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Renal Health Models in Latin America: Development of National Programs of Renal Health

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Purpose. To verify the actions and degree of progress achieved in countries of Latin America and the Caribbean in the implementation of the Sustainable and Tenable Renal Health Model promoted by the Latin American Society of Nephrology and Hypertension (SLANH), together with local societies and the participation of the Pan-American Health Organization. (PAHO/WHO). *Method* The implementation of workshops (e.g., "Toward a Sustainable and Tenable Renal Health Model") in each country involving health ministries, social security agencies, PAHO, scientific societies, medical organizations, and NGOs, among others, as well as start-up conferences with a special emphasis on local problems. Working teams will state the bases for planning, programming and evaluation in the Logical Framework Matrix and Matrix of Activities and Resources in the First Level of Care. The signature of the document "Declaration" with commitments undertaken by both public and private parties and a work schedule are required. *Results*. So far, eleven countries in the region have conducted workshops and started activity in the frame of the Model/Program of Renal Health, which articulates the traditional vertical programs and generates a cross-program in the First Level of Care. Its components and strategies make up a cost-efficient control of cardiovascular, renal and endocrine-metabolic health. *Conclusion*. The Renal Health Model and its program is being built into public health care policies of countries in Latin America and the Caribbean and adapted to the needs of each country with an increasing acceptance on the part of health care professionals. It should not be implemented in isolation but within the framework of non transmissible diseases.

Keywords renal health, First Level of Attention, logical framework, renal failure

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INTRODUCTION

The progress of medicine through the centuries is helping us enjoy great advances contributed by scientific knowledge and an almost boundless development of pharmacology and biotechnological research—so much so that they need the help of bioethics. Conversely, there is a growth of inequality and a widening of the gap between developed and underdeveloped countries. In the latter, most of the population lives below the poverty line, as is often the case in Latin America and the Caribbean.

Furthermore, the growing increase in technological costs and the rise of demand, generally associated to inefficient budget policies, have caused global health care expenses to rocket to the point of jeopardizing national economies.

In this context, and to determine its impact on society, one needs to go beyond the biomedical paradigm that prevails both in the medical science and in popular culture and promote a bio-ethic-psycho-social-economic-spiritual understanding of man.

Teaching models must be oriented to attain and maintain the quality of living, strengthening the quality of knowledge and practices centered in doctor-patient, doctor-family, and health care team-community relationships, in the context of a new symbiosis between public health and clinical practices.

In this context, the Renal Health Model has been developed and is being implemented in a joint effort with National Societies of Nephrology and all the players in cardiovascular, renal and endocrine-metabolic health care, especially Primary Health Care teams and the First Level of Care. Their actions in the Health Care System must ensure quality, efficiency, and especially equality, so that each person has the best access possible to health and health care.[1] Being a model does not imply a one-on-one relationship between components, but enables each country to adapt it to its needs.

MATERIALS AND METHODS

The authors follow the theory of Epidemiological Transition to describe health problems past and present. Actions taken in Latin America by the Societies of Nephrology and the relevant role of SLANH and its Committee for the Development of Nephrology and National Problems, Subcommittees of Data and Renal Health have been studied, and the baseline was the data provided by the Nephrology Survey in Latin America.[2]

The authors prepared planning, programming, and the bases for the evaluation of the Renal Health Model[3] (see Figure 1) in the Logical Framework Matrix[4] and the Matrix of Allocation of Activities and Resources,[5] including strategies for:

- strengthening transplant programs
- service providers networks
- background program, based on ethical principles of budget macro allocation
- Renal Health Program
- information database

One or more workshops was conducted in each country, for debate, consensus, and startup of the components of the model.

The authors promoted an action plan[6] to be used as a guideline for local implementation in each country, which involves (per the Declaration of Valdivia):

- the creation of a patient identification system according to stage, and the recommendation of the use of NKF and Puerto Rico classification of chronic kidney disease.
- the creation of a referral and counter-referral system, for orderly progress of renal patients along the path of primary health care.
- the determination of goals and therapeutic plans, recommending the use of diagnostic and therapeutic flowcharts and algorithms.
- the integration of the Renal Health Model in the context of national health care policies in each country, using the tools of the logical framework and the Matrix of Allocation of Activities and Resources.

Workshops were conducted in Chile (Declaration of Valdivia, December 2002), Argentina (Declaration of Buenos Aires, April 2003), Mexico (First Joint Meeting SMN and IMIN, April 2006), Uruguay (Statement of Montevideo, April 2004), Paraguay (Declaration of Asunción, July 2004), Venezuela (Declaration of Caracas, July 2004), Colombia (Declaration of Bogotá, December 2004), Ecuador (Declaration of Guayaquil, April 2005), Puerto Rico (August 2005), Perú (September 2005), and Brazil (Letter Intention of Brasilia, February 2006).

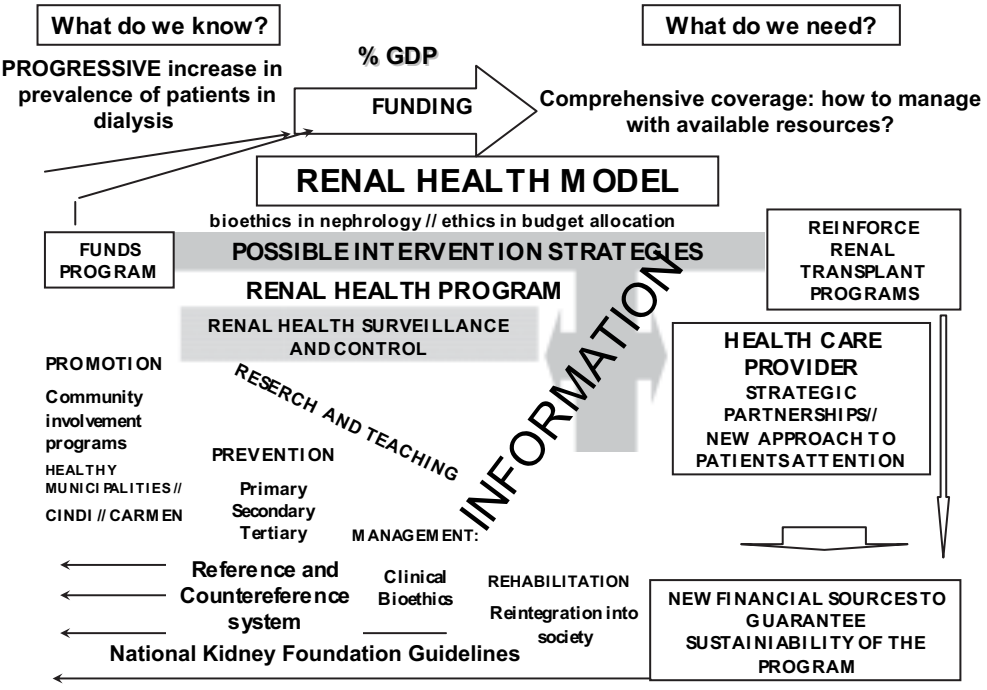

Figure 1. Renal Health Model.

Epidemiological Transition

The theory of Epidemiological Transition states that the first 1800 years of the Christian Era were the Age of Pest and Hunger. The following 100 years, up to 1900, are known as the Age of Retracted Pandemics. Both periods were dominated by infectious transmitted diseases, like typhoid, cholera, diphtheria, TB, and the Black Pest.[7]

In 1900, one sees the onset of the age of degenerative, manmade diseases. Non-transmitted diseases, pushed by the aging of the population, a critical growth of cities, contamination of the environment, accidents, and intoxications added to technological advances, such as dialysis or organ transplants, that prolong the survival of chronic patients.

