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STUDIES AND STRATEGIES TO REDUCE MORBIDITY AND MORTALITY FROM ENTERIC  
INFECTIONS

NURSING CARE AND ASSISTANCE REQUIRED IN HEALTH SERVICES AND  
IN THE COMMUNITY IN THE CONTROL OF ENTERIC INFECTIONS

by

María Valdarez Borges  
Nursing Consultant, PAHO/WHO

NURSING CARE AND ASSISTANCE REQUIRED IN HEALTH SERVICES AND  
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1. Introduction

Nursing care is one of the resources employed to implement enteric disease control measures. When properly utilized and incorporated in a common strategy, it can contribute to the successful achievement of the control program objectives.

It is well known that the enteric infections continue to be a major cause of death among children under five in the Latin American area, despite organized efforts that have been applied to control them. This indicates a need for modifications in policy and utilization of resources to control these infections and, accordingly, changes in the role of nursing care.

The problem of enteric infections in a region, in either the epidemic or endemic form, has always been a consequence of a series of related factors that depend on the environment, the host and the agent. If, on the one hand, it is recognized that environmental sanitation measures are clearly needed to reduce its occurrence, the social structure, levels of nutrition, education and culture, and the taboos associated with the health infrastructure, also play a very important role; when weakened they act as a factor limiting control measures. While nursing care as a component of the health infrastructure is integrated among the tools conditioning the quality of care provided, it depends on various factors that affect the level of effectiveness of health measures, such as the existence of programs with defined objectives and goals on which nursing objectives and functions can be based.

Emphasis is given in this study to the objectives, duties and activities of nursing in the control of enteric infections, based on experience in some countries of Latin America. The more important aspects in the establishment of nursing strategy in control of these diseases, as well as its limiting factors, are also presented.

2. Nursing Care Objectives in Control of Enteric Infections

Past experience indicates that no single health measure, applied in isolation, has succeeded in eradicating or decreasing the enteric diseases to a low endemic level. The problem must be attacked by integrating it into the various long-term health programs with the full application of measures to prevent its occurrence and provide adequate treatment of cases detected. Nursing activities are a part of the total resources available for application of control measures. Accordingly, they must be included at all stages of program development so that they may support some measures and act directly and specifically in the success of others. If we consider that such

measures are included in programs of environmental sanitation, communicable disease control, maternal and child health, and applied nutrition, the general objectives of nursing care are defined as:

2.1 To plan nursing care required to achieve the goals of the Ten-Year Health Plan for the Americas, in consonance with the social and economic reality of the country, but retaining as a base the standards of nursing that provide safety and quality in the care of patients.

2.2 To provide the quantity and quality of nursing care required to implement the programs of environmental sanitation, communicable disease control, maternal and child care, and applied nutrition to meet the goals established in the Ten-Year Health Plan.

### 3. Activities Designed to Achieve Nursing Objectives

To attain such objectives, nursing personnel (nurses and auxiliaries) carry on activities that of themselves are a part of the various health programs mentioned above directed to the final goal, the reduction of morbidity and mortality from enteric infections. Activities related to the first objective necessitate participation of the nurse in aspects related to the administration of services, such as planning, organization and supervision of the nursing component in health programs that include measures to control enteric diseases. Such nursing participation in the administrative process is essential to place it in proper context among the activities carried on at all levels of prevention and to define the nursing functions and the needs and resources required to implement them.

The role of nursing in relation to the second objective comprises five basic groups of functions originating in the health services and projected to the community. The projection of nursing care into the community is dependent on the capacity of the infrastructure to provide coverage, using nursing personnel as the catalytic agent to implement health activities. These groups of functions envisage nursing as a support service to promote some measures, in some cases, and to act specifically in implementing others. It can be defined in the following terms:

- 3.1 Promotion of educational activities in the community for the implementation of enteric disease control measures
- 3.2 Development of activities that contribute to early case detection of enteric infections, preventing their evolution to more serious stages
- 3.3 Promotion of nursing care that will assure adequate treatment of the diseases
- 3.4 Promotion of nursing care that will prevent cross infection in institutions
- 3.5 Participation in epidemiologic research.

