child populations.

- *Implications of the new standards in terms of weight, height, and other measurements*

An important exercise will be to compare the new standards with other available references, particularly the NCHS reference. This is still in the process of being done, and the variability is expected to be distinct. Data from the MGRS was gathered from the same children over time, so the data is longitudinal, whereas the other references are based on groups of differently aged children. In general, the international sample of children was **thinner and taller** than those of the NCHS and CDC references. Therefore, **lower prevalence of under-nutrition** and **higher prevalence of stunting and overweight** might result with use of the new standards. It is still not clear how the new standards will affect the prevalence of severe malnutrition. Apart from a few countries in Asia, however, lower prevalence is expected to be observed. Although national surveys will be reevaluated eventually and prevalence rates are expected to change, this will be a long and extensive undertaking. Furthermore, it will be important to differentiate between growth faltering in weight and in length/height starting at 6 months of age.

In terms of the other indicators, BMI was incorporated because there are numerous countries interested in this measurement for 0-5 years, although there are also many countries that currently do not measure them. BMI charting is likely to prompt greater recognition of weight problems than with weight and length/height measurements alone. There are no good reference or standard data for older children. WHO is currently reviewing options for school age children and adolescents, but it is highly complex due to multiple factors related to physical activity, diet, and other behaviors.

The patterns of motor development are also an important part of the WHO standards. In relation to the six developmental milestones, two are assisted by parents and have been demonstrated to be more susceptible to their influence.

At the clinical level, standards for each indicator will likely be used in isolation, but in each country, the government and pediatricians will have to decide which indicators to measure and monitor.

SESSION 2: CURRENT PRACTICES IN THE USE OF GROWTH CHARTS

CURRENT USE OF CHILD GROWTH CHARTS IN THE REGION: QUESTIONNAIRE RESULTS

Summary

In preparation for the implementation of the new growth standards once they become available, a Region-wide survey of national practices in the use and interpretation of the current growth charts was conducted. The information gathered on the growth charts used in the countries and the reported problems in their utilization is expected to provide a better understanding of practices in monitoring child growth in the countries and assist in the design of the implementation strategy for the Region. A questionnaire was adapted from the questionnaire used for an earlier worldwide survey, translated into four languages (i.e., Spanish, English, Portuguese and French), and disseminated to 44 countries through the PAHO/WHO country offices in Latin America and the Caribbean. The questionnaires were expected to be completed by the Maternal and Infant Health, Integrated Management of Childhood Illness (IMCI), and/or Immunization Programs of the Ministry of Health and, wherever possible, health facilities or large non-governmental organizations involved in child health activities.

Data from the questionnaires were collected over a period of three months from a total of 30 countries. Of all completed questionnaires, 65% of the responses were from the Ministry of Health, while the remaining 35% were from academic institutions, professional associations, health facilities, and NGOs. Most of the countries (71%) reported using the NCHS/WHO references and the remaining (29%) a local reference or a combination of references. There was a very heterogenous use of the classification systems of anthropometric indicators (i.e., Z-score or standard deviation [SD], percentile, percentage of median, or combination). In addition, one third (n=10) of the countries responded that they are not currently measuring length/height. The list of countries that reported measuring length/height or not is shown in Table 1. The Ministry of Health and international organizations were identified as being the two main influences in determining the recommendation of classification systems and cut-off points used in the countries. Countries reported numerous programs that use growth charts as part of their health service, including nutritional surveillance, Expanded Program in Immunization (EPI), IMCI, Integrated Child Care (Atención Integral del Niño, AIN), community-based programs, and NGOs. The three main problems identified in the use of the current charts were: (1) lack of training, (2) poor condition of equipment, and (3) difficulty in interpreting the charts. (The complete results of this survey will be published in a separate publication.)

Table 1. Countries that do or do not measure length/height (N=30 countries)

Length/height measurement	Countries
YES (n=20)	Argentina, Belize, Bolivia, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Jamaica, Mexico, Panama, Paraguay, Peru, St. Lucia, Uruguay, Venezuela
NO (n=10)	Anguila, Barbados, Brazil, British Virgin Islands, Honduras, Nicaragua, St. Kitts and Nevis, St. Vincent and Granada, Suriname, Trinidad and Tobago

NOTE: All countries measure weight unless otherwise specified.

In addition, direct observations during the application of the questionnaire by personal interview were obtained from two countries – Chile and Ecuador. In Chile, the systematized use of the growth charts and the information at all levels was observed. Diagnostics of growth patterns according to the charting of the three anthropometric indicators and follow-up according to the protocols for nutritional care were continually conducted by health workers, and regular training of all health personnel was institutionalized. In Ecuador, two indicators (W/A and L/A) are measured, but there was no standardized practice for the use of growth charts among all health personnel. While monitoring of child growth was implemented in all health care programs, there were no protocols for management of malnutrition and the data collection system was not regularly updated at all levels. These observations reinforced the characterization of the countries of the Region in their different states of practices in monitoring child growth, from the highly systematized to the very minimal.

The new growth standards are an opportunity to reinforce child health and improve deficiencies related to the assessment of child growth, not simply the replacing of one set of charts for another. They are an opportunity to change and reinforce policies and growth assessment guidelines and reassert integrated child care, including the promotion of breastfeeding, timely introduction of complementary foods, management of infections, nutritional counseling, and detection and management of overweight and obesity.

GROWTH REFERENCES: AN INSTRUMENT IN THE CONTEXT OF PRIMARY HEALTH CARE

Summary

Nutrition involves the process by which organisms obtain energy and necessary nutrients from foods to sustain vital functions and health. This process includes food ingestion and digestion, absorption, transport, storage, metabolism, and excretion. Malnutrition is caused by the inadequate food ingestion in quantity and quality, as well as any defect in the functioning of components that form part of the process. Under-nutrition results from the insufficient consumption of energy and nutrients, whereas overweight and obesity result from excessive intake. The consequences of malnutrition and micronutrient deficiencies are inadequate growth and development, increase in the risk of disease and death, less school and intellectual output/efficiency, less physical work performance, and possible greater risk of obesity and chronic diseases.