The transition, however, is not linear. In the 1980s, one saw the onset of the HIV/AIDS with an impact that forced the U.N. to take extraordinary control measures, the U.N.-AIDS program, with a Statement of Commitment[8] that reads:

> HIV-AIDS is a worldwide emergency and one of the most serious challenges to the life and dignity of the human being, as well as to the enjoyment of human rights, which undermines economic and social development all over the world and affects all levels of society: individual, family, community and nation.

Today, diabetes associated with permanent renal failure has become a pandemic and warns us about a new scenario, comparable to renal failure for a number of people affected and its exponential growth over a few years. Its impact on health and the economy of individuals, families, and society is so strong that many countries are envisioning coverage difficulties in the short term (see Figure 2).

Furthermore, medical evidence shows a close connection between diabetes, cardiovascular disease, and renal disease. They have a common factor: malfunction or injury of the vascular endothelium, requiring common cross-actions between the traditional vertical programs of public health care agencies. They also require that one embraces a holistic view and avoid patient segmentation on their initial complaint or the expertise of their attending physician.

Committee for the Development of Nephrology and National Problems of the National Society of Nephrology and Hypertension (SLANH): Subcommittees of Data and Renal Health

The nearest precedent for a joint action between societies of nephrology in Latin America was the First

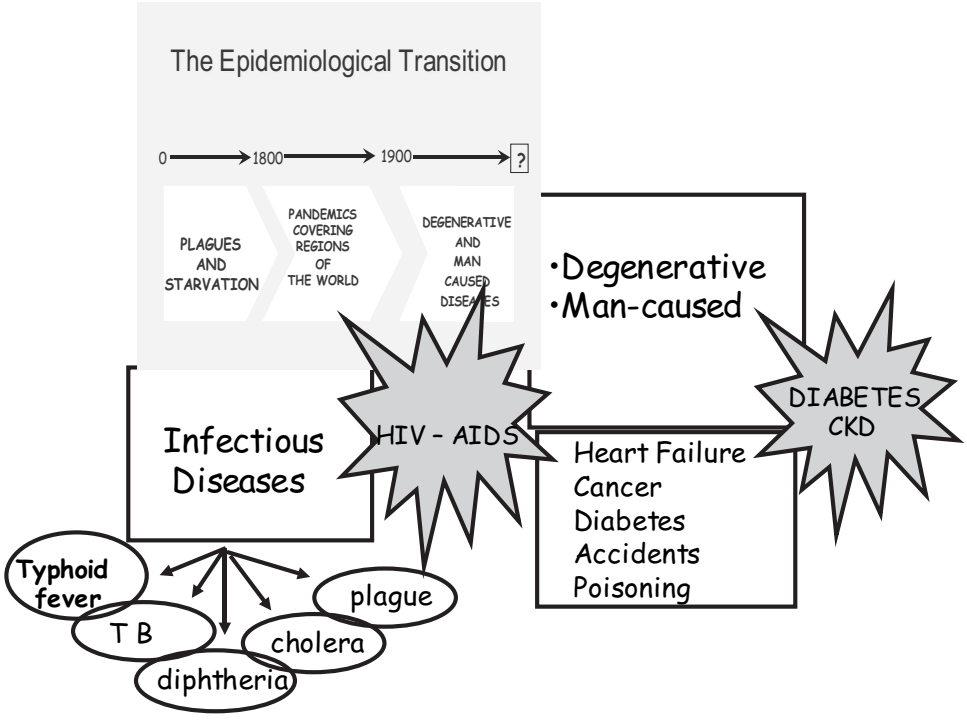

Figure 2. The Epidemiological Transition.

Meeting of Latin American Societies of Nephrology, held in Rosario, Argentina, in 1900.

These are the conclusions about nephrology practices in the region:[9]

- Deep social and economic crisis.
- Serious deficits in medical and community education.
- No prevention—not even a status of situation for kidney disease. There is consensus that attention has been focused solely on the treatment of renal complaints.
- Variable incidence of renal pathologies from country to country. Acute nephropathies are associated with iatrogeny. Chronic diseases are similar, though prevalence varies between countries: DBT, HTA, and glomerulonephritis, and to a lesser extent, urinary infections, lithiasis, and TBC, among others.
- Unanimous emphasis on the importance of actual integration of prevention and treatment of nephropathies in Latin America, preceded by joint programs by nephrologists and other specialists in each country.

The authors analyzed the proposal entitled "Plan to Assist Renal Failure (PAIR)" (Depine, S. Personal Communication; see Figure 3). This proposal highlights the importance of the detection of real demand as a trigger of health care policies, advocates shifting away from traditional models that focus on spontaneous and subsidized demand and not a supply of services, and sets up basic connections between health care actions and funding.

Four years later, in the context of the 9th Latin American Congress of Nephrology in San Juan de Puerto Rico, the Committee for the Development of Nephrology and National Problems was created, followed by the Subcommittees of Data and Renal Health.

Since then, activity has been growing:

- In 1996, nine countries signed the "Statement of Puerto Rico" in San Juan de Puerto Rico[10] on the "Prevention of Chronic Renal Disease and Promotion of Renal Health." For the first time, the concept of Renal Health created by Puerto Rico was used.
- In 1997, fourteen countries signed the "Declaration of Buenos Aires," "toward a new Renal Health Model in Latin America and the Caribbean."[11]
- In 1999, the SLANH carried out a survey on the status of nephrology and its impact on the renal health of its

Original document (Spanish) presented and debated at the First Meeting of Latin American Societies of Nephrology. Argentina Republic / 1990

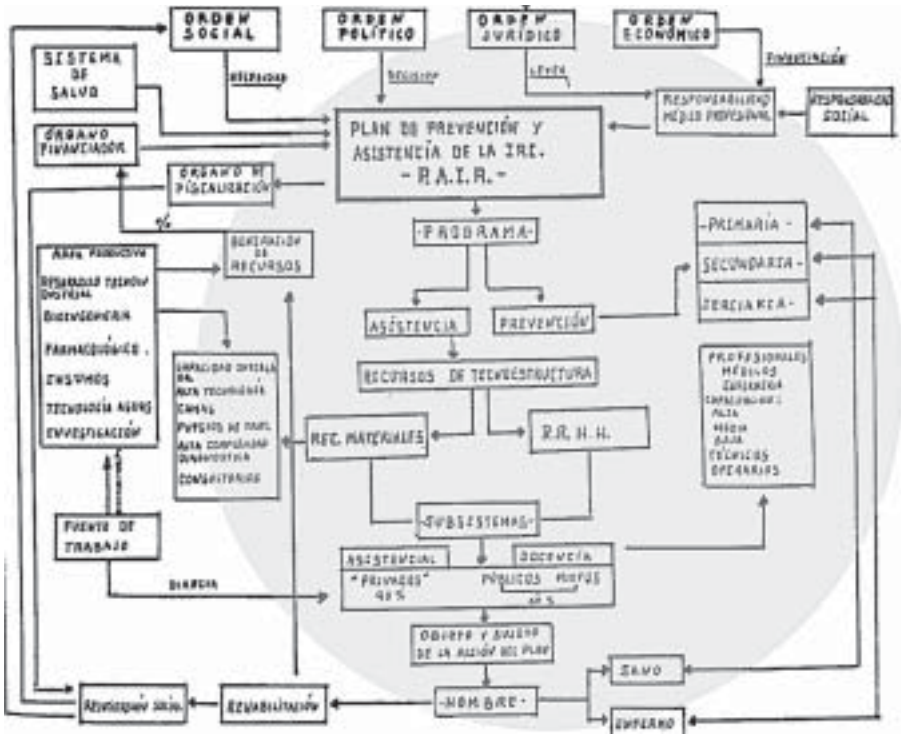

Figure 3. Plan to Assist Renal Failure (PAIR).

populations in the countries of the region. The results showed that objectives were not being attained and showed the need for a new approach.[2]

- In 2000, we held, in San Juan de Puerto Rico and Buenos Aires, respectively, two regional workshops to train on the use of epidemiological tools (EPI-INFO) aimed at a new model in renal health. Both workshops were attended by local representatives of the Ministries of Health, PAHO-WHO and the School of Public Health of the University of Puerto Rico.
- In April 2002, in San José de Costa Rica, the committee approved the general guidelines for the planning, programming, execution, and evaluation of the Renal Health Model (see Table 1), framed within the Matrix of Logical Framework (see Table 2) and the Matrix of Allocation of Activities and Resources (see Table 3).
- In December 2002, in Valdivia, Chile, the action plan[6] was approved as a guideline to facilitate the implementation of the Model in each country.