3.1 Promotion of educational activities is carried on simultaneously with and as an extension of the care provided by the health units under the existing programs; its purpose is to alert individuals and groups in the community to the measures for control of enteric diseases. Nursing personnel provide information and guidance on the following subjects, through contact with individuals and community groups, in health units, and in meetings of mothers, teachers, health committees, traditional midwives, and other leaders:

- The problem of diarrheas in the community, their means of transmission and, especially, the danger they pose to children under five years
- Essential environmental sanitation measures that are within reach of the community, such as water supply, construction of latrines, collection and disposal of solid wastes, control of food, and others. Families are instructed on the advantages of such benefits and informed on measures for obtaining them, according to the sanitation program carried out in the community
- Care of the diet, and personal hygiene that must be provided for children to prevent malnutrition and the enteric infections that may result, as well as means of improving maternal nutrition, showing how to prepare complementary and supplementary feeding
- Identification of the early symptoms of enteric infections and immediate measures that must be applied in the home to prevent aggravation of the problem
- Provision of information on health services that are available in the community and the care they provide
- Immunization of nursing infants against measles and whooping cough, as associated diseases that predispose to enteric diseases
- Instruction to the community on specific protection against the enteric infections, according to standards prescribed by the communicable disease control services.

This information of an educational nature forms part of the daily nursing activity and must be developed at the level of rural and urban health care. The educational component is a basic and fundamental part of nursing in all health programs; without it the care provided is incomplete and lacking in quality. It is carried out through programmed development, interviews, consultation with the nurses, short courses, home visits, and individual orientation of mothers in the hospital services and in meetings of community groups.

3.2 Early detection of enteric infection cases is primarily related to the capability of nursing to extend and expand its role in the maternal and child health programs. Three groups of specific activities are involved in this function:

- Control and follow-up of pregnant mothers
- Control and follow-up of infants
- Selection of cases for priority attention by the medical staff.

More recently the educational component in care of pregnant women has included, among other things, instruction on maternal diet as a tool in the prevention of enteric infections, giving special emphasis to symptoms of these diseases, to oral rehydration, and to other measures that must be taken in the home to prevent worsening of the problem. Control and follow-up of the child can include specific protection against communicable diseases such as measles and whooping cough, and care of the undernourished child, as conditions that predispose to enteric infections. Selection or screening of children for priority attention, a function of the nursing staff, is a working system adopted in institutional care to reduce the possibility of rejecting patients because of an insufficient number of medical hours. This system also makes it possible to avoid having the mothers wait in line to obtain their files or to see the doctors. With a proper screening system, the nursing staff refers the most serious cases to the doctor, and handles the rest according to the standards established for the purpose.

Experience shows that when a good educational program is carried on simultaneously with proper care by the health services, even where there is no regular medical officer the community cooperates in timely detection of cases and in seeking available attention for the children with diarrhea.

Enteric infections also appear in an epidemic form that affects adults. In addition to seeking and identifying existing cases, it is the responsibility of nursing personnel to inform the population on the ways in which the infection is spread and on measures to prevent it, showing its relation to the use of water, disposal of excreta, food hygiene, specific vaccination and treatment of the disease, and alerting them to identifiable symptoms.

3.3 Promotion of nursing care that will assure application of proper treatment is related to available resources, according to the levels of care. As the majority of victims of these diseases are children under five years, nursing care assumes special importance in preventing aggravated dehydration. This involves the following responsibilities:

- Use of oral and parenteral rehydration techniques, along with other therapeutic measures, according to prescribed medical procedures

- Intensive care of children under a system of hospitalization
- Care of children under partial hospitalization system
- Education of the mother
- Follow-up of the convalescent child
- Follow-up of the undernourished child.

It is of the greatest importance that there be written guidelines for nursing care, principally at the service levels where there is no regular medical officer.