Although measuring the nutritional status of all individuals, i.e., the availability of nutrients at the cellular level, would be desirable, it is difficult and impractical to achieve in the population context. However, the results of adequate nutrition and growth can be measured, and the most commonly used indicators include weight and height. Deviations of growth patterns are useful in guiding the implementation of appropriate nutrition and health actions. There is a need for growth references, as markers of "adequate growth." Patterns of adequate growth are universal with relatively small variations among ethnic groups, which call for the use of standardized international growth references.

There are two levels of actions in the use of growth references. At the individual level, references can lead to the timely identification of deviations in growth through monitoring and screening and the implementation of appropriate actions. Actions for promoting growth within primary health care include the promotion of adequate breastfeeding and complementary feeding, and disease prevention and treatment such as immunizations and treatment of diarrhea (with ORS/Zinc). At the population level, anthropometric data can be used to select target populations and to focalize interventions by geographical areas, ethnicity, socioeconomic levels, etc. It can track changes in prevalence and identify trends in the health and nutritional status of the population over periods of time.

Growth references are an important instrument for determining the health and nutritional state of individuals and the population. They are essential for taking actions in programs and in clinical care, and they permit prioritization of resources at the population level. The results in the measurement of tendency and the dispersion between patterns can determine different decisions for action. Therefore, it is important that the references confidently reflect the growth patterns of healthy and diverse populations. The current growth references include an elevated number of children whose infant feeding is not adequate according to the WHO recommendations. The new growth standards are based on healthy children of greater ethnic and cultural diversity that received adequate infant feeding and care. The new standards offer an opportunity to reinforce the assessment of child growth for decision-making in primary health care.

DISCUSSIONS FOR SESSION 2

- *Length/height measurement*

There are several reasons why some countries are not currently measuring length/height. Weight measurement was the first indicator introduced in the countries, and many countries proceeded only with this recommendation. Length/height measurement is also tricky, as it requires another equipment and precision of measurement that is more difficult to achieve with infants and small children. Doubts were expressed over the technique currently utilized and the quality of data in terms of height measurement, particularly without proper training and education.

It was explained that measuring length/height is not very difficult except with newborns. The delegates from Chile expressed that while it is difficult to obtain confident length/height data, they have confidence in their health personnel. Proper training was highlighted as the key to accurate height measurement. The situation in the countries in the Region is heterogeneous in terms of training and motivation of health personnel. Training needs to be incorporated as a permanent activity, particularly given the constant rotation in personnel.

The Americas Region also has an advantage of being able to exchange and share experiences and lessons on these matters. A better understanding of the practices and the difficulties in the countries can help direct resources where necessary.

- *Repercussions in pediatric care*

Participants from the pediatric societies/association reiterated the importance of practices in monitoring child growth in pediatric care. The need to consider costs associated with changing academic materials was raised.

In the context of primary health care, a need for change in the thinking of short and medium term interventions was expressed. For instance, pediatricians are resistant to zinc supplementation up to 6 months of age, although various studies in children less than 6 months showed that zinc reduced the severity and duration of diarrhea. Despite the mounting evidence, it was pointed out that the WHO recommendations for zinc have still not been changed. On this issue, however, it was pointed out that the problem with the zinc studies is that where there is zinc supplementation, less practice in breastfeeding was found. There is a need to learn from various experiences in order to balance the advantages and disadvantages in introducing changes in public health actions.

SESSION 3: COUNTRY EXPERIENCES IN THE USE OF GROWTH CHARTS

BRAZIL

Summary

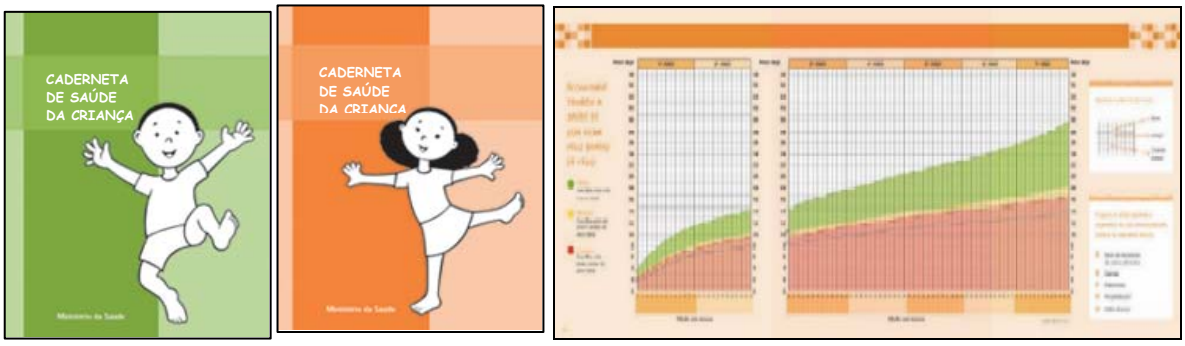
The Unified Health System (Sistema Único de Salud, SUS) in Brazil functions as a regionalized and hierarchical network of actions and public health services with emphasis on decentralization of integrated care and community participation. Its four main principles are: (1) participation of beneficiaries and professionals, (2) decentralization by municipalities, (3) universality with access for all to health services, and (4) integration of actions in treatment and prevention.

In 1999, the National Food and Nutrition Policy was established by decree under the following principles: (1) adequate food and nutrition are fundamental human rights inasmuch as the right to food is a right to life, and (2) the nutritional situation of a population reflects its living condition, thus good nutrition constitutes a fundamental aspect of healthy development of individuals. Within the Ministry of Health of Brazil, there are six technical areas and programs, including the Coordination of Food and Nutrition Policy which is primarily responsible for nutrition-related activities. However, nutrition is integrated into other technical areas - Infant Health and Breastfeeding, Adolescent Health, Women's Health, Health of the Elderly, and Hypertension and Diabetes.

Various information systems exist in Brazil - SISVAN (surveillance of nutritional status), SIM (mortality), SINAN (mandatory notified diseases), SINASC (live births), SIAB (primary care), SIASUS (ambulatory care information), and SIASI (indigenous health). In terms of child health, the Agenda of Commitment to Integrated Child Health includes five lines of priority: (1) promotion of healthy birth; (2) monitoring of newborns at risk; (3) monitoring of growth, development, and immunization; (4) promotion of adequate breastfeeding and complementary feeding; and (5) control of respiratory and infectious diseases.