From then on, in each country, the Societies of Nephrology have interacted with national agencies of health and the local representation of PAHO=WHO to implement workshops for debate and consensus to start up the Model of Renal Health in their respective countries.

The baseline for each country was the observed prevalence of dialyzed patients per million inhabitants (see Figure 4), and the epidemiological impact was made visible through Models of Scenario Simulation with two different hypotheses (see Figure 5):

- *Scenario 1*. Estimated number of potential proteinuria patients in any stage of glomerular filtration rate (NKF or Puerto Rico Classification).
- *Scenario 2*. Number of people who would have died without dialysis, taking as baseline an expected prevalence of 600 patients per million inhabitants.

RESULTS

Workshops were conducted and specific actions were taken in each of the following countries ..(see Table 4): Chile, Argentina, Mexico, Uruguay, Paraguay, Venezuela, Colombia, Ecuador, Puerto Rico, Peru, and Brazil. As a follow-up, each country is implementing, within its own health care policies, the components of the Model, either as a whole or in part.

Chile

The Chilean Health Ministry conducted a National Health Survey in 2003 with a significant sample of Chileans 17 or older. (Cristina E. Mezzano, S. Prevalencia de Enfermedad Renal Crónica en Chile, personal presentation.)

Table 1
Programming in the Context of the Logical Framework: General Guidelines for a Renal Health Model—Examples by Program and Component

Objective. Give renal patients sustainable integral care.
Purpose. Improve efficiency and promotion of equality in renal health through implementation of new renal health care primary attention. Modify established structures of intervention.
Background Program.
Objective. Have available resources to be used in the development of the model.
Purpose. Have economic resources available for funding coverage of renal patients at every stage of treatment, either pre-dialysis aiming at regression or remission, dialysis, and/or transplant.
Results. Allocation of resources fund or budgetary item.
Activities. Reallocate budgetary items
Renal Health Program: Training and Education Component
Objective. Improve quality of care to renal health patients as well as cost-efficiency.
Purpose. Have qualified medical professional available for integral care of the renal patient.
Results. Qualified care givers at the First Level of Renal Health Care.
Activities. Courses, seminars, and/or training workshops. Permanent education programs.
Renal Health Program: Primary Renal Health Care Component
Objective. Improve equality and provide population access for renal health care.
Purpose. Generate easy-to-interpret algorithms to be used at the First Level of Care. Have primary health care centers available nationwide. Generate reliable information on renal patient populations.
Results. Accessible primary care centers for renal patients. Databases. Control and follow-up algorithms.
Activities. Systematic follow-up or renal patients. Completion of follow-up form.
Strengthening data base for actuarial curves.

Table 2

Renal Health Program: General Conceptual Framework and Breakdown in Specific Projects (Examples)

Summary of Objectives

Objective Improve efficiency and upgrade equality of renal health care by implementing new modalities of renal health care that modify traditional intervention strategies.

Purpose Orientation of APS renal health care services to the needy sectors via focusing mechanisms. Increase of accessibility and user satisfaction through implementation of quality control mechanisms.

Components

Regional:

a. Education, training, and retraining
b. Correspondence of MS structure and new model of renal APS
c. Preparation of regional projects

National:

a. Compensation and incentives system
b. Adjustment of infrastructure
c. Information systems
d. Social communication
e. Institutional upgrading

Activities

Human resources education, training and retraining in renal APS.

Definition of professional profiles and certification and recertification mechanisms.

Training in the short term.

Continuous education programs.

Support to local and institutional training strategies.

Promotion of APS-oriented medical residencies.

Support review of grade syllabus for health care professionals.

Support adjustment of health ministry structures associated or to be associated to the model: renal APS information system, social communication programs, institutional upgrade.

Support to the preparation of national projects.

Support the creation of the Annual Operative Program at each location or institution as required.

Verifiable Indicator

Upgrade of renal health indicators, especially for diabetic and hypertensive patients. Lengthening of pre-dialysis stage with regression and/or remission of 20% of patients in the program in three years.

Increase in resource participation of renal APS.

50% increase of renal health care coverage in three years, especially for needy sectors. Increase in the number of renal APS units, 50 new and 100 reconverted. 20% increase in three years of the number of physicians trained in renal APS.

Quantitative goals defined in follow-up indicators matrix.

Three or four local or institutional projects completed.

Indicators to be defined in detail in the context of the Logical Framework for each location or institution.

Budget for the program and its implementation will be included in the Annual Operative Program (POA).

Means of Verification

Recording of national health information systems. External audits for the program. Follow-up forms and classification matrix.

Recording of local information systems. Administrative records in National Health Ministers and external audits. Certificates granted by training institutions and training contracts signed with local governments.

Physical and financial monitoring of program goals by Central Execution Unit. Physical and financial monitoring of program goals by local units and by Central Execution Unit.

Physical and financial monitoring of program objectives by local or institutional Execution Units and Central Execution Unit, as the case may be. Evaluation of program progress with POA forms.

Continued

Table 2
Continued

Assumptions
The new Renal Health Model is understood and accepted by players and the general population.
Local governments adhere to the program.
A management control program for Renal Health Care is added, and associated to area programs for APS in public hospitals.
Connection with other health care programs.
Incentives are efficient in attracting institutions and especially nephrologists to the APS renal model.
Inflow of health care professionals to the new model is suited to needs.
Legal framework is built into the program.
Area budget, law, or regulation is added
Contractual specifications in the Executive Abstract accepted and met by local governments and institutions.
Resources earmarked for the program are duly allocated each year in the local or institutional budget.
Adjustments are made according to follow-up.

Table 3
Matrix of Allocation of Activities and Physical Resources. Example: Legal Framework in Argentina

			Promotion		
Program/ Area/ Service	Recipient	Activities: According to Ministry of Health Programs and\or Regulations: PNGCAM- Decree 1424/97, RM 431/00, RM 208/ 96, RM 899/01, RM 233/01, RM 542/97, RM 252/99, RM 207/96, RM 401/96, RM 141/97, RM 996/98, RM 126/98, RM 208/96, RM 349/94, RM 126/98	Human Resources Laws 17132, 23873, 24004, 24301, D 15/95, RM 98/2000,RM 997/2001	Physical Resources: According to Ministry of Health Programs and\or Regulations: PNGCAM- Decree 1424/97,: RM 252/99, RM 431/2000, RM 47/01, RM 201/98, RM 996/98, RM 208/96, RM 349/ 94; RM 171/97, RM 233/01, RM 126/98	
				Space	Equipment
Program CARMEN (Set of actions for the multifactor reduction of non-transmissible diseases)	Community	Generate conditions to trigger changes in the local management of health care systems, tending to develop a culture of health care through participative, integrated and cross sector local management. Achieve better quality of living. Promote application of program according to feasibility, availability of resources and social and health status. Give technical cooperation to local governments and participate in the organization of projects. Promote inter sector cooperation for development of activities. Use data on prevalence of risk factors that are common to non transmitted diseases.	Health agent / health professional team. Social communication team / community leaders.	Meeting space	Meeting room. Audiovisual aids. Board. Flip chart. Chairs, desks. Teaching material, etc.