Children with diarrhea may be treated either as outpatients or in the hospitals. However, as many children are brought in to the outpatient services in need of parenteral rehydration, some institutions have set up rehydration rooms in the health centers and units. Children under the system of partial hospitalization are given care in the rehydration room for periods that may vary from 8 to 12 hours. At the end of the day, the child is picked up by its parents, who then bring the child back for treatment at the first working hour of the following day. This system assures that adequate treatment will be applied, even though the child is not hospitalized. Partial hospitalization is recommended even in those services that do not have regular medical staff. It is not always possible to make a mother realize the importance of oral rehydration and other treatment. The child's condition often worsens as result of its failure to receive proper treatment in the home. Accordingly, when the nursing auxiliary has some cribs at the health post where she may give the mother direct instruction and supervision in administering oral rehydration and other treatment, the care is more effective.

Since the majority of health services do not have sufficient nursing staff, the mother's participation in caring for her child, under either system of medical care (partial or full hospitalization), makes the stay of the child in the institution less distressing, provides the opportunity for the mother to receive instruction on the child's needs, and facilitates better attention.

3.4 Prevention and control of cross infection in institutional care, mainly in hospitals, depends in large measure on the nursing staff since they constitute the nexus between the patient and the hospital environment.(1) Enteric diseases as well as other infections can be transmitted from one patient to another within the hospital unless measures are taken to control sources of the infectious agents in the institution. Inadequate care or faulty techniques on the part of the nurse can be the vehicle of transmission of an infectious agent. Control of cross infection in the

case of the enteric diseases, especially among newborn infants and children in pediatric wards, requires observance of the highest standards and practices of asepsis on the part of the nursing staff. This implies certain minimum essential basic conditions in the environment as well as in the operating systems of the institution. Such conditions make possible the practice of asepsis in all types of patient care, whether in the isolation wards or not; the following are the minimum requirements to control cross infection:

- Running water and hand basins in all areas where direct or indirect care is given to patients
- Training of nursing personnel in techniques of asepsis and effective isolation of patients
- Assignment of duties and careful supervision of nursing auxiliaries
- Establishment of a continuing instruction program for patients, with special attention to mothers of hospitalized children. In the latter instance, mention should be made of the advantages of having the newborn infant close to its mother in the maternity wards
- Establishment of standards on isolation of patients with communicable diseases
- Assurance of resources for preparation, protection, storage and handling of food for newborn and nursing infants and preschool-age children
- Assurance of resources, such as abundant hot water supply, soap and clean clothing, to care for personal hygiene of patients in the hospital or under the partial hospitalization system, as well as appropriate equipment to collect and transport contaminated clothing to the laundry
- Resources adequate for cleaning, disinfecting and sterilizing equipment, furniture and materials.

Nursing service is the mainstay of any program for the control of infections and contamination in hospital establishments because it has the responsibility for continuing patient care, application of a large part of the asepsis techniques, isolation procedures and patient and family education. It also controls other activities, such as the passage of persons within the hospital units, disposal of waste, handling of soiled clothing, the quality of diet provided, protection against vectors, level of cleanliness in the surroundings, and other aspects that could generate and spread germs.(1)

3.5 In the field of epidemiologic research, the nursing staff cooperates in studies on the identification of infectious agents, on implementation of epidemiologic surveillance measures to control enteric infections, and on operations related to the prevention, control and treatment of these infections. In cooperation with the epidemiological services, the nursing staff is responsible for such activities as:

- Study of and report on cases of enteric infections, in accordance with standards prescribed by the epidemiological services
- Investigation of contacts and cooperation in identification of carriers
- Development of techniques appropriate to the surveillance for intrahospital enteric infections
- Evaluation of nursing activities for the purpose of implementing measures for control of cross infections in institutional care
- Participation in studies on malnutrition

4. Nursing Activities, According to Level of Care

Nursing participation is based on the premise that it is essential to identify its responsibilities within the existing health system, incorporating it into the various levels of care provided.