The previous child health card was developed in 1984, included monitoring until 6 years of age, and used for SISVAN and social programs. In 2004, a new child health booklet was developed for monitoring child growth until 10 years of age (as a norm for MERCOSUR) and included registration of various health data, such as information on gestation and birth, growth, development, immunization, etc. Separate versions of the booklet were developed for boys and girls, and they are a standardized tool for nutritional monitoring of children less than 7 years (with growth charts). A copy of the new child health booklet covers and growth charts are shown in Figure 3.

Figure 3. Child health booklets for boys and girls (separate) in Brazil



A study on the use of child health cards, conducted in 2002, showed that about 99% of children have cards and 98% had their card at the moment of consultation. However, only about 21% of the cards had completed growth charts.

The new child health booklets apply the NCHS references to measure two indicators – W/A and head circumference-for-age. The percentiles system of classification is used with the cut-off points of p0.1, p3, p10 and p97 for W/A, and p10 and p20 for head circumference. The growth charts are considered a visual and practical representation for monitoring nutritional status and growth.

Brazil was one of the participating countries of the MGRS. The country intends to adopt the new standards when they become available, and the new "Child Health Booklet" already preempts the change with folder pockets at the end of the booklet for insertion of the new growth charts.

Some of the obstacles anticipated in the implementation of the new growth standards include the complex territorial/geographical dimension of the country, complexity of the SUS and its process of decentralization, overlapping period of two different references, lack of equipment for measuring stature, lack of resources for training, and the discrepancy between the new standards that are only up to 5 years of age and the SISVAN that monitors children up to 10 years. Recommendations for improving the use of growth charts include making the health booklets available to all children in all maternity wards; training health personnel, including primary health care professionals and families, to properly assess growth and nutritional status; and empowering families about the importance of monitoring child growth and development.

CHILE

Summary

In Chile, there is strong integrated child health care until 6 years of age. In 2003, using the NCHS reference, the prevalence of malnutrition among children under 6 years was 0.5%; 3.2% of the children were at risk of malnutrition, 73.9% were normal, 15% were overweight, and 7.4% were obese. The nutritional status of children less than 6 years of age in the past decade is shown in Table 2. Obesity is also increasing among pregnant women, from 12.9% in 1987 to 33.4% in 2002.

Table 2. Prevalence of nutritional status among children less than 6 years of age, Chile, 1990-2003

Nutritional status	% (by date and type of reference)			
	1990 (Sempé)	1994 (NCHS)	2002 (NCHS)	2003 (NCHS)
Malnutrition	7.4	0.7	0.5	0.5
At risk of malnutrition		3.4	3.1	3.2
Normal	92.6	74.2	72.9	73.9
Overweight		15.7	16	15
Obesity		5.8	7.4	7.4

The NCHS reference has been used for monitoring growth of children less than 6 years since 1993. The frequency of growth assessment is every 1-2 months for the 1st year, every 3 months for the 2nd year, and every 6 months for 2-5 years, with greater frequency among at-risk groups. All health personnel in the 481 health centers and 1,161 rural posts are responsible for monitoring growth. When any changes to norms in public health actions take place in the country, they are implemented uniformly and

completely throughout the entire country at all levels. There are specific guidelines to always assess child growth before any health consultation.

Monitoring child growth is formally recognized by health authorities as a priority in the country. Information on growth is carefully recorded in registration forms (see Figure 4) and updated regularly in a public website of the Ministry of Health, within the Nutrition or Statistics Section (www.minsal.cl).

Figure 4. Registration form for growth monitoring

INDICADOR Y ESTADO		POBLACIÓN BAJO CONTROL MENORES DE 6 AÑOS							
		TOTAL	POR GRUPOS DE EDAD (en meses)						
			0 a 2	3 a 5	6 a 11	12 a 17	18 a 23	24 a 47	48 a 71
TOTAL		0							
POBLACION MENOR DE 6 AÑOS, SEGÚN ESTADO NUTRICIONAL									
INDICADOR PESO/EDAD	- 1 D.S.	0							
	- 2 D.S.	0							
	TOTAL	0	0	0	0	0	0	0	0
INDICADOR PESO/TALLA	+ 2 D.S.	0							
	+ 1 D.S.	0							
	TOTAL	0	0	0	0	0	0	0	0
	- 1 D.S.	0							
	- 2 D.S.	0							
	TOTAL	0	0	0	0	0	0	0	0
INDICADOR TALLA/EDAD	- 1 D.S.	0							
	- 2 D.S.	0							
	TOTAL	0	0	0	0	0	0	0	0
DIAGNOSTICO NUTRICIONAL INTEGRADO	RIESGO	0							
	DESNUTRIDO	0							
	SOBREPESO	0							
	OBESO	0							
	NORMAL	0							
	SUBTOTAL	0	0	0	0	0	0	0	0
	DESNUT. 2RIA	0							
	TOTAL	0	0	0	0	0	0	0	0

For children under 6 years of age, the three indicators are measured – W/A., L/A, and W/L, to determine nutritional status (using Z-score or SD system of classification). The concept of "Integrated Nutritional Diagnostic" was incorporated to define the categories of malnutrition, risk of malnutrition, normal, overweight, and obesity.

The indicators are applied in two ways: (1) deviations above or below the median are referred to nutritional consultation; and (2) each health establishment conducts a census and sends the data electronically every 6 months to the Ministry of Health. Actions derived from the assessment of child growth include integrated nutritional diagnostic, education in healthy eating and physical activity, enrollment into special programs for management of malnutrition (for deficit and excess accordingly), enrollment in feeding support programs in the case of deficit, and referral to secondary level of health care when necessary. Regular monitoring of growth helps to drive the development of new intervention strategies targeted to population groups, based on current information on the nutritional situation in the country.

ECUADOR

Summary

In Ecuador, growth charts are used by the public and private sectors, municipalities, social security, rural security, armed forces, Catholic churches, NGOs, universities, and prefects. The charts are implemented in various programs including the control of growth and development, complementary feeding programs, EPI, Integrated Micronutrient Program, IMCI, and PROSAN-SISVAN. Monitoring

of growth of all children less than 5 years takes place through 1,300 operational units of the Ministry of Health, the first and second levels of primary health care, and other health facilities.