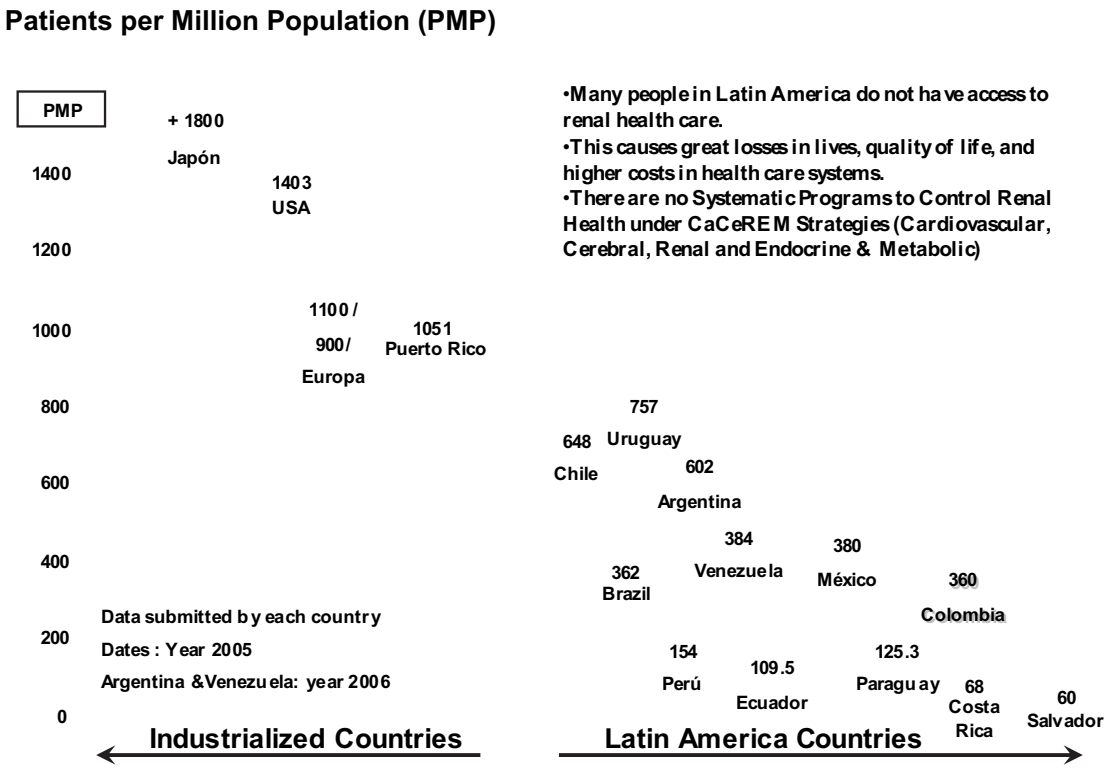

Figure 4. Prevalence of dialyzed Patients per Million Population. Latin American Countries.

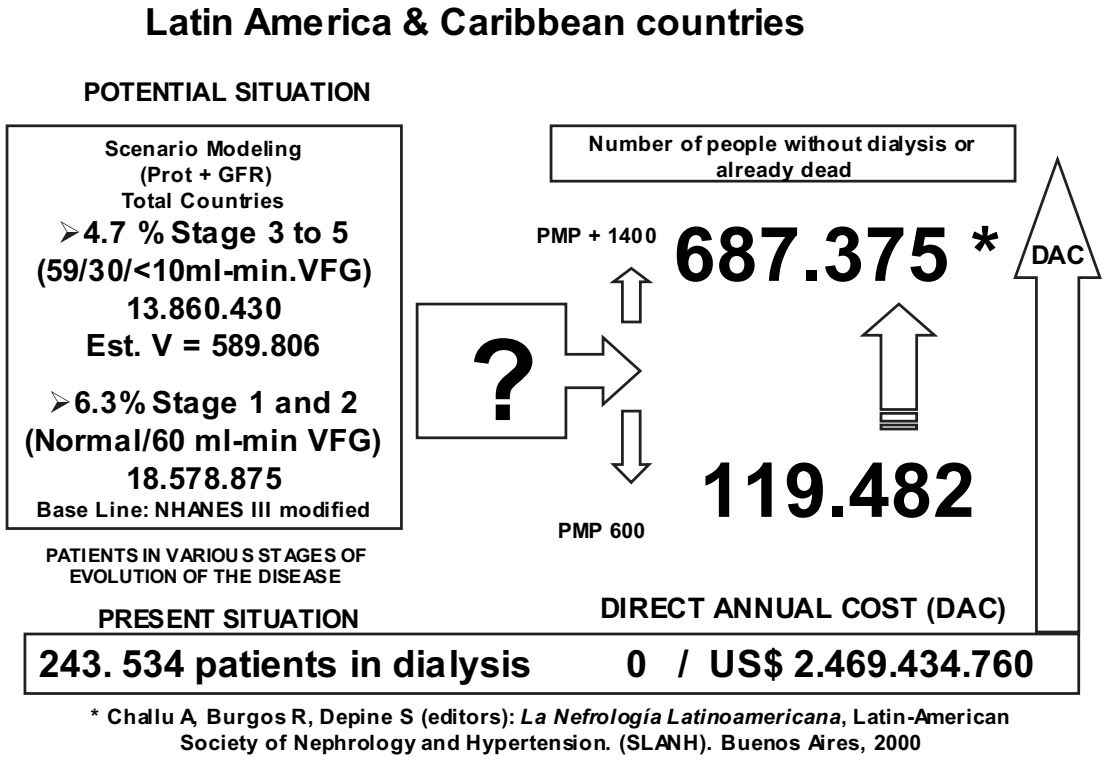

Figure 5. Patients without access to dialysis. Potential economic impact and scenario modelling. Pacients per Millon Population.

Table 4
Workshops and Declarations

Chile

Declaration of Valdivia

"TOWARD A SUSTAINABLE AND TENABLE RENAL HEALTH MODEL."

Latin America and the Caribbean are in the process of developing new strategies to face public health issues. In this context, permanent kidney disease is one of the biggest challenges, for the huge socio-economic and ethic impact of the deep inequalities observed in the region and their implication in renal health care coverage, meaning huge or great difficulties to access economic resources sufficient to meet the needs of our peoples.

Therefore, to solve the above problems we need a Renal Health Model that sets up the basis for its own planning, programming, execution and evaluation.

All this considered, we determine to embrace the following ACTION PLAN:

1. Set up a patient identification system by stage, and recommend the use of NKF and Puerto Rico classification.
2. Set up a referral and counter-referral system, for orderly progress of renal patients in the context of Primary Health Care.
3. Set up therapeutic objectives and plans, and recommend the use of Diagnostic and Therapeutic Flowcharts and Algorithms.
4. Integrate de Renal Health Model to public national health policies in each country, using the tools of the Logic Framework and the Matrix of Allocation of Activities and Resources.

