TRIBUTE IN MEMORIAM TO JOHN T. DUNN

a life dedicated to the elimination of Iodine deficiency.
Organized by

Pan American Health Organization (PAHO)
United Nations Children’s Fund (UNICEF)
International Council for the Control of Iodine Deficiency Disorders (ICCIDD)
Under the auspices of Network for Sustained Elimination of Iodine Deficiency

1 The Regional Report on Optimal Iodine Nutrition in the Americas was drafted by Dr Eduardo A. Pretell (ICCIDD) with inputs from members of Network for Sustained Elimination of Iodine Deficiency. The report and background documents of the meeting are available at www.IodineNetwork.net
The Peruvian Minister of Health, Pilar Mazzeti Soler, awarded the medal of la Orden Hipolito Unanue to Prof. J.B Stanbury at the Regional Meeting.

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Lima Consensus on Optimal Iodine Nutrition in the Americas

At the Regional Meeting "Optimal Iodine Nutrition in The Americas" held in Lima, Peru, May 5th and 6th, with the participation of official delegations from 21 countries (Argentina, Bolivia, Brazil, Colombia, Cuba, Chile, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Mexico\(^1\), Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Uruguay, Venezuela) and representatives of international agencies and organizations (PAHO/WHO, UNICEF, ICCIDD, Kiwanis International, MI, Salt Institute, Network for Sustained Elimination of Iodine Deficiency), the following consensus was approved:

\(^{1}\) Represented by Asociación Mexicana de la Industria Salinera AC (AMISAC)
Whereas

- At the United Nations General Assembly Special Session on Children, held May 2000, the governments of the American countries renewed their commitment to achieve the goal of virtual elimination of iodine deficiency disorders (IDD) by the year 2005.
- Nations have committed to achieve the Millennium Development Goals, one of which is directly related to improving the nutritional wellness of their constituent populations.
- The Executive Board of the Pan-American Health Organization has a mandate to oversee the progress of the health situation of The Americas.
- Globally, the countries of The Americas have made significant progress towards the elimination of IDD; however, problems remain that threaten the effective and sustained elimination of IDD in the whole region. A few countries are still deficient, others have been incompletely assessed, and the risk of iodine excess has risen in some.
- National multi-sector delegations have analyzed the requirements for ensuring permanence of adequate supplies of dietary iodine in terms of continued national efforts in program organization and surveillance, effective monitoring of iodine nutritional status and salt iodization, education and communication, and regional coordination.
As a result of the discussions of key issues in achieving and sustaining optimal iodine nutrition, the following conclusions were reached:

**Organization of National efforts for Sustained IDD Elimination**
- Maintain high-level political commitment to and priority on the prevention and correction of nutritional deficiencies (such as brain damage to infants due to inadequate intake of iodine), while at the same time preventing the excess intake of essential nutrients. Food guides addressed to promote health must consider deficiencies as well as micronutrient imbalances.
- Report every two years on the status of national programs and on the efforts being made to ensure progress and sustainability at the highest national level as well as regional governmental forum.
- The following elements are essential to sustain progress toward optimum iodine nutrition: high-level political commitment and permanent funding from regular budget, mobilization of social demand, securing adequate resources, ownership and empowerment of salt producers, and an enabling legal environment linked to a system of transparent and effective enforcement.

**National Coalitions to Promote and Sustain Optimal Iodine Nutrition**
- Progress in ensuring optimum iodine nutrition cannot be achieved without a deliberate process to join forces and blend all required talents.
- A National Coalition is critical to ensure that all stakeholders continue their contribution to progress in iodine nutrition, each according to agreed-upon roles and responsibilities.
- The composition of a National Coalition will need to reflect national realities, but should include the Ministry of Health, the salt industry, the civil society, scientific groups, and others as appropriate.
- The single most important action by an effective National Coalition is communication aimed at engaging the various elements of society to contribute to permanent progress and maintain focus on reaching and sustaining the goal.