The NCHS/WHO reference is currently used. Weight, stature by leg length, longitude by dorsal or supine length for children under 2 years, and health circumference are measured. In newborns, weight, length/height, and head circumference are measured to determine the nutritional status and classify the newborn by gestational W/A and risk of malnutrition. A *combination* of percentiles and Z-score/SD systems of classification are used with the following cut-off points:

- < 4 SD, severe malnutrition
- 3 - 4 SD, moderate malnutrition
- p3 to <3 SD, mild malnutrition
- p97 - p3, normal
- > p97, overweight

According to these categories of nutritional status, nutritional intervention actions are undertaken (i.e., education, integrated care, and/or complementary feeding). In children under 5 years, the frequency of child growth assessment is monthly during the first 24 months at optimum, or at minimum on the 1st, 2nd, 4th, 6th and 12th months and trimestral control up to 2 years; and annually between 24 and 60 months. Children are screened for health emergencies, disease pathology, nutritional status, and health control.

The equipments used for weight measurement are scales for infants or plate scales, platform scales, Salter spring scales, and electronic scales. The equipments used for height include infant length/height measuring boards, platform scales with stadiometer, and wall-mounted measuring tapes. The instruments used to measure head circumference include stretch-resistant measuring tape, metallic measuring tape (ideal), glass fiber measuring tape, polyvinyl or fabric measuring tape (not recommended), and head circumference tape (Ross insertion tape). The inventories of equipment are updated every two years.

The current health cards for children under 5 years integrate all health actions such as vaccinations, supplementation, and guidelines for breastfeeding (see Figure 5). There is concern over the fact that only about 30% of the cards are currently being completed.

Figure 5. Child health cards in Ecuador

Problems in the interpretation of the growth charts were identified, particularly in the interpretation of the percentiles and Z-score or SD. For improving the use of growth charts in primary health care, it was recommended that a national (multi-disciplinary and multi-sectoral) committee be formed; instruments be made simple to use and interpret, according to the different levels of implementation; and trainings be conducted by levels of care and according to health personnel, including curricula for academic and professional formation since most already receive education on modules in anthropometry.

GUATEMALA

Summary

Guatemala is a multicultural and multilingual country, with 23 different official languages spoken by distinct ethnic groups. The country is divided into 8 regions, 22 departments, and 331 municipalities. The principle causes of general mortality are acute respiratory infections, diabetes, hypertension, cardiac infarction, diarrhea, cerebrovascular accidents, and malnutrition. In 2002, less than half of the children under 6 months received exclusive breastfeeding. Only 47% of the children 20-23 months received continual breastfeeding. Low W/A prevalence (global malnutrition) is 23%, and low W/L (acute malnutrition) in children less than 3 years is 42%.

Food and Nutrition Security (Seguridad Alimentaria Nutricional, SAN) is a priority of the Ministry of Public Health. The mission of SAN is to promote and support the construction of a Food and Nutrition System that responds to the food and nutrition security needs of the Guatemalan population through nutrition surveillance, regulations in food and nutrition, and evaluation and control of interventions to strengthen SAN. Lines of actions include (1) monitoring of growth of children and pregnant women, (2) nutritional assessment in children under 5 years, (3) promotion of adequate breastfeeding and other infant, maternal and family feeding practices, (4) micronutrient supplementation to vulnerable groups, (5) strengthening of health services in the promotion of breastfeeding and infant feeding, and (6) formation of "mother-to-mother" support groups and other groups organized for mothers to improve infant feeding practices. There is a SAN policy already in place; a national SAN system was established; and the Secretary of SAN on Fight Against Hunger was created.

Growth charts are used by various programs of the Ministry of Public Health, Ministry of Education, Secretary of Social Welfare, Social Works of the First Lady, universities, NGOs, private clinics, associations, leagues, foundations, and international cooperation agencies. Important uses of the growth charts include research (e.g., INCAP prospective study, studies on the relationship between infection and nutrition, mental development and nutrition, supplementation, inter-generational effects, and malnutrition and productivity), surveys and censuses (e.g., national maternal and child health survey, height census in school children, and nutritional census in emergency situations), feeding support programs, formation of human resources (e.g., in medicine, nutrition, nursing, and other health areas), and within the health system (e.g., analyses of vulnerability and targeting interventions, emergency situations, and assessment of growth).

The NCHS references are principally used to compare measurements in weight and length/height (i.e., W/A, W/L, and L/A). The Nabarro reference is used for nutritional assessment of children less than 2 years of age during health services and in censuses. Other measurements include arm circumference in newborns and pregnant women. The growth charts are used for children under 5 years, school age children enrolled in first grade, and pregnant and breastfeeding women. Both the percentage of the median and Z-score/SD classification systems are used. The criteria used to determine nutritional status are shown in Table 3.

Table 3. Criteria for classification of nutritional status used in Guatemala

Malnutrition classification	% of the median	Z-score/SD
Severe	<70%	≥ -4 and ≤ -3
Moderate	70 – 79%	≥ -3 and ≤ -2
At risk	80 – 89%	≥ -2 and ≤ -1
Normal	90 – 109%	≥ -1 and < 4

Monitoring of child growth is considered to facilitate integration of different services and health workers; promote community participation oriented to improving health, nutrition, and child growth; permit screening of vaccination schedules; permit follow-up of household care and referral of sick children; and promote counseling.

In 2003, the norms for assessing child growth were revised for the purpose of early detection of children with inadequate growth in order to conduct timely and adequate counseling or referrals to higher level of health services. The guidelines were modified to increase the frequency of weight measurements in children less than 2 years, from bimonthly to monthly. The norms for growth assessment are monthly weighing of children from 0-24 months, bimonthly weighing of children 2-5 years, counseling according by age and findings, and interpretation of insufficient *weight gain* during two successive controls as the process of developing malnutrition. For children less than 1 year, monitoring for *minimum monthly weight gain*, combined with information on the health of the child, is the driving force for action. A child not meeting the minimum weight gain-for-age from one month to the next is classified as having "poor growth," and counseling is provided to the parent or caretaker about age-appropriate feeding and child care practices. For children 2-5 years of age, W/A charting is used to take appropriate actions.