Signed in the city of Valdivia, Chile, on December 4, 2002. (There follow signatures.)

Argentina

Declaration of Buenos Aires 2003

"TOWARD A SUSTAINABLE AND TENABLE RENAL HEALTH MODEL. APRIL 11, 2003."

Latin America and the Caribbean, and Argentina in particular, are in the process of developing new strategies to face public health issues. In this context, permanent kidney disease is one of the biggest challenges, for the huge socio-economic and ethic impact of the deep inequalities observed in the region and their implications in renal health care coverage, meaning huge difficulties to access economic resources sufficient to meet the needs of our peoples. Therefore, to solve the above problems we need a Renal Health Model that sets up the basis for its own planning, programming, execution and evaluation.

All this considered, we determine to embrace the following ACTION PLAN:

1. Declare the interest in Argentina for the Renal Health Model proposed by the Latin American Society of Nephrology and Hypertension and the Argentine Society of Nephrology with the endorsement of PAHO.
2. Promote analysis, debate and consensus needed to develop the model in the context of the Federal Health Council and the Health Advisory Committee in the Ministry of Health.
3. Promote the development of a regulatory framework for the Renal Health Model in the context of the National Program of Medical Care Quality Assurance, and promote the formulation of a National Renal Health Program to be applied by local governments and sub sectors in the National Health Care System.
4. Promote the integration of all sub sectors, service providers, funding agencies, scientific societies and associated programs to the development of the Renal Health Model in Argentina.
5. Entrust continuity of actions needed to achieve the goals that have been here stated to the Administration of Special Programs (APE), the consultants in PROS, the Argentine Society of Nephrology and the representative in Argentina of the Renal Health Committee of the Latin American Society of Nephrology and Hypertension.

(There follow signatures.)

Mexico

Workshop: "Renal health Prevention and Early Detection of Chronic Renal Insufficiency in Mexico. A Strategy for the Next Decade." Queretaro, Jurica, 2006.

Uruguay

Statement of Montevideo

The Workshop "Toward a Sustainable and Tenable Renal Health Model" was held in Montevideo on April 26 and 27, at the Assembly Hall of the Ministry of Public Health of the Republic of Uruguay. Different issues linked to renal health problems and their impact on quality of living as well as the necessary and sufficient connections with area programs in the Ministry of Public Health and Collective Medical Care Institutions were discussed.

The following Statements are the result of the debates held and the consensus reached between participants at the workshop that represented different regulatory and executive levels in the Ministry, the National Resource Fund, the SLANH represented by the Committee for Development of Nephrology and National Problems, the Uruguayan Society of Nephrology, the Committee of Pediatric Nephrology of the Uruguayan Society of Pediatrics, the Program for Prevention and Treatment of Glomerulopathies, the National Medical Convention, the Medical Federation of the Provinces, the Uruguayan Medical Trade Union and the Nephrology Center of the School of Medicine:

Continued

Table 4
Continued

1. Adhere to the Action Plan generated by the Declaration of Valdivia including the following points:
   - Set up a Patient Identification System according to their stage, and recommend the use of NKF and Puerto Rico classification.
   - Set up a Referral and Counter-referral System to ensure orderly progress of patients in the context of the Primary Health Care System.
   - Set up Therapeutic Objectives and Plans and promote the use of Diagnostic and Therapeutic Flowcharts and Algorithms.
   - Integrate the Renal Health Model to National Public Health Policies in each country, using the tools of the Logical Framework and the Matrix of Allocation of Activities and Resources.
2. Recommend that National Societies of Nephrology that are members of SLANH should send to the Committee for the Development of Nephrology and National Problems, all guidelines and therapeutic plans they have devised, so that they can be distributed for debate and consensus.
3. Considering the results of the Program for Prevention and Treatment of Glomerulopathies launched by the Ministry of Public Health in 2000, express the need to officialize the Program for Prevention of Kidney Disease, create a Register of Chronic Renal Failure and make it mandatory to report all Renal Failure patients with persistent increase of plasmatic creatinine over 2 mg/dL and their clinical progress.
4. Create, in the context of the Ministry of Public Health, a permanent honorary committee for Renal Health, whose main aim should be to discuss basic guidelines and the implementation of a Renal Health Model nationwide.
5. Articulate the development of the Renal Health proposal in the Directorate of Non Transmissible Diseases in the Ministry of Public Health.

(There follow signatures).

Paraguay

Declaration of Asunción

Two Workshops were held in Asunción on April 9, 2004: "Toward a National Resource Fund for Special Pathologies" and "Toward a New Sustainable and Tenable Model of Renal Health", at the Ministry of Public Health of the Republic of Paraguay and Las Margaritas Hotel, respectively.

In the course of the workshops different issues were discussed connected to the problems of funding assistance to highly complex pathologies, which are mostly of low incidence and high cost, including Chronic Renal Failure both for prevention and treatment (dialysis and transplant). Also mentioned was its huge impact on quality of life of population and economy of the society as a whole, with special attention to the necessary and sufficient articulations with area programs in the Ministry of Public Health.

As a result of the debates and consensus generated among attendees, that represented different regulatory and executive levels in the Ministry of Health, and with the attendance of the National Deputy Minister of Health, the National Institute of Nephrology (INN), the Institute of Cardiovascular Prevention (INPCARD), the General Directorate of Non Transmitted Diseases, the Institute of Social Security of Paraguay (IPS), the SLANH, the Paraguayan Society of Nephrology (SPN), the Paraguayan Society of Transplants (SPT), the Renal Foundation of Paraguay (FREPA), declare:

1. To adhere to the Action Plan generated by the DECLARATION OF VALDIVIA, including the following items:
   - Set up a patient identification system by stage, and recommend the use of the NKD and the Puerto Rico classification.
   - Set up a referral and counter-referral System for orderly progress of patients in the Primary Health Care circuit.
   - Set up therapeutic objectives and plans and recommend the use of Diagnostic and Therapeutic Flowcharts and Algorithms.
   - Integrate the Renal Health Model to National Public Health Policies in each country, using the tools of the Logical Framework and the Matrix of Allocation of Activities and Resources.
2. Adapt the Draft Law of National Solidarity Resources Fund (FONARESSA) to ensure its approval by the Legislative and the Executive.
3. Urge the National Institute of Nephrology, the General Directorate of Non Transmissible Diseases and the Paraguayan Society of Nephrology to find the mechanisms to implement the Renal Health Model/Program within 90 days of this date.

(There follow signatures).

Venezuela

Declaration of Caracas

In the city of Caracas, on this date July 30, 2004, a Workshop was completed, "Toward a Sustainable and Tenable Renal Health Model in the context of the CAREM initiative" (Initiative for Cardiovascular, Renal and Endocrine-Metabolic Health, a healthy life Project). The Workshop was held on July 29 and 30 organized by the Ministry of Health and Social Development of the Republic of Venezuela, with the technical assistance of the PAHO.

Continued

Table 4
Continued

As a result of discussions held the following document is produced, of which these are the basic conclusions:
Section I:
We subscribe the Action Plan in the DECLARATION OF VALDIVIA:
1. Set up a patient identification system by stage, and recommend the NKF and Puerto Rico classification.
2. Set up a referral and counter-referral System for an orderly progress of patients in the circuit of Primary Health Care. Set up therapeutic objectives and plans and recommend the use of Diagnostic and Therapeutic Flowcharts and Algorithms.
3. Integrate the Renal Health Model to national public health policies in each country, using the Logical Framework and the Matrix of Allocation of Activities and Resources.