For this study, four care levels will be taken as a basis: the level of sporadic or occasional care, minimum care level (both in the absence of regular medical services), the professional care level, and the institutional care level. At the four levels of care, nursing activities include four basic areas: promotion of health, case detection, treatment, and follow-up.

- At the level of sporadic care a properly informed community takes action to discover and refer cases of the disease to other levels having better resources. The auxiliary worker in occasional visits provides specific guidance on simple measures that the community must take, such as oral rehydration in diarrheal cases, infant feeding, personal hygiene and food sanitation and assistance to local leaders in identifying the environmental health problems and means of solving them;
- At the minimum care level, primary attention is given to the application of preventive measures, selection of patients according to risk, provision of immediate care for the sick according to prescribed standards, and referral of patients to other levels with better resources.



Nursing activities are carried on by properly trained auxiliary workers, under regular supervision, and, according to the areas already mentioned, they will observe the frame of reference described in the Annex.

- At the professional care level, in addition to activities described for the minimum level, nursing personnel refer the patient for medical consultation and later, depending on the diagnosis and prescribed treatment, prepare a nursing care plan that may be carried out either under a system of partial hospitalization (where rehydration centers are available) or exclusively under an outpatient system. As there is regular medical assistance at this level, parenteral rehydration can be included in the nursing activities. A description of these activities is included in the Annex.
- At the level of institutional care, attention is given to cases originating locally and to those referred from other levels, consisting of children who in the majority of cases present serious forms of enteric diseases. The intensive care procedure is applied, and patients are classified according to their need for medical and nursing care (see Annex).

#### 5. Essential Elements to Achieve Quality Nursing Care

The basic objective of nursing services, in outpatient facilities or in institutions, is to give the patient appropriate care that is safe, continuing and individualized. However, if these criteria of quality are to be met, nursing services must be able to count on various factors related to the level of infrastructure development. Among these factors, those of major importance in providing a foundation for satisfactory nursing participation are described below:

- 5.1 Existence of services to individuals(2) with well-defined objectives and goals, so as to provide the basis on which nursing functions may be defined. Nursing participation in planning control measures for enteric diseases is essential in formulating nursing policy at all steps in the action plan.
- 5.2 Education and up-dated training for nursing personnel at all levels and in all categories, related to control measures.
- 5.3 Existence of an organization and operations manual for the development of activities, with definition of standards and procedures for patient care.
- 5.4 Existence of a nursing policy that defines its objectives, strategy and sphere of activities.

5.5 Resources that make it possible to provide appropriate individualized care, without risk of infection. Some of these resources are running water; space for patient care, including educational activities requiring privacy; proper installations to give safe care, surveillance systems for control of intrahospital infections; and the tools of nursing care, according to program requirements and coverage.

5.6 Resources for supervision, especially in those services where regular professional care is not available.

## 6. Nursing Strategy

The Ten-Year Health Plan for the Americas proposes as a goal, to reduce present mortality from enteric infections by at least 50 per cent, with particular emphasis on infants and young children.(2) Attainment of this objective implies a change in nursing strategy to assure a broader role for nursing in health programs that cover control measures for enteric infections, especially in the rural area.

A brief analysis of the present nursing situation reveals an acute manpower shortage in the majority of countries in Latin America and the Caribbean that directly affects both quantity and quality of health services that can be delivered. A study made by PAHO/WHO shows that in 1969 the ratio of nursing personnel (nurses plus auxiliary workers) was less than 15:10,000 population.(3) The situation is even more critical if nurses are singled out. The same study indicates that there are some countries where the ratio of nurses is less than 1:10,000. As indicated in Table 1, eight countries with half of the region's population had a ratio under 1.5:10,000 nurses in 1969. The proportion is invariably many times greater in the industrialized nations. Canada, for example, had a ratio of 50 nurses and nearly 70 nursing personnel per 10,000 inhabitants in 1971.(3)

The situation with regard to the production of nursing manpower (nurses and auxiliaries) is no less critical. Many countries will not be able to achieve the planned levels of health care coverage and quality if they do not make a great effort to increase the annual production of nurses and auxiliary workers.(3) In general, educational programs for auxiliary workers have been established without prior study of the functions of such workers and how they are to be utilized, which gives rise to training programs lacking in appropriate content.