The primary instrument used in monitoring child growth is the community worker's notebook, which permits follow-up information on 25 children including name, sex, date of birth, age in months, current weight, next month's weight, and classification (good or poor growth). Algorithms on the procedures for assessing child growth are used for children less than 6 months of age and above 6 months, and for those recently incorporated into monitoring of child growth.

The use of the new growth standards is expected to reinforce services within Primary Health Care to promote growth and control malnutrition and chronic diseases. Recommendations for their implementation include: (1) develop an IEC strategy to promote the adoption of the new growth standards according to different audiences, (2) coordinate with all the relevant entities of the Ministry of Health and other academic and professional institutions in the implementation of the new standards, (3) strengthen the nutritional surveillance system by including the 3 anthropometric indicators, and (4) sensitize all health personnel and service organizations on the connection between physical growth and motor development, and adequate breastfeeding and complementary feeding. The anticipated challenges include timely detection and assessment, need for more trained personnel, and the need for a strengthened information system.

MEXICO

Summary

Growth charts are used in various programs including the Infant Health Care program, "Integrated Care" strategy, "Healthy Start to Life" strategy, vaccination (national vaccination notebook and PROVAC, the Mexican health database), Life Line, programs of opportunities (in education, health, and feeding), and Expanded Coverage Program. During every health consultation, health workers are expected to register age, weight, height, head circumference, and assessment of motor development. The frequency of consultations is bimonthly for child less than 1 year of age and a minimum of every six months for children 1-4 years. The Official Norm for Child Health Care was established in 1999 with the recommendation to register at least weight and height of children in the National Vaccination Notebook and the Nominal Census during visits to health units for administration of vaccine doses according to the Basic Vaccination Schedule – at birth; at 2, 4 and 6 months; and at 1, 2 and 4 years.

Nutritional status is determined by W/A, L/A, and W/L. The Z-score or SD classification system is used; the cut-off points applied are shown in Table 4. Furthermore, when the measurement of head circumference is found within the percentiles 3 and 97, it is considered normal. When it is outside these values or moves two unit lanes above or below, the child is sent to a specialized medical unit for appropriate care. Arm circumference and tricipital skinfold measurements are determined only in cases where problems have been detected, in which case, follow-up is provided with measurements conducted by specialists, until the child completes 5 years of age.

Table 4. Classification of nutritional status by Z-score cut-offs used in Mexico

Malnutrition classification	W/A	W/L	Malnutrition classification	L/A
Obese	+2 to +3	+2 to +3	Tall	+2 to +3
Overweight	+1 to +1.99	+1 to +1.99	Slightly tall	+1 to +1.99
Normal	±1	±1	Normal	±1
Mild	-1 to -1.99	-1 to -1.99	Slightly short	-1 to -1.99
Moderate	-2 to -2.99	≤ -2	Short	≤ -2
Severe	≤ -3	≤ -3		

Various problems were detected in the use of the current growth charts. The Official Norm for Child Health Care does not mention the use of BMI reference values to determine overweight and obesity. There is a very low demand for "healthy child" consultations at the first level of care. Health personnel at the first level health units remain for a short term period (many doctors and nurses at first level health care are temporary and change every year). Among the weaknesses of PROVAC, it does not have memory capacity to register information for more than one date. The recent rapid coverage surveys showed that only half of the National Vaccination Notebooks had registered weight and height of children. There is a lack of standardization in training and equipment among the different programs that use the growth charts, and there are many discrepancies among duplicate data.

Recommendations with regard to equipment, training, and data interpretation are as follows:

Equipment

- Calibrate scales
- Standardize instruments wherever possible
- Establish criteria to determine the need for replacement of equipments - stadiometers, scales and length/height measuring boards
- Use the National Vaccination Notebook for monitoring of nutritional status by registering weight and length/height, and providing follow up to children demonstrating poor growth
- Use -2 and +2 SD as cut off points on the charts
- Implement rapid coverage surveys to detect deviations and continue with counseling/follow up
- Adopt the new growth standards in all the institutions of the health sector
- Assure sufficient supplies of charts and materials in every health unit and for each health worker following previous training

Training

- Elaborate manuals for standardized training, independent of the institution and type of program
- Conduct training regularly
- Include data on malnutrition in the norms, manuals, and training
- Include concrete description of recommendations on the management of malnutrition in the norms, manuals, and training

- Implement theoretical and operational workshops that can be included in the curricula of schools of medicine for the purpose of sensitizing and training general practitioners
- Train all state and jurisdiction personnel responsible for nutrition and health personnel at first level health units to conduct adequate supervision of activities and registration of data

Interpretation

- Reinforce the importance of the interpretation of weight and height measurements at the first level health units (norms, manuals, training)
- Connect practices in monitoring of child growth and nutritional status with the assessment of motor development, which is starting to be measured in the first level health units according to Rapid Development Assessment Guidelines

DISCUSSIONS FOR SESSION 3

- *Mild or moderate malnutrition*

The interpretation and management of cases of mild or moderate malnutrition in the countries was raised. It was questioned whether a redefinition and/or better understanding of "mild" or "moderate" malnutrition is necessary. From a public health perspective, the mild and moderately malnourished subpopulations are of great importance because there will be many more children at relatively immediate risk of death than in the severely malnourished category. It is recognized that all degrees of malnutrition substantially contribute to child mortality. Children that are classified as having mild or moderate malnutrition still require care and attention.

- *Management of severe malnutrition*

It was pointed out that some countries in the Region are still struggling with cases of severe malnutrition. There is a need for clear guidelines for the management of severe malnutrition in the Region that include promotion of optimal breastfeeding and complementary feeding practices.

- *Overweight and obesity*

It is important to consider the health care needs of children on both ends of the range of nutritional status – under-nutrition and overweight. While there is current emphasis on more frequent monitoring of children less than 2 years of age, there is also the need for greater awareness and monitoring of growth in children above and beyond 2 years of age, particularly given that overweight and obesity are more apparent among school-age children than preschool children.

- *Classification systems and cut-off points*

A question was raised on whether or not WHO had considered the cut-off points for both underweight and overweight, and their use. It was inquired whether standard deviations, percentiles, or percentage of median will be used in the new growth standards.