**Ensuring Adequately Iodized Salt**
- Provided with adequate assistance, all salt producers—small and large—can iodize salt effectively.
- The cost of iodization is small and does not justify a price difference to consumers of more than $.05US per person per year.
- Technology does not pose any significant obstacles towards reaching and sustaining universal salt iodization.
- Experience from many countries confirms that the use of iodized salt in food processing and preservation does not affect consumer acceptability of the end product.
Effective Systems for Monitoring Iodine in People and Salt

- Monitoring of iodine in salt and in people is essential to assess and maintain optimum iodine nutrition status. For this purpose the indicators approved by WHO, ICCIDD and UNICEF must be used (Assessment of IDD and Monitoring their Elimination, WHO/NHD/01.1).
- Monitoring must be sustained and systematic, and results communicated to the appropriate levels of decision taking to make necessary corrections.
- Laboratories with adequate quality assurance systems in place are required to guarantee the validity of monitoring results.
- Other indicators such as goiter prevalence and neonatal thyroid stimulating hormone (TSH) screening are important insofar as they reflect longer-term iodine nutrition.

Role of Education and Communication

- Communication, including advocacy and education, needs to be planned comprehensively as an integral part of the overall national effort.
- To bridge the generation gap and ensure sustained optimum iodine nutrition, it is important to infiltrate and pervade national education systems permanently.
- The content of messages for mass communication and educational materials should emphasize the hidden and latent danger of brain damage due to iodine deficiency.

Regional Cooperation

- Increase the efforts toward harmonized legislation on iodine levels in fortified salt.
- Promote the exchange of information on managerial capacity development and the establishment of active regional cooperation among national coalitions.
- Support the ongoing efforts to establish the International Resource Laboratories for Iodine (IRLI) laboratory network and other pertinent initiatives.
- Hold periodic regional or sub-regional meetings for exchange of experiences and training.

Current and Future Role of Agencies and NGOs

- Renew the commitment of agencies and NGOs to support national efforts towards achieving the sustained elimination of IDD in all the countries of The Americas. In this context, the national and regional efforts by different sectors are to be emphasized, including government, private sector and civil society.
- International agencies and NGOs are urged to continue to support the implementation of commitments to eliminate IDD as a way to guaranty national commitment and resources in favor of this goal.

Upon return to our respective countries, members of the delegations will endeavor, where appropriate, to:

- Hold a meeting of a wide national audience to strengthen commitment and accelerate actions toward reaching and sustaining the goal of IDD elimination.
- Systematically review and, if needed, make adjustments to the national strategy for IDD elimination
- Establish or strengthen national and sub-regional coalitions for continuing the efforts.

We express gratitude to the Government of Peru for hosting the high-level Meeting on Optimal Iodine Nutrition in The Americas. May 6, 2004
Introduction

The American countries have a rich history of iodine deficiency. The iodine-deficient areas in the Region are concentrated mainly in the western mountain ranges that extend from Mexico through the Andes and as far as Chile.

In the early 20th century, almost all countries in the Americas experienced, often severe, iodine deficiency. Modern national goiter surveys began in the 1930’s and showed that almost all countries had at least some regions where the goiter prevalence was higher than 50%. In several countries, such as Argentina, Bolivia, Brazil, Ecuador, Peru, Mexico and Guatemala, iodine deficiency was rampant. Not surprisingly, in the 1950’s through the 1970’s most nations passed laws on obligatory salt iodization and established a wide range of arbitrary iodization levels. Some preventive iodized salt programs were transiently successful, but most were not. Those that were successful initially later relapsed, mainly because several laws were not enforced and/or monitoring was either absent or inadequate. Moreover, the importance of iodine deficiency and its correction was not adequately communicated to the relevant sectors-the health establishment, food industry, and most importantly, consumers. Thus, after initial enthusiasm from the government and producers for regular checks on iodine levels in salt, interest waned and the iodine content of salt either disappeared or greatly diminished; consequently, by the 1980’s and 1990’s, 30 years after the establishment of legislation to order mandatory salt iodization, only a few countries were nearing iodine sufficiency through successful Universal Salt Iodization Programs, and the overall regional goiter prevalence remained relatively unchanged.