Production of nurses is excessively low in the ratio of those who are admitted and those who are graduated from the schools of nursing and of medicine. The same study reveals that only in two countries do admissions in the former exceed those in the latter.(3) The average ratio of graduates is 2.8 physicians for each nurse (see Table 2).

PAHO/WHO has made a study on the need for production of nursing manpower to meet the goals of the Ten-Year Health Plan for the Americas (see Tables 1 and 2).

This situation is aggravated by inadequate utilization of available personnel, either by employment in other sectors not related to nursing or by resistance to nursing participation in primary health care.

A concrete change in nursing strategy to provide for its participation in control of enteric diseases or in any other health problem would of necessity require changes in the situation described to permit expansion of the nursing care capability; better utilization of personnel at the different levels of care; redefinition of objectives based on the expanded role according to the needs and limitations of health services; increased production of nurses and auxiliaries; and incentives to reduce immigration into the more industrialized countries.

It is already recognized that achievement of the goals of the Ten-Year Health Plan require effective participation of nursing personnel, which raises the following questions:

- a. Will the countries be willing to make better use of available nursing personnel, defining and expanding their functions to give better coverage to the community, especially in the rural area?
- b. Will the countries be willing to apply more health funds to increase the number of job opportunities for nurses and auxiliaries, and make it possible to extend services in the rural areas, with more adequate supervision?
- c. Will the countries be willing to step up the production of nurses and auxiliaries to reduce the existing shortage and to expand coverage of services to individuals?
- d. Will the health directors be willing to establish a policy to train nursing auxiliaries according to the functions that they must have in health programs?
- e. Will the health directors be willing to improve wage and personnel policies so as to reduce immigration of nurses into the more developed countries?
- f. Will the authorities responsible for maternal and child health services be willing to broaden the nursing function to improve the level of maternal and child health services and to expand their coverage?

Nursing strategy will depend on the possible changes that the countries can bring about in the nursing situation. If nursing is to participate effectively, it will be essential to assure at least the following conditions:

- 6.1 Full use of existing nursing personnel, aimed at implementing and expanding their role in the control of enteric infections especially in the rural area.
- 6.2 Expansion of the role of nursing, incorporating functions related to provision of basic health care as well as prenatal control, child care and communicable disease control, so as to increase coverage to the population, especially in the rural area.
- 6.3 Fostering of nursing participation in multidisciplinary groups that define health programs related to enteric disease control, its objectives, activities, needs, and systems of organization and operation.
- 6.4 Strengthening of the participation of nursing auxiliaries in rural services, giving them adequate training and expanding their functions to include basic prevention activities and some care of the sick, under proper guidance.
- 6.5 Establishment of in-service training programs to provide refresher courses for nursing personnel in order to facilitate more effective discharge of their role in enteric disease control.
- 6.6 Review and up-dating of training programs for nurses and auxiliaries in those aspects related to the control of enteric infections.
- 6.7 Improvement in the efficiency of nursing care in rural areas in the delivery of health care related to the control of enteric diseases by means of improved supervision.

TABLE 1

Population, beds, physicians, nurses, auxiliaries, and nursing personnel in nations of Latin America and the Caribbean area, circa 1969.