It was clarified that WHO will make available classification systems of standard deviation and percentiles. WHO is also committed to following up on future discussions on classification systems, statistical cut-off points, health outcomes, as well as protocols for management of malnutrition. It was pointed out that the new growth standards will help to identify not only the deviations in growth but also to assess growth velocity.

It was pointed out that in some countries in the Region, *minimum weight gain* (in addition to average and maximum weight, as expressed by the delegates of Mexico) is used. The validity of these values and their methodology was questioned. It was expressed that the use of minimum weight gain was likely a policy of the government and not a valid target. There is no minimum weight gain in the new WHO standards. Delegates from the Central American countries (i.e., El Salvador, Guatemala, Honduras, and Nicaragua) explained that they use minimum weight gain as a screening method at the clinical and community levels and not as standards at the public health level. When questioned where the evidence for the use of the minimum weight gain originated, the delegates from Honduras expressed that it was from pediatric literature.

- *Health cards, registration and information systems*

The experience of developing the current Ecuadorian child health cards was highlighted as an example of integration and coordination among different programs involved in child health and monitoring of child growth. The change was motivated by discussions among Nutrition, IMCI, and EPI programs, and these programs tried to integrate their various priority activities.

In each community in Mexico, there is a field nurse that registers data for every child on a monthly basis and identifies the child's nutritional status. A weakness of this strategy is that there is little control and supervision over the activity. A similar strategy in Guatemala was shared but involving community leaders.

The website of the Ministry of Health of Chile, which updates registered data for public access, was recommended as a model for the rest of the countries as well as at the regional level.

- *Imminent changes with the use of the new growth standards*

It is evident that when the growth standards change, the prevalence rates will change. Furthermore, the introduction of length/height measurement in many countries will likely force more countries to identify the problem of overweight and obesity in their population. These issues will require change in the political agenda, redesigning of interventions, redefinition of target populations, as well as reallocation of resources. Where changes are anticipated to be most difficult, country teams will require stronger leadership and better understanding of the rationale for introducing the changes.

SESSION 4: ADOPTION FRAMEWORK AND DISSEMINATION PLAN FOR THE NEW GROWTH STANDARDS IN THE REGION

DEVELOPING THE ADOPTION FRAMEWORK AND REGIONAL DISSEMINATION PLAN

Proposal

The profile of the proposed strategy for the dissemination and adoption of the new growth standards in the Region of the Americas is as follows.

Title: Dissemination and adoption of the new international child growth standards in the Americas

Duration: 4 years (2005-2008)

Objective: To promote the adoption of the new WHO child growth standards in the countries of the Region, in order to be used as part of primary health care and in programs linked to improving child health and nutrition

Activities:

At the regional level:

1. Designation of the Project Coordinator
2. Formation of the Regional Support Network with members of the Network of Latin American Scientific Research Centers, consisting of representatives of centers (INTA-Chile, INSP-Mexico, Federal University of Pelotas-Brazil, PROPIA-Argentina, CREP-Argentina, IIN-Peru, and the University San Francisco of Quito-Ecuador) and PAHO/WHO.
3. Production of support materials
4. Organization of a workshop to form the Regional Support Network
5. Organization of four sub-regional workshops:
   (1) English-speaking Caribbean countries
   (2) Central American and Spanish-speaking Caribbean countries
   (3) Andean countries
   (4) Southern Cone countries

   Each country will organize a work team that will be responsible for the dissemination of the standards and monitoring of their use. For each country team, one person will be designated as the focal point for that country.
6. Organization of an email discussion group with the country focal points to exchange questions, responses, comments and problems.

At the country level:

1. Adaptation and reproduction of materials at the country level, under the responsibility of the national implementation teams
2. Elaboration of national implementation plan and monitoring of the new standards
3. Training for implementers – national and sub-national, under the responsibility of the national team
4. Training of health personnel at the local level
5. Implementation
6. Monitoring and evaluation

Monitoring and evaluation:

1. A monitoring mechanism in each country will be se in place in order to provide continuous information of strengths and weaknesses of the implementation of the new standards
2. The obtained information of the monitoring will be processed and analyzed for feedback and

dissemination of the results from the central national level to the international level in order to serve to contribute to the mass dissemination of the new standards.

3. A final evaluation of the implementation process will be conducted at the end of the 4-year period with the purpose of disseminating the results throughout the Region.

Expected results:

1. At least 20 countries will have adopted the new growth standards by the end of the project execution period (2008)
2. Adapted materials will be available in the countries

Lessons learned will contribute to the wide dissemination of the standards in the Region.

Methodology for Working Groups

Participants representing the Maternal and Child Health, Nutrition, and/or Immunization Programs of the Ministries of Health, and representatives of the pediatric associations and academic and research institutions were randomly separated into three working groups. Working groups were instructed to discuss four questions pertaining to the dissemination and adoption of the new growth standards in the Region. Based on their knowledge, experiences and lessons learned, participants were asked to: (1) identify the actors at the different levels that should participate in training for the implementation of the new growth standards; (2) identify the minimum equipment necessary to implement the new growth standards; (3) identify the process indicators that should be included in the system of supervision and evaluation of the implementation of the new growth standards; and (4) identify how the new standards will improve the quality of health services in general and the system of integrated child care. The results of the working groups are presented in the following section.

Summary of Working Groups' Deliberations

The results of the working groups and their recommendations for each of the four topics – actors, equipments, process indicators, and benefits of the new child growth standards - are summarized in this section.