Section II:
We state that the assent given to the DECLARATION OF VALDIVIA is aimed at joining it to CAREM, Initiative for Cardiovascular, Renal and Endocrine-Metabolic Health, a healthy life project.
Section III:
Participants unanimously agree to form a specific Working Committees in the context of the MSDS, to elaborate standards of integral renal health care including promotion, prevention, care, rehabilitation, surveillance, monitoring and evaluation of epidemics, as well as research and education, which will be integrated in the CAREM initiative.
Section IV:
There are recommendations to establish the necessary strategies to make this document know among health institutions.
Section V:
We recommend promoting integration among all health care institutions to join the CAREM initiative. (There follow signatures.)

Colombia

Declaration of Bogotá
The Workshop “RENAL HEALTH MODEL: New symbiosis between public health, clinical nephrology and primary care” was held in the city of Bogotá on December 2 and 3, 2004.
This document, “Declaration of Bogotá”, is the product of discussions held, and its basic conclusions are as follows:
Section I:
Adhere to the Action Plan in the Declaration of Valdivia.
1. Set up a National Patient Identification System by stage, and recommend the use of the NKF and the Puerto Rico classification.
2. Set up a Referral and Counter-referral System, for orderly progress of renal patients in the circuit of Primary Health Care.
3. Set up therapeutic objectives and plans, and recommend the use of diagnostic and therapeutic flowcharts and algorithms.
4. Integrate the Renal Health Model to public health national policies in each country, using the Logical Framework and the Matrix of Allocation of Activities and Resources.

Section II:
Create mechanisms to shift from the model of renal disease treatment to the model of prevention and promotion of health most suited to the needs of the population of Colombia.
Section III:
Draw agreements to ensure that information should be provided from the sources (IPS) and national registers should be generated on the part of the Colombian Association of Nephrology.
Section IV:
Continue to create and update guidelines for disease management and for renal health, to be adopted and implemented by all the players in the system.
Section V:
Recommend that the necessary strategies should be put in place for the State to commit to allocate and redistribute resources to make the health model viable, Sustainable and Tenable.
Section VI:
Achieve the integration and commitment of all the players in the system to project the Renal Health Model, and promote the creation of multidisciplinary committees with representatives of different public and private organizations, as necessary.
Section VII:
Create committees within the Colombian Association of Nephrology to implement and develop all the actions involved in the Renal Health Model.
Section VIII:
The Colombian Association of Nephrology should coordinate with the Universities the review of nephrology grade and post grade syllabi to make them agree to the guidelines above. (There follow signatures.)

Continued

Table 4
Continued

Ecuador

Declaration of Guayaquil

In Guayaquil, on this date April 8, 2005, the Workshop "Toward a Sustainable and Tenable Model of Renal Health" was completed. It was held during April 7 and 8 at the Costa Insular Regional Undersecretariat of Health, jointly organized by the Costa Insular Regional Undersecretariat of Health and the Ecuadorian Society of Nephrology, with the participation of cardiologists, endocrinologists, internists, sanitarists and representatives of the Junta de Beneficencia de Guayaquil, PAHO, the Army, the Police Forces, the Ecuadorian Institute of Social Security, the School of Medical Sciences and SLANH.

In the course of the workshop, participants analyzed the epidemiological and attention problems of kidney disease and its huge socio-economical impact on patients, their environment and health care services, as well as the need to articulate actions by the institutions involved and those which will join in the future.

This document is the product of the debate carried out, and its fundamental conclusions are as follows:

Section I:

We subscribe the following Action Plan:

We adhere to the Declaration of Valdivia, with some modifications for the case of Ecuador:

Set up a Patient Identification System by stage, and recommend the use of the NKF and the Puerto Rico classification. Include this information in the Mandatory Notification Subsystem of the National Kidney Foundation (NKF)

Set up a Referral and Counter-referral System for orderly progress of renal patients in the three levels of attention.

Set up Therapeutic Objectives and Plans, and recommend the use of Diagnostic and Therapeutic Flowcharts and Algorithms that are updated and evidence-based.

Integrate the Renal Health Model to National Public Policies in Ecuador, in the context of Control of Non-transmitted diseases, and strengthen control of connected diseases. To build the program, use the tools of Logical Framework and Matrix of Allocation of Activities and Resources.

Section II:

We conclude that we must reorient the model of kidney disease care toward a model of renal health that highlights prevention of disease and promotion of health.

Section III:

Participants unanimously commit to have the Ecuadorian Society of Nephrology join the National Committee of Non Transmitted Diseases.

Section IV:

We recommend that the Society of Nephrology should take part in the preparation and implementation of renal health control guides and their widespread dissemination throughout the country.

Section V:

We state the need to implement a system of risk surveillance for cardiovascular and other non transmissible diseases, including terminal kidney disease, following the recommendations of the 42nd Board of Directors of PAHO. (There follow signatures.)

Puerto Rico

Renal Health Model for Puerto Rico. An Approach to a Sustainable and Tenable Proposal. August 2005. (Rafael Burgos Calderón (Local Counterpart) and Santos Depine, (External Consultant). Document prepared for the Coordination Office of PAHO/WHO in Puerto Rico.

Perú

Workshop "Toward a Sustainable and Tenable Renal Health Model", held at the Ministry of Health in September 2005. Document "Renal Health Model" Draft - EsSalud (Edmundo Alva Bravo - Manager)

Brasil

Letter of Intention: With Participation of the High and Average Complexity of the Health Department, Coordination of Hypertension and Diabetes, Latin American Society of Nephrology and Hypertension and Brazilian Society of Nephrology.

Defined the necessity and the convenience of the establishment of a Program of Renal Health for Brazil, the signatories of this Letter of Intentions wake up that following activities will have immediately to be taken: Implementation of a work group with the Secretariats of the Health Department, Scientific Societies and PAHO, for elaboration of a Strategical Planning, with the purpose to develop a Model for the Promotion, Prevention, Control and Treatment of the prevalent chronic disease.

The Chilean Society of Nephrology and the Ministry of Health worked jointly in the creation of guidelines for primary care physicians to facilitate the detection and control of early stages of renal disease in a high-risk population.

Argentina

Argentina adopted in all its parts the action plan approved in the Declaration of Valdivia. The PAHO

provided technical advice,[12,13] and the Argentine Society of Nephrology and the Confederation of Dialysis Associations of Argentina also cooperated.[14] The Renal Health Program was included in the state agenda when it was published in the "Boletín Oficial" (Official Bulletin) on September 27, 2004.[15]

The plan was implemented by the Administration of Special Programs of the Ministry of Health and the Environment[16] and features explicit financial incentives. It articulates the following strategies:

- *Special Funding*. Granted in the context of the Reciprocal Redistribution Fund a specific budget item.
- *Strengthening of Transplant Programs*. Financial coverage for procurement, transplant, and lifelong delivery of immuno-suppressor medication after transplant.
- *Networking of Service Providers*. Networks of primary care physicians and specialists, in the First Level of Care, with halfway control nodes for early detection of the need for training and education of human resources.
- *Renal Health Program*. "Control" program that articulates the promotion, prevention, treatment, rehabilitation, research and education, and generates activities and resources to be shared by vertical programs of cardiovascular, renal, and endocrine-metabolic health. Economic incentives for the agents of the Health Insurance System.
- Financing of promotion and dissemination.
- Subsidization of epidemiological strategies (screening) that coexists with the one for risk groups (control in the health care system).
- Funder reimbursement of dialysis fees for patients who have followed the steps of the program.
- *Information*. Longitudinal follow-up via the Follow-up Form and the Matrix of Classification, Remission, and Regression of Chronic Kidney Disease Follow-up and Evaluation Chart. This enables one to analyze adhesion to treatment, systematize follow-up (evidence-based medicine), use clinical guidelines (KDOQI/KDIGO), detect the need for the training of human resources, and draw actuarial curves for budget forecast, essential to making the model sustainable and tenable.