Beginning in the mid 1980’s and accelerating in the 1990’s, governments and agencies made vigorous efforts to eliminate iodine deficiency, particularly with an aggressive push for iodized salt use. A landmark meeting in Quito in April 1994, reviewed progress to-date and issued a declaration, signed by representatives...
from 23 countries in the region, stating that
governments would work to reach the goal of the
universal salt iodization (USI) by the year 2005, as
the mid-decade goal, to be followed by the final goal
of eliminating iodine deficiency as a public health
problem by the year 2000. In 1999, despite significant
progress as compared to other regions in the world,
iodine deficiency remained a public health problem
in 19 countries in the region. This general failure in
Latin America provides a valuable lesson of what can
happen when political, cultural, technological and
economical sustainability is not secured.

Despite continuing progress, the goal has not yet been
achieved. Problems remain that prevent the effective
and sustained elimination of IDD in the whole region
and some earlier successes are fading. Some countries
have regressed over the past five years and others
never achieved iodine sufficiency. Still, other countries
have been incompletely assessed and the risk of iodine
excess has risen in more than one. A review by ICCIDD
in 2003 reports the following, based on available
information on iodine nutrition:

- Moderate deficiency in Haiti;
- Mild deficiency in Bolivia, Cuba, Dominican
  Republic, Guatemala;
- Likely deficiency in Guyana;
- Iodine sufficiency in Paraguay, Peru, Ecuador,
  Venezuela, Panama, USA;
- Likely iodine sufficiency in Argentina, Belize, Brazil,
  Canada, Colombia, Costa Rica, El Salvador, Honduras,
  Mexico, Nicaragua, Surinam, Uruguay; and,
- Iodine excess in Chile.

At the Special Session on Children of the UN General
Assembly (UNGASS) in May 2002, the countries of
the Americas and the UN agencies pledged the virtual
elimination of IDD from the world by 2005. Therefore,
it becomes imperative to assess where the hemisphere's
iodine nutrition is and what needs to be done to make
it sustainable.

Regional Meeting. The meeting was convened to
review the current status of iodine nutrition and salt
iodization programs in each of the Latin American
and Caribbean countries, to identify obstacles to
sustainable optimal iodine nutrition, and to develop
a common strategy to overcome them.

Participants. Twenty countries2 were represented
by their Ministers of Health or senior leadership
in health and nutrition at the Regional Meeting.
Governmental officials responsible for iodine
nutrition and representatives of the salt industry
were also participants. Mexico was represented by
Asociación Mexicana de la Industria Salinera AC
(AMISAC). Representatives of eight international
agencies and organizations3 attended and
participated in the meeting, as well (Annex 1).

Meeting Agenda. The Regional Meeting was organized
in order to share updated information on the current
status of iodine nutrition and IDD control programs in
countries, become acquainted with the national and
regional action plans, and discuss strategies that would
enable the region to achieve and sustain optimal iodine
nutrition. It included brief written country reports,
poster presentations, and two days of plenary
discussions (Annex 2).

The meeting opened with welcome and introductory
statements by the representatives of the Network for
Sustained Elimination of Iodine Deficiency, UNICEF,
PAHO and ICCIDD during a ceremony attended by
the Peruvian Minister of Health, Dr. Pilar Mazzetti
Soler, officials of the Ministry of Health and members
of Peruvian academic institutions. Dr. Mazzetti
presented the Hipolito Unanue Medal to Professor
John B. Stanbury for his life-long dedication to
eliminate IDD, especially for his early work in Peru.
Professor Stanbury delivered a lecture entitled
Historical note on IDD in the Americas and made
a tribute in memoriam to John T. Dunn.

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2 Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican
Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico,
Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela

3 PAHO/WHO, UNICEF, ICCIDD, Kiwanis International,
The Micronutrient Initiative, The Salt Institute,
the Network for Sustained Elimination of Iodine Deficiency
The following issues were subject of plenary discussions following a short, illustrative country presentation:

- Organization of national efforts for sustained IDD elimination
- National coalitions to promote and sustain optimal iodine nutrition
- Assuring adequately iodized salt
- Effective systems for monitoring iodine in people and in salt
- Role of education and communication
- Regional cooperation–harmonization of salt iodization levels and regulations, laboratory networks, information sharing
- Current and future role of agencies and NGOs

The conclusions and recommendations on each issue are included in the Lima Consensus.
Lessons Learned

Previous experiences in the American region had emphasized the importance and deleterious effects of iodine deficiency on human development and the urgent need for its elimination through an effective comprehensive strategy. Some of these experiences were failures that provided a valuable lesson of what can happen, as efforts for iodine prophylaxis are renewed in this region. Three of these experiences are of particular importance:

1. Although iodized salt was recognized as an efficacious means of correcting iodine deficiency, and salt iodization was implemented in most countries in the 1960’s and 1970’s, the actual effectiveness was initially poor, mainly because of a poor understanding of the problem and its magnitude, inadequate governmental support, insufficient educational efforts, and failure to involve all sectors in addressing the problem. This resulted in the loss of more than 30 years in the battle against IDD. This negative experience emphasizes sustainability as a very important goal in national control programs;

2. Wide ranges in the amount of iodine added to salt, because of differing country legislations, may result in either insufficient or excessive iodine intake, and should be adjusted to more standard and appropriate levels;

3. The regular monitoring of iodine in salt in urine and surveys of iodized salt consumption have been validated in the Region as appropriate indicators for the diagnosis and monitoring of iodine nutrition in populations and evaluation of the programs.

At this new opportunity to reassess iodine nutrition and IDD control programs in the region Peru, Uruguay, Bolivia, Guatemala, Paraguay were invited to make an oral presentation of the lessons learned, to demonstrate the different experiences in the implementation and outcome of national IDD control programs.

Peru

Peru has attained the sustainable elimination of IDD with a control program that can serve as a model for other countries. The creation of the program in the MOH in 1983 followed the results of research studies carried out in the university labs, which justified strong political support to a public health program. Along with investigations that confirmed the persistence and severity of iodine deficiency in the country, three studies were particularly important: a) the demonstration of the deleterious effect of iodine deficiency on the fetus and the quality of life; b) the immediate benefit of the use of iodized oil in the prophylaxis and treatment of IDD, and; c) the investigation, validation and extensive application of urinary iodine as an indicator of iodine nutrition sufficiency.

The IDD control program of Peru began in 1986 in the sierra and jungle regions, where severe iodine deficiency had been demonstrated previously. The program’s strategic plan of action included the immediate protection of the population at high risk with iodized oil and a progressive increase in the production and consumption of iodized salt. At the same time, a well-trained and highly motivated national network was developed, and its work amplified by intensive IEC, advocacy and marketing support. Since 1995, the supply of iodized salt has exceeded the population demand, and adequately
iodized salt has been consumed by more than 90% of households for the past five years. The median urinary iodine concentration has stayed above 100µg/L since 1995. Important factors in the program’s success are the systematic monitoring of iodine in salt and the population, and the political and economic support of the MOH. The program involves other sectors within and without the government, including salt producers.

Uruguay
Uruguay is an illustrative case where a group of academicians convened themselves and founded a National Honorary Commission for Study and Prophylaxis of Endemic Goiter in 1953, whose activities are recognized and backed by the MOH. Initially its members showed a high intensity of goiter in the northern part of the country and succeeded with the approval of a law in 1963 establishing norms of prophylaxis using iodine in salt, which was only mandatory in that part of the country. From the beginning, major emphasis was put on constantly educating the national medical authorities and all of the population about IDD and iodized salt; of particular importance was the inclusion of the subject in the elementary school textbooks. Subsequent studies showed the disappearance of goiter and normal urinary iodine levels demonstrating the benefit of iodized salt as a prophylactic and treatment method for IDD. Most recently, the Commission has shown that in the part of the country where the consumption of iodized salt was not obligatory there is also a mild deficiency, and the mandatory use of iodized salt was extended to the entire country. Also, the country has carried out systematic detection of congenital hypothyroidism. After 15 years of an interrupted work, the Commission hopes to have Uruguay recognized as a country free of iodine deficiency disorders.

Bolivia
The entire country had severe iodine deficiency until, with strong external economic support, Bolivia implemented an IDD control program in 1983, mainly by monitoring the production and consumption of iodized salt. Little iodized salt was available to the poor percentage of the population, so the government developed a semi-autonomous corporation that built salt iodization plants for co-operatives of small producers. The country simultaneously devoted major efforts to education, communication and information at all levels.