1. List of actors at the regional and country levels that should participate in training for the implementation of the new growth standards:

Regional level:	**Country level:**
- PAHO/WHO Regional coordination with international expert advisors - Regional Support Network (consisting of member institutions as mentioned in the above proposal) - UNICEF - Bilateral agencies - Banks: International Development Bank (IDB) and World Bank (WB) - Organization of American States (OAS) - ALAPE	- National implementation team (central) trained by PAHO/WHO and composed of no more than 6 persons from programs and institutions that are involved directly in child health and nutrition - National committee or strategic alliances (with methodological convictions for implementation of the new standards) - Governmental entities: President, Senators, Ministry of Health, Social Security, Secretaries of Social Welfare and Education - Training and education oriented to maternal and

- SLAN - IBFAN - Opinion leaders - Sub-regional forums: Andean Pact, MERCOSUR, RESCAD	child health programs in cascading mode to different levels, conducted by multi-functional and multi-disciplinary teams - Municipalities (responsible for decentralized administration) - Universities: medicine, nutrition, nursing - Research institutes and centers - Breastfeeding commissions - Pediatric societies - Nutrition societies - Community leaders - Opinion leaders - Communication media - NGOs - International cooperation agencies

2. Minimum equipment necessary to implement the new growth standards:

- WHO child growth standards – charts and diagrams
- Standardized manuals (developed by WHO and adapted by Region/country)
- Training materials: self-learning modules, manuals, etc. (developed according to levels – health personnel or other users)
- Quick reference posters
- Software
- Images of the new "norm" or "standard" of a healthy child (for communication purposes)
- Health cards or booklets containing the following minimum information:
    - Physical growth and motor development assessment data
    - Breastfeeding guidelines
    - Complementary feeding guidelines
    - Immunization data
    - Micronutrient supplementation data
    - Health education
    - Prevention of child abuse
- Instruments for data collection by levels (municipal, state, national) and by periods (daily, weekly, monthly, annually)
- Instruments for evaluation of the system
- Equipment for measurement: scales, length boards, stadiometers, and measuring tape
- Standardized specifications or recommendations of equipments for the Region (scales, length boards, stadiometers, and measuring tapes), preferences by cost and operational considerations

3. Process indicators that should be included in the system of supervision and evaluation of the implementation of the new growth standards:

- Number of formed trainers
- Number of trained professionals in the different levels and institutions

- Number of health units trained and equipped
- Number of certification of training by individuals or by health centers
- Number/types of materials elaborated (health cards, booklets, posters, brochures, etc.)
- Coverage (proportion of health cards distributed in relation to total number of children, proportion of cards adequately completed according to the minimum norms of each country)
- Number of institutions implementing the new standards
- % of health units that use new standards correctly
- Adequate utilization of the growth assessment guidelines in each program (IMCI, EPI, etc.)
- Number of measurement equipments delivered
- Number of measurement equipments that comply with the norms, calibration and maintenance
- Political decisions, e.g. resolutions of the Ministry
- Integration of the training curricula in the universities

4. Ways the new growth standards will improve health services and integrated child care:

- Better description of physiological growth to permit more effective decision-making and consequently resulting in greater impact (assisting countries to better diagnose their nutritional situation and identify children at risk in order to target health actions)
- Integrated vision of child care
- Early interventions in the prevention of overweight and obesity
- Promotion of breastfeeding and healthy feeding practices
- Increased demand for health services for healthy child
- Improved communication between mother/caretakers and health service providers
- Changed concept of "normal" - lower prevalence of under-weight, increased stunting rates, and more overweight and obesity will cause changes in the focus of interventions
- Strengthened critical behaviors – based on the prescriptive model, the standard of breastfeeding, adequate complementary feeding, and non-smoking mothers will be reinforced
- Height measurement reinforced, particularly as an indicator of inequity (emphasizing that weight is not the only element for evaluating growth), and adding assessment of motor development

DISCUSSIONS FOR SESSION 4

- *Proposed strategy for dissemination of the new standards in the Region*

The main principles behind the proposed dissemination plan are the focus on teamwork and the optimization of human resources and capacity in the Region. The purpose of the proposal is to harmonize a single strategy for the entire Region in order to facilitate Regional support and a forum for exchanging experiences and information. The timing of the dissemination plan will depend mainly on the availability of materials. The first activity will be the formation of a Regional Support Network during 2005, since the standards and related materials will not be ready until the end of the year. The members of this network will take advantage of various assemblies of the different sectors to disseminate information and promote the new standards.

During the elaboration of support materials, a general strategy for integrating nutrition into primary health care will also be developed. All information and materials will be accessible via the internet,

once they are available. When the new standards begin to be disseminated, the development of Regional and national information systems on the internet will also be an important asset.

It was proposed to include the Latin American Food and Nutrition Society (Sociedad Latinoamericana de Alimentación y Nutrición, SLAN) as part of the Regional Support Network. It was also suggested to create a technical advisory group specifically to provide support in the area of overweight and obesity.

The Guatemalan delegates suggested that the national implementation teams include members from outside of the Ministry of Health, i.e. academic and scientific groups.

The delegates from Colombia recommended that in addition to information on child growth, information on the Code of Breastmilk Substitutes also be disseminated.

In terms of funding, it was suggested that each country seek out donors to support this activity within their countries (e.g., USAID/BASICS).

- *Opportunities to promote the new growth standards*

The delegates from Brazil shared that the new year will be a very opportune time to introduce changes with regard to the new growth standards. At the political level, decision-makers will be reviewing their plans and areas of work. It was initially suggested to share this proposed Regional dissemination plan at the SCN meeting to be held in Brazil in March 2005, but thereafter, it was recommended to wait and share the plan in the SCN News later in the year rather than in the meeting.

The Bolivian delegates also shared that the present is an opportune time to discuss the introduction of changes, as the Bolivian government is reviewing its priorities particularly in the area of child development and conforming a working group in this area. The president of the Bolivian Pediatric Society shared the commitment of the Society in two aspects – to conduct a nutritional study at the national level to be presented at their National assembly in October 2005, and to disseminate information about the new standards to all the pediatricians in the country.

The delegates from Ecuador expressed their full commitment in support of the adoption of the new standards. There are two important upcoming meetings where the new standards can be promoted – a meeting of social security and health municipalities, and the national meeting to review the PANN2000 program. There is continual sharing of information between the academic and professional communities in Ecuador.

The delegates from Mexico expressed that there are many existing and ongoing opportunities to promote the new standards in the country, including an upcoming meeting of all the states, a meeting of pediatricians in February 2005, and the National Vaccination Council, a monthly meeting of technical personnel. It was suggested to review academic materials to propose changes and update, and to incorporate the new standards in the certification program for pediatricians and community workers in the area of growth monitoring.

The PAHO sub-regional vaccination and IMCI meetings were also proposed as excellent forums to promote the new standards. It was expressed that there are other opportunities to link this activity with global strategies in progress as part of optimal child growth, specifically the Global Strategy for Infant and Young Child Feeding. Furthermore, this is an opportunity to not only promote optimal growth but also optimal feeding practices, so it is important to reach consensus among different health programs on the key nutritional messages and actions to promote and implement.