On the assumption that all players are committed, the authors also had the adhesion of the Argentine Society of Nephrology and the Confederation of Dialysis Associations of Argentina, all of the Regional Associations of Dialysis in the country, the NGOs linked to renal patients and organ transplant, the Argentine Chamber of Products and Services for Kidney Therapy, which represents multinational corporations, and more than 600 private nephrologists offices nationwide, which make up the network of Primary Renal Health Care (CAPS-R), added to those in the public health sector and to physicians in the First Level of Care.

México

In April of 2006, the "First Joint Meeting – Jurica" between the SMN and the IMIN was made. The collaboration agreement was signed to integrate the Mexican Committee of Renal Health, with the purpose of reaching renal health in Mexico.

Uruguay

Uruguay is successfully implementing its pilot Renal Health Program in four areas (Mazzuchi N, personal presentation, COCEMI 2005):

1. The western area of the department (county) of Montevideo, October 2004
2. The eastern area of the department (county) of Montevideo, December 2004
3. Department of San José, August 2005
4. Department of Florida, October 2005

Preliminary results are very encouraging, and there is a will to extend the program nationwide. The same as Argentina, Uruguay has followed the steps recommended in the Action Plan of Valdivia.

Paraguay

Paraguay faced specific actions on the Fund strategy. Currently, the draft for the Solidarity Health Care Resources Act, which allocates resources for highly complex care in case of catastrophes, is being discussed by the Legislative.

Three workshops have been conducted so far, with active participation of the Paraguayan Society of Nephrology and national health authorities. They have planned to start activities in 2006.

Venezuela

Venezuela has been the forerunner in the implementation of a cross-program called "CAREM Initiative" (Cardiovascular, Renal and Endocrine-Metabolic), a joint

effort of the Ministry of Health and Social Development and the local representation of PAHO-WHO.

The Renal Health Program, administered by the Directorate of Programs and the Deputy Minister of Health and Social Development, has designed a manual "Renal Health Project in the Context of the CAREM Initiative" for the implementation of the Program. A follow-up workshop is scheduled for the first quarter of 2006.

Colombia

The Ministry of Health and Social Protection has commissioned a document, "Model of Health Care in Chronic Renal Disease," with the cooperation of the Colombian Association of Nephrology. The SLANH contributed the suggestion to change the name from "Model of Health Care" to "Model of Health." Finally, the clinical guidelines were approved, as was the Component of Prevention and Control of Chronic Renal Disease in the context of the Model of Renal Health.

Ecuador

A workshop was successfully conducted in Guayaquil. So far, no specific actions in the context of the Model have been reported.

Puerto Rico

Puerto Rico has been a key player in the paradigm shift from day one. The concept of Renal Health was first used in San Juan in 1996.

The School of Public Health taught the contents of EPI-INFO in workshops in the region.

The health care system in Puerto Rico is different from those of other countries in the region. There is a capitalization model with active participation of the primary care physician in the administration of resources. This is why the proposed Model of Renal Health reflects these characteristics. In August 2005, with technical advice from PAHO-WHO (R. Burgos Calderón, Local Counterpart; and S. Depine, External Consultant), workshops were held with the cooperation of the Secretariat of Health, PAHO-WHO, and the Administration of Health Insurance (ASES), which produced the document, "Renal Health Model for Puerto Rico: An Approach to a Sustainable and Tenable Proposal."[17]

There was preliminary agreement on the beginning of a pilot program coordinated by ASES and the Secretariat of Health.

Peru

In this country, only beneficiaries of Social Security (EsSalud) are covered for dialysis. The population under state coverage does not have access to that kind of treatment. For this reason, EsSalud bears a heavy burden of disease and faces high costs.

In September 2005, a meeting took place in the Ministry of Health, with executive officials taking part as well as EsSalud staff and members of the Peruvian Society of Nephrology (SPN). There was preliminary consensus agreed that SPN should join the working committee on prevalent chronic diseases, and Renal Health was included in the area of No Transmissible Diseases in the Ministry of Health.

Brasil

With the sponsorship of the PAHO, a meeting in Brasilia in February of 2006 took place. A letter of intent for the development and implantation of a model for the promotion, prevention, control, and treatment of prevalent chronic disease was signed.

DISCUSSION

The last few years have seen impressive breakthroughs, both in knowledge and in nuclear technology, as well as support for the health care sector. Better knowledge of diseases, physiopathology, the inner mechanisms of molecular biology, biotechnology, among others, has brought about improvements in the quality of practices.

Advances in the pharmaceutical industry in the past ten years have been impressive. The classification of renal disease in stages, proposed by the National Kidney Foundation (NKF),[18] has simplified the way to relate to renal disease and its victims. Evidence-based medicine has also had a strong impact on the quality of health care for people who have the chance to access health care systems, as reflected by indicators of quality of living (QALYs)[19] or the Health Survey SF 36.[20]

However, many people in Latin America do not have access to health care. Furthermore, inequality generates a loss of life, poor quality of living, and huge costs for health care systems. The lack of cross-strategies, systematized across programs, makes resource allocation inefficient, thus worsening the status of some groups.

Generally speaking, in every country and health care team, both among individuals and groups, and due to culture and education, the prevalent paradigm is not health care but disease.

Thus, efforts are often directed to the sick, and those who (for cultural, economic, and geographical reasons) do not have access to the system are ignored. The Ministries of Health are more than willing to work with spontaneous demand than with actual demand, which is, however, what determines the true needs for coverage.

The strategies used so far (i.e., Managed Care of Disease Stage Management) have not proved sufficient to respond to the serious problems of public health posed by permanent kidney disease. The quality of practices has improved and sick people get treatment, but the status of large groups, still ignored, has not been modified. They often have no chance to get proper health care.

Analyzing one indicator, the prevalence of dialyzed patients, it is clear that inequality prevails in Latin America as compared to central countries. This leads us to assume that many Latin Americans die in the early stages of the disease for cardiovascular reasons, unstable diabetes, or simply uremia (see Figures 3 and 4).

This study focuses on the financial impact of dialysis and transplants. However, the expenditure in health care generated by lack of access and prevention is huge. At some moment in time, these people will require medical assistance, usually from the public sector. They will overburden it and make up a very costly institutional case mix. Add to this the impact on family economies of direct and indirect costs that they will have to face. There needs to be a paradigm shift, from disease to health. The work done by National Societies of Nephrology is showing a path to follow.

This path is the development of a sustainable and tenable renal health model. Otherwise it will not be possible to finance dialysis or transplant with national resources, even though access be restricted to a few. Note that indirect or hidden costs amount to 100–163% of direct costs.[21] Those costs may be avoided, and these savings would add to savings generated by the decrease in the progress of renal disease[22] brought about by a systematized renal health program with CAREM strategies.

CONCLUSIONS

Health care systems worldwide are currently threatened, especially in Latin America and the Caribbean, by increases in the cost of services and higher demand for state-of-the-art technology.

The pandemic of diabetes associated with permanent renal disease, cardiovascular disease, dyslipidemias in general, and growing obesity, seen even in underdeveloped countries, are generating concern among governments.