In 1996 the median urinary iodine was 252µg/L and household consumption of iodized salt reached 92%. The country then was declared free of iodine deficiency but monitoring relaxed afterwards and subsequently the situation deteriorated. The ThyroMobil study in 1999 found that median urinary iodine values had fallen bellow normal and by 2000 household use of iodized salt was down to 62%. This case illustrates lack of sustainability, mainly due to the persisting rudimentary technology for salt iodization, weakening governmental support for the control program, and a decline in communication and monitoring activities, among other factors. Reorganization of the program, especially the control of salt iodization, has taken place over the last few years and the country is now working towards recovering and reaching optimal iodine nutrition.

Guatemala
The country had longstanding history of severe iodine deficiency, that still have not been eliminated up to now. In the early 1960’s Guatemala was among the first to demonstrate the benefit of the iodized salt in the control of endemic goiter and rapidly brought the problem under control with its eradication by 1962. However, because of a low governmental attention to the problem of IDD and relaxation of monitoring, iodine deficiency recurred by 1987 (goiter prevalence 21%, median urinary iodine 42 µg/L), and continues to be a problem requiring urgent intervention. The government regained interest, salt iodization improved, and by 1995, the median urinary iodine range was back at a normal level. However, control of salt iodization lapsed once more in the late 1990’s (median urinary iodine 72µg/L) and salt iodization has continued to deteriorate since 1996. The government, UNICEF, and INCAP/PAHO are combined forces to reactivate the IDD control program and, most recently, the Directorship for Consumer Assistance and the
Ministry of Economics, as well. However, data from 2003 shows that the fraction of salt adequately iodized (>15 ppm iodine) at the household level is only 61% and that iodine deficiency continues to be a problem of public health in the country.

**Paraguay**
Paraguay has a long history of endemic goiter. In 1988, the prevalence of goiter was 48.6% and the median urinary iodine was 72 µg/L. It is the only Latin American country that has no salt production industry of its own. The salt is imported from its neighbors, mainly Argentina and Brazil. To reach the goal of sustained elimination of IDD, the country has faced many problems, the most important being: a) the importation of salt, both iodized and non-iodized, is made partly through legally established importers, but also by contraband; b) the low technical and physical infrastructure for salt iodization; c) a very complex marketing and distribution system for the salt. The first iodization plant in the country was established in 1958 and, although two more plants were built later on they were closed in 1982 for economic, technical, and administrative reasons. Goiter diminished notably during this period of partially effective salt iodization.

In 1989, a program for the control of endemic goiter was established with responsibility assigned to the National Institute of Food and Nutrition. Important progress in organization has been made in the last three years. A National Program for the Control and Prevention of IDD (PRONAY) was created by the MOH and Social Welfare in 1992. The program has approved legal instruments mandating that all salt for human and cattle, whether imported or processed in the country, must be iodized to levels between 40-60 ppm of iodine. The program has conducted a vigorous campaign of education and communication about the importance of iodine deficiency and its prevention, and this effort has raised the general awareness of the problem. The proportion of salt with >15ppm of iodine at household level was 88% as of 2001 and the median urinary iodine above 100 µg/L during the last three years.
Implementation of IDD Control Programs

A renewed interest in IDD arose in the late 1970’s and early 1980’s, and gained strength during the 1990’s. The approach to its control has varied widely among different countries in the region. This effort has experienced two different periods of progress: one during the early 1980’s when only three countries approached the problem, and a second during the 1990’s involving the majority of countries.

In the period from 1983 to 1985, three Andean countries—Bolivia, Ecuador and Peru—were the first to reassess their iodine nutrition and implement effective IDD control programs. These control programs were evaluated by international teams of experts and, eventually, the three countries were declared virtually free of iodine deficiency as a public health problem: Bolivia in 1996, Peru in 1996 and 1998, and Ecuador in 1999. However, the evolution and outcome of these control programs have been different in each country. Ecuador and Peru have succeeded in sustaining the elimination of IDD, while Bolivia has regressed to deficient levels. In addition to Bolivia, Ecuador and Peru, external evaluations have declared three other countries free of IDD—Colombia in 1998, Venezuela in 1999, and Panama in 2002.