The Vice-president of ALAPE shared that the Association consisted of members from all the Latin American countries, Puerto Rico, Cuba and Haiti. It was requested that Dr. Ricardo Uauy attend the ALAPE meeting in July 2005 and make a presentation about the new standards and the perspective of impact on early child growth – an important opportunity to widely disperse information to numerous pediatricians at once.

The president of the Colombian pediatric society requested that PAHO/WHO prepare brief communication materials on why the new standards are important and should be adopted, for use as propaganda and to be disseminated to the pediatricians.

- *Progress in promoting the new standards in other countries and Regions around the world*

In response to the query of what is happening in other regions of the world, it was explained that little has been done thus far, and this Regional meeting is the first of its kind. WHO is currently in contact with the other 5 regions, and other countries are expressing similar enthusiasm on a daily basis. Countries are being informed that field testing of the materials will be finished by September 2005, and materials will not be ready before the end of 2005.

The new WHO child growth standards are not only a reference but present a new standard of "normal" growth for the entire world. In the face of the global transition from an old growth pattern to the new standards, countries should expect this to be a long learning process that will require growing knowledge and understanding in the process. The world is in a fantastic position to learn from this global process.

During this process, it was recommended to gather all the frequently asked questions by the different groups/audiences and prepare responses, in order to learn continually from this profound experience.

NEXT STEPS

This regional consultation is the first step in the process of promoting the forthcoming WHO child growth standards throughout the Region of the Americas. It provided the opportunity to share the details of the MGRS and the rationale and importance of the new standards to several countries, and begin discussion on the Regional dissemination plan.

During the meeting, country participants acknowledged the importance and need for the new standards as a tool to improve the assessment and monitoring of child growth. They expressed concerns and various repercussions in introducing the changes, as well as anticipated benefits. In the end, each of the 8 participating countries expressed commitment to adopt the new standards and readiness to begin preparing to move forward in the process of implementation. Participants identified the strong need for advocacy among decision-makers and promotion of the new standards through education and communication. They identified several key meetings and opportunities to build awareness and advocacy in their respective countries throughout 2005.

PAHO/WHO offered to work with countries in advocating for and promoting the adoption of the new standards by availing information and technical support.

In general, participants expressed support for the Regional plan for dissemination of the new standards. PAHO/WHO plans to take into consideration the discussions from this meeting and the results of the working groups to elaborate the proposal and move ahead with its implementation in 2005.

The main prevailing themes from the discussions and country presentations that should be considered for the process of implementation include:

- Standardized equipment/instruments
- Interpretation of the growth charts
- Integration with other health programs
- Training in the different sectors and levels of care
- Prioritization of indicators and corresponding actions
- Monitoring of coverage

PAHO/WHO plans to continually build awareness and promote the adoption of the new standards throughout the Region. The immediate next steps for 2005 include:

1- Elaborate and widely disseminate the results of this regional consultation
2- Continually disseminate background information and promote the new standards during regional and national forums
3- Establish the Regional Support Network and elaborate the Regional dissemination plan
4- Work with countries to advocate and promote the adoption of the new standards and prepare them for implementation

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ANNEX 2: Meeting Agenda

DAY ONE: Thursday, December 9

8:00	Registration	
SESSION 1: INTRODUCTION AND BACKGROUND TO CHILD GROWTH AND TO THE WHO MULTICENTRE GROWTH REFERENCES STUDY (MGRS)		**MODERATOR: J. Rivera**
8:30 – 8:50	Opening	G. Tambini
	Welcome on Behalf of the Host Institution	J. Rivera
8:50 – 9:00	Background and Meeting Objectives	W. Freire
9:00 – 9:30	Impact of Early Growth on Health Over the Life Course	R. Uauy
9:30 – 10:15	New WHO Child Growth Standards: Why? How? What Next?	M. de Onís
10:15 – 10:30	Break	
10:30 – 11:00	Discussion	
SESSION 2: CURRENT PRACTICES IN THE USE OF GROWTH CHARTS		**MODERATOR: R. Uauy**
11:00 – 11:30	Current Use of Child Growth Charts in the Region: Questionnaire results	W. Freire
11:30 – 12:00	Discussion	
12:00 – 13:30	Break	
13:30 – 14:15	Growth References: An instrument in the context of Primary Health Care	J. Rivera
14:15 – 14:45	Discussion	
14:45 – 15:15	Challenges and Opportunities in the Application of the New Growth Standards	T. González Cossío
15:15 – 15:30	Break	
15:30 – 16:00	Discussion	
SESSION 3: COUNTRY EXPERIENCES IN THE USE OF GROWTH CHARTS		**MODERATOR: C. Garza**
16:00 – 16:30	Country presentation: MEXICO (Experiences in the use of growth charts and recommendations to improve monitoring of child growth)	
16:30 – 17:00	Discussion	

DAY TWO: Friday, December 10

SESSION 3: COUNTRY EXPERIENCES IN THE USE OF GROWTH CHARTS (continued)		
8:00 – 8:30	Country presentation: ECUADOR	
8:30 – 8:45	Discussion	
8:45 – 9:15	Country presentation: GUATEMALA	
9:15 – 9:30	Discussion	
9:30 – 10:00	Country presentation: BRAZIL	
10:00 – 10:15	Discussion	
10:15 – 10:30	Break	
10:30 – 11:00	Country presentation: CHILE	
11:00 – 11:15	Discussion	
SESSION 4: ADOPTION FRAMEWORK AND DISSEMINATION PLAN FOR THE NEW GROWTH STANDARDS IN THE REGION		**MODERATOR: W. Freire**
11:15 – 11:30	Proposed Regional Strategy for the Dissemination of the WHO Child Growth Standards	W. Freire
11:30 – 11:45	Discussion of Regional Strategy and Guidelines for Working Groups	
11:45 – 12:00	Discussions in Working Groups	
12:00 – 13:30	Break	
13:30 – 15:15	Discussions in Working Groups (continued)	
15:15 – 15:30	Break	
15:30 – 16:30	Presentation/Discussion of Working Group Conclusions	
16:30 – 17:00	Conclusions and Next Steps	
17:00	Closing	