Society as a whole may not have perceived the magnitude of the problem, which may be why its representatives in the national administration have not yet become aware

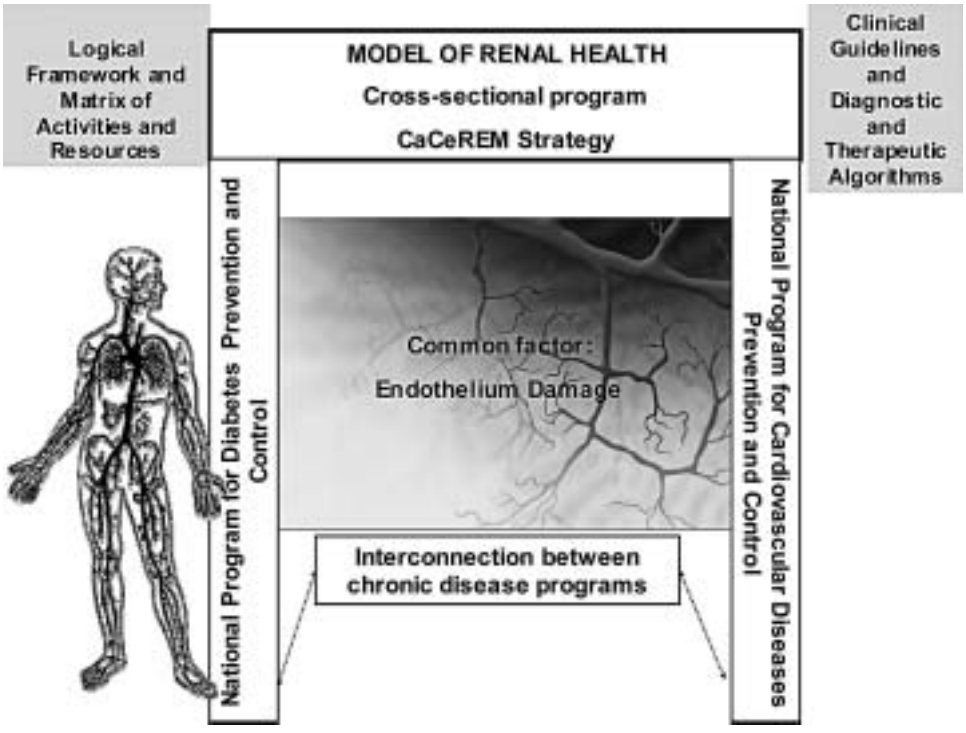

Figure 6. Renal Health Model. Symbiosis between public health and clinical medicine.

of its seriousness, let alone the need to implement corrective actions that would upgrade the quality of living of the people of Latin America and the Caribbean.

The Renal Health Model, with control strategies and cross-actions between traditional diabetes, hypertension, and cardiovascular disease programs, brings a cost-efficient solution and generates a symbiosis between public health and clinical practices, which so far had been in the hands of DSM agencies.

Its planning, programming and evaluation tools (Logical Framework and Matrix of Activities and Resources) coexist with clinical guidelines and diagnostic and therapeutic algorithms (see Figure 6). It brings about a paradigm shift that is gradually coming to be in several countries in the region. The learning process has a threshold, the process of "un-learning" previous contents, and that is the current state. However, following the action plan of the Declaration of Valdivia in December 2002, which created a systematic work guide, there are ten countries some action has been taken aiming at a Sustainable and Tenable Renal Health Model.

There are still countries where there have been isolated attempts to detect renal health, but there has been no planning, programming, or evaluation of aims and objectives with the required tools that could be called a program and that could qualify for resources granted by the ministries of economy or the international funding agencies.

When the model is fully operational, it should generate an Annual Operative Program (POA) to correct deviations from the path leading to the scheduled aims and objectives.

REFERENCES

1. Depine S. *El Médico en la Consulta. La Rejerarquización Académica de Viejas Artesanías. Drogas. Mejor Hablar de Ciertas Cosas*. Buenos Aires: University of Buenos Aires, Tenure of Bioethics, School of Law, 1997.
2. Challú A, Burgos R, Depine S, eds. *La Nefrología Latinoamericana*, Latin-American Society of Nephrology and Hypertension. Buenos Aires, 2000.
3. Burgos Calderón R, Depine S. Sustainable and Tenable Renal Health Model: A Latin American Proposal of Classification, Programming, and Evaluation. *Kidney International*. 2005; 68(Suppl. 97): S23–S30.
4. World health Organization. *Pan American Health Organization (PAHO): Project Development Follow-up Handbook*. Geneva, Switzerland: World Health Organization Regional Office; 1999.
5. Depine, S, ed. *PNUD – Unit of International Funding for Health. Lineamientos para una Asignación Costo – Eficiente de Actividades y Recursos en el Primer Nivel de Atención* Buenos Aires, Argentina: Ministerio de Salud; 2002.
6. The Latin American Society of Nephrology and Hypertension. Declaration of Valdivia. Available at: http://www.slanh.org/institucional/Declarac_VALDIVIA.doc. Retrieved December 2002.
7. Omran, A. The epidemiologic transition; a theory of the epidemiology of population change. *Milbank Mem Fund Quart*. 1971;49:509–538.
8. United Nations General Assembly. Statement of Commitment to combat HIV/AIDS. August 2, 2001.
9. Challú A, Depine S, San Martín C, Jost L, Estraviz H. Realidad de la nefrología latino americana. Conclusions of the First Conference of Latin American Societies of Nephrology, in Rosario, Argentina, sponsored by PAHO and dedicated to the study of Latin American nephrology. Revista de Nefrología, Diálisis y Transplante 1990;27(July):21–31.
10. The Latin American Society of Nephrology and Hypertension. Statement of Puerto Rico. Available at: http://www.slanh.org/institucional/Pronunci_PUERTORICO.doc.
11. The Latin American Society of Nephrology and Hypertension. Declaration of Buenos Aires. Available at: http://www.slanh.org/institucional/Declaracion_Buenos_Aires.doc.
12. Depine, S. Lineamientos para la implementación de un modelo sustentable y sostenible de salud renal. The Argentine Delegation at PAHO / WHO, November 2003.
13. Depine, S. Modelo sustentable y sostenible de salud renal para la seguridad social de la Argentina. The Argentine Delegation at PAHO / WHO, August 2004.
14. Boletín Oficial de la República Argentina. Year CXII, No. 30.493, p. 20. September 27, 2004.
15. Boletín Oficial de la República Argentina. Year CXII, No. 30.493, pp. 6–9. September 27, 2004.
16. Law 23.361, Section 22. *Sistema Nacional del Seguro de Salud* Argentina: National Executive Power; January 1989.
17. Burgos Calderón R, Depine S. Modelo de salud renal para Puerto Rico. Una aproximación a una propuesta sustentable y sostenible. Document of the Coordination Office of PAHO/WHO in Puerto Rico; August 2005.
18. National Kidney Foundation. K/DOQI clinical practice guidelines for chronic kidney disease: evaluation, classification, and stratification. *Am J Kidney Dis* 2002;39(Suppl. 1): S1–S266.
19. Gonzalez-Perez J, Vale L, Stearns S, Wordsworth S. Hemodialysis for end-stage renal disease: A cost-effective analysis of treatment options. *International Journal of Technology Assessment in Health Care*. 2005;21(1):32–39.
20. Ware JJ, Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. *Medical Care* 1992;30:473–483.
21. Rodby RA, Firth LM, Lewis EJ. An economic analysis of captopril in the treatment of diabetic nephropathy. The Collaborative Study Group. *Diabetes Care*. 1996; 19(10):1051–1061.
22. Trivedi HS, Pang MM, Campbell A, Saab P. Slowing the progression of chronic renal failure: economics benefits and patients' perspective. *Am J Kidney Dis*. 2002; 39(4): 721–729.