Infrastructure. During the last 15 years, almost all other Latin American countries have reassessed their iodine status and implemented programs for the control of IDD. Currently in all countries (with the exception of Argentina and Chile), the activities aimed at the elimination of iodine deficiency are carried out by official bodies implemented within the MOHs. Other governmental institutions such as the Ministries of Education, Industry, Agriculture, as well
as academic institutions also participate in the majority of IDD control programs. The salt industry has been incorporated as a constituent of the program in some but not all countries. Still, some countries need to set up a more effective structure for handling programs, monitoring, education, social mobilization, and collaboration with the salt industry. In Argentina, the Argentine Federation of Endocrine Societies (FASEN) has created the Argentinean Commission for the Control of IDD which, in a sequential manner, has been evaluating goiter prevalence, urinary iodine, and iodine in salt in various localities throughout the last five years. In Chile, the same evaluations are being carried out by the Institute of Nutrition and Food Technology (INTA) at the University of Chile in four sentinel sites.

Governmental and international support. The commitment undertaken by governments at the World Summit for Children and most recently at the United Nations General Assembly Special Session on Children held in May 2000, and the support offered by ICCIDD, UNICEF, and PAHO/WHO, together with other international organizations, have been instrumental in the success of these programs. The government support has significantly increased in the majority of countries, however the support level varies from country to country and most may not have long-range interest and/or support for IDD control programs. Thus, this support is strong in some countries (Peru, Ecuador, Panama, Paraguay, Cuba) and limited in others (Argentina, Chile, Guatemala). Further, due to diverse political and economical circumstances support has weakened in recent years in Bolivia, Colombia, and Venezuela.

The support given by international organizations, particularly the economical support, has also progressively decreased as the programs’ implementation or the USI was apparently secured. This strategy, however, has proven not to be always appropriate to guarantee the compliance of the governmental commitments.

Salt Iodization Program

During the last 15 years, almost all countries in the region have concentrated their efforts and accelerated their activities to reach the main goal of universal iodization of salt for human consumption, as well as to promote its accessibility and use by the population.

Legislation. The legislation and regulations concerning the level of iodization of the salt has been adjusted during the last decade in nine countries where it was formerly very low (Brazil, Mexico, Venezuela) or very high (Chile, Ecuador, Guatemala, Honduras, Panama, Paraguay), and in Uruguay, where iodized salt was required in only half the country. However, the level of fortification is still heterogeneous and arbitrarily maintained between a minimum of 20ppm of iodine and a maximum of 100ppm of iodine.

Supply. Currently at least 16 of the 20 countries attending the Regional Meeting have iodized salt in quantities enough to satisfy the population demand (average 4kg per person per year), mostly produced within the country. Only Costa Rica depends completely on imported iodized salt and, to a lesser degree, El Salvador, Nicaragua, and Paraguay, which mainly imports the salt to be iodized within the country. The situation in Argentina still requires evaluation, as does that in the Dominican Republic, Guatemala, and Haiti, as they are not yet covering the population demand of iodized salt.

Globally, the larger proportion of the iodized salt produced in the countries (and in nine of them all of it) comes from small and median size salt plants. In many countries the large producers are performing well, but the majority of small producers experience deficient technical and industrial development, resulting in a poor quality product. In a few countries, such as Peru, the provision of technical and economic support to the small producers has proven beneficial to the quality of the product; unfortunately this support is not given in every country.

This last situation is illustrated, as an example, by comparing the iodine content in salt from large and small producers in Mexico and in Peru. In Mexico, the salt from large, well-equipped plants in the last two years was shown to have >15ppm of iodine in 91% to 96% of salt samples at retail level, and only
46% to 48% from small producers. In Peru, the figures have been 99% for the large plants and 82% to 83% for the small ones.

**Role of the salt industry.** The salt industry is recognized as one of the important partners for reaching the goal of the sustained elimination of iodine deficiency. As a matter of fact, its accelerated growth has been a key issue in the success of the IDD control programs in the region. The expansion of this market has been favored by the social marketing and the IEC campaigns carried out by the national IDD programs, however, the salt industry contribution to these important activities has so far been minimal in the majority of countries. It is generally believed that a more proactive participation, particularly from the large producers, is necessary for the country and regional success in the fight against iodine deficiency.

**Quality monitoring.** Almost all the countries (16/20) monitor iodized salt, however the sampling extension and regularity are not consistent in all. In some countries the monitoring is limited to sentinel sites where selection does not necessarily follow the recommendations of WHO-ICCIDD-UNICEF (Assessment of Iodine Deficiency Disorders and Monitoring their Elimination, WHO/NHD/01.1, Geneva 2001). Four countries-Argentina, Brazil, Dominican Republic, Haiti-have not implemented a regular monitoring system as yet, and Argentina and Brazil have only the information collected by the ThyroMobil Project. Monitoring in Bolivia has restarted after a significant interruption.

Although evaluation in the last two years shows that more than 80% of salt in the majority of countries contains more than 15ppm of iodine at retail or household, the recommended figure of more than 90% has been met or sustained in nine countries-Chile, Costa Rica, Ecuador, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru. While Cuba and Uruguay show a significant progress, Guatemala, Dominican Republic, El Salvador, and Haiti are of particular concern, but also the regression observed in Bolivia, Colombia and Venezuela. While the situation of Bolivia is improving, the current situation of Argentina and Brazil is unknown because of lack of recent information.

**Iodine nutrition**

**Urinary iodine concentration.** This is the most important indicator of iodine nutrition, but regular monitoring is carried out in only 10 countries (Chile, Colombia, Ecuador, El Salvador, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela), and in the majority of them it is limited to sentinel or focal sites, as mentioned for the monitoring of iodized salt. In the other countries the assessment of this indicator has been sporadic and for some the only data is that collected in either the ThyroMobil campaign (Brazil, Guatemala, Mexico) or another investigation (Argentina).

While not all the countries provide top-quality iodized salt for human consumption, the median urinary iodine concentration is 100µg/L (iodine sufficiency) in 15 of the 20 countries. Five countries (Bolivia, Cuba, Dominican Republic, Guatemala, Haiti) have a median <100µg/L, with the Dominican Republic and Haiti showing the lowest values. Four countries (Brazil, Chile, Colombia, Uruguay) have median values above 300µg/L, signaling the risk of iodine excess.

The ThyroMobil study has shown that the median iodine content in urine correlates with iodine levels in the country’s salt reflecting variations in the level of fortification mandated by different governments. Ecuador and Panama recently lowered the level of iodine in their salt, with a subsequent decrease in median urinary iodine concentration.

**Goiter prevalence.** There is less emphasis placed on assessing the prevalence of goiter now than in the past, because the palpation method is less reliable with small goiters and ultrasonography is not available in many countries. Recently, the ThyroMobil Project evaluated thyroid size in children from 13 countries of the region and found the goiter prevalence still above 5% in the majority of countries. The persistence of a high prevalence of goiter in places with normal urinary iodine at the time of the study confirms a delay between the normalization of iodine intake and the decrease in goiter rate from past iodine deficiency (e.g. El Salvador, Honduras,
Mexico, Nicaragua, and Paraguay) where their IDD control programs were implemented recently. The high prevalence of goiter in Chile raises concern about iodine excess. The low prevalence of goiter in Bolivia and Guatemala, countries that currently exhibit low urinary iodine and iodine content in salt, but whose iodine nutrition was apparently normal a few years ago, could inversely confirm that the recurrence of goiter after falling back to iodine deficiency is also a long process.

Laboratory facilities for urinary and salt iodine assay, and the IRLI Network

Almost all the countries have implemented laboratories to assess iodine in salt (18/20), but only about one third of them have external quality control. For urinary iodine assessment the number of countries with their own laboratories is slightly less (15/20) and the majority have external quality approval.

Because urinary iodine is the most important indicator of iodine nutrition, and the iodine nutrition depends on the intake of adequately iodized salt, the reliability of involved laboratories is important. To this end, the Andean Sub-regional Program for Control of IDD initiated a trial in 1998 that originally included only laboratories of the five Andean countries. It now comprises a total of 20 laboratories in 15 countries for urinary iodine and 45 laboratories in 10 countries for iodine in salt, most of them collaborating with the national IDD control programs, but having no previous external quality control. This activity has become a very important method for the improvement of the capacity for monitoring the impact of strategies for IDD elimination. Currently, the inter-laboratories quality control, as well as training of and consultation with laboratories continue under the coordination of the Regional ICCIDD office. Most recently, the participation of ICCIDD in the International Resource Laboratories for Iodine (IRLI) Network offers further opportunity to contribute to the quality and efficiency of these other laboratories. Two laboratories in the region have been selected to integrate the IRLI Network, one in Guatemala, at the Food Safety and Fortification Area, INCAP, and the other in Peru, at the Endocrinology and Metabolism Unit, High Altitude Research Institute, Cayetano Heredia Peruvian University.
ARGENTINA
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National Institute of Food  
Ministry of Public Health

María Ofelia Sola  
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Management of Inspection and Control de Riegos de Alimentos de ANVISA

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Department of Family Health  
Military Hospital

Wilfrid Cadet  
APO Nutrition, UNICEF
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<tr>
<th>Organization</th>
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<td>National Nutrition Institute</td>
<td>Francisco Patiño Patiño&lt;br&gt;Autonomous Service of Salt Processor</td>
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20 Report of the Regional Meeting - Lima, Perú
May 5, 2004 09:00 - 10:00 Opening Ceremony (Mediterranium Hall, Los Delfines Summit Hotel)
Welcome and introduction
Network, Rainer Gross, represented by Frits van der Haar
UNICEF, Andrés Franco, Rep. Peru
PAHO/WHO Manuel Peña, Rep. Perú
ICCIDD, Jack Ling, Chairman
MOH, Pilar Mazzetti, Minister of Health

10:15 - 10:30 Hipolito Unanue Award to John B. Stanbury
Introduction of JB Stanbury by EA Pretell
Historical note on IDD in the Americas (JB Stanbury)
Tribute to John T. Dunn (JB Stanbury)

10:45 - 11:30 Current status of IDD in the Americas, E Pretell

11:30 - 13:00 Session 1
Presentation of lessons learned
Peru, Uruguay, Bolivia, Guatemala, Paraguay

13:00 - 14:30 Lunch and poster viewing (the viewing will continue next day)

14:30 - 18:30 Session 2
Key issues in achieving and sustaining optimal iodine nutrition
1. Organization of national efforts for sustained IDD elimination
   A Kayayan (Brazil), P Canelos (Ecuador), M Mass (Panama),
   H Niepomnischce (Argentina). Rapporteur E Boy ICCIDD
2. National coalitions to promote and sustain optimal iodine nutrition
   J Arroyo, Foro/Salud (Perú), P Jooste (ICCIDD),
   R Cabrera (Cuba). Rapporteur F Van der Haar (Network)

Coffee break
3. Assuring adequately iodized salt.
   D Hanneman (Network), S Moreno (México), G Castillo (Nicaragua),
   T Pique (Peru). Rapporteur P Cobarrubias (Chile)

19:00 Press conference attended by key officials
20:00 Reception
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<tr>
<td>08:30 - 12:30</td>
<td>Key issues in achieving and sustaining optimal iodine nutrition</td>
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<td>4. Effective systems for monitoring iodine in people and in salt</td>
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<td>H de Orellana (El Salvador), D Zulueta (Cuba)</td>
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<td>Rapporteur M Zimmermann (ICCIDD)</td>
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<td>5. Role of education and communication</td>
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<td>M Yale (Unicef Bolivia), J Zaracho (Paraguay), M León (Perú),</td>
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<td>DHaxton (ICCIDD). Rapporteur C Pittman (Kiwanis)</td>
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<td>Coffee break</td>
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<td>6. Regional cooperation</td>
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<td>E Pretell (ICCIDD), E Boy (MI), W Basualdo (Paraguay).</td>
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<td>Rapporteur Wilma Freyre (OPS)</td>
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<td>2:30 – 13:30</td>
<td>Lunch and poster viewing</td>
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<td>4:00 - 15:00</td>
<td>Current and future role of agencies and NGOs (panel discussion)</td>
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<td>Network, PAHO, UNICEF, ICCIDD, MI, KIWANIS.</td>
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<td>Rapporteur O Legon (TACR)</td>
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<th>Time</th>
<th>Summary of key issues, final recommendations</th>
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<td>15:00 – 16:00</td>
<td>E Pretell</td>
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<th>Time</th>
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<td>16:00</td>
<td>Conclusions by Mr. Neils Kastberg, Regional Director of UNICEF-TACRO</td>
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Optimal Iodine Nutrition in the Americas
Report of the Regional Meeting | May 5-6, 2004 - Lima, Perú