Countries	Pop. in thousands	Beds	Physicians	Nurses	Auxiliaries	Nursing Personnel	Beds per 1,000 pop.	Ratios per 10,000 pop.				Auxiliaries per Nurse	
								Physicians	Nurses	Auxiliaries	Nursing Personnel		
Argentina.....	23,983	141,170	53,684	14,471	25,754	40,225	5.9	22.4	6.0	10.7	16.8	0.3	1.8
Barbados.....	253	2,633	132	494	250	744	10.4	5.2	19.5	9.9	29.4	3.7	0.5
Bolivia.....	4,804	10,684	2,143	542	1,264	1,806	2.2	4.5	1.1	2.6	3.8	0.3	2.3
Brazil.....	92,282	321,507	47,250	7,748	84,603	92,351	3.5	5.1	0.8	9.2	10.0	0.2	10.9
Colombia.....	20,463	47,175	9,468	2,115	17,633	19,748	2.3	4.6	1.0	8.6	9.7	0.2	8.3
Costa Rica.....	1,685	8,048	910	698	2,377	3,075	4.8	5.4	4.1	14.1	18.2	0.8	3.4
Cuba.....	8,250	39,158	7,000	4,373	7,650	12,023	4.7	8.5	5.3	9.3	14.6	0.6	1.7
Chile.....	9,566	36,941	5,170	2,325	16,891	19,216	3.9	5.4	2.4	17.7	20.1	0.4	7.3
Dominican Republic.....	4,174	11,340	1,935	327	1,756	2,083	2.7	4.6	0.8	5.0	5.0	0.2	5.4
Ecuador.....	5,890	12,507	1,935	511	2,429	2,940	2.1	3.3	0.9	4.1	5.0	0.3	4.8
El Salvador.....	3,390	7,058	811	722	1,642	2,364	2.1	2.4	2.1	4.8	7.0	0.9	2.3
Guatemala.....	5,014	12,732	1,208	891	3,673	4,564	2.5	2.4	1.8	7.3	9.1	0.7	4.1
Guyana.....	742	3,786	167	781	38	819	5.1	2.3	10.5	0.5	11.0	4.7	0.0
Haiti.....	4,768	3,329	332	415	771	1,186	0.7	0.7	0.9	1.6	2.5	1.3	1.9
Honduras.....	2,495	4,359	524	303	2,048	2,351	1.7	2.1	1.2	8.2	9.4	0.6	6.8
Jamaica.....	1,952	7,235	752	1,066	198	1,264	3.7	3.9	5.5	1.0	6.5	1.4	0.2
Mexico.....	48,933	86,151	25,602	9,000	40,000	49,000	1.8	5.2	1.8	8.2	10.0	0.4	4.4
Nicaragua.....	1,915	4,686	870	481	2,094	2,575	2.4	4.5	2.5	10.9	13.4	0.6	4.4
Panama.....	1,417	4,344	870	1,160	1,484	2,644	3.1	6.1	8.2	10.5	18.7	1.3	1.3
Paraguay.....	2,314	4,737	1,247	286	1,518	1,804	2.0	5.4	1.2	6.6	7.8	0.2	5.3
Peru.....	13,172	31,496	6,870	4,110	13,200	17,310	2.4	5.2	3.1	10.0	13.1	0.6	3.2
Trinidad and Tobago.....	1,040	5,839	432	1,440	657	2,097	5.6	4.2	13.8	6.3	20.2	3.3	0.5
Uruguay.....	2,852	17,640	3,250	755	3,194	3,949	6.2	11.4	2.6	11.2	13.8	0.2	4.2
Venezuela.....	9,550	34,045	10,025	6,143	7,746	13,889	3.6	10.5	6.4	8.1	14.5	0.6	1.3
<b>Total.....</b>	<b>270,904</b>	<b>858,600</b>	<b>182,587</b>	<b>61,157</b>	<b>238,870</b>	<b>300,027</b>	<b>3.2</b>	<b>6.7</b>	<b>2.3</b>	<b>8.8</b>	<b>11.1</b>	<b>0.3</b>	<b>3.9</b>

Sources: Health Conditions in the Americas, 1965-1968—PAHO Scientific Publication 207, 1970. Quadrennial Projections, PAHO (mimeographed document), 1971. Facts on Health Progress, 1971—Scientific Publication PAHO 227, 1971. PAHO Department of Health Statistics.

TABLE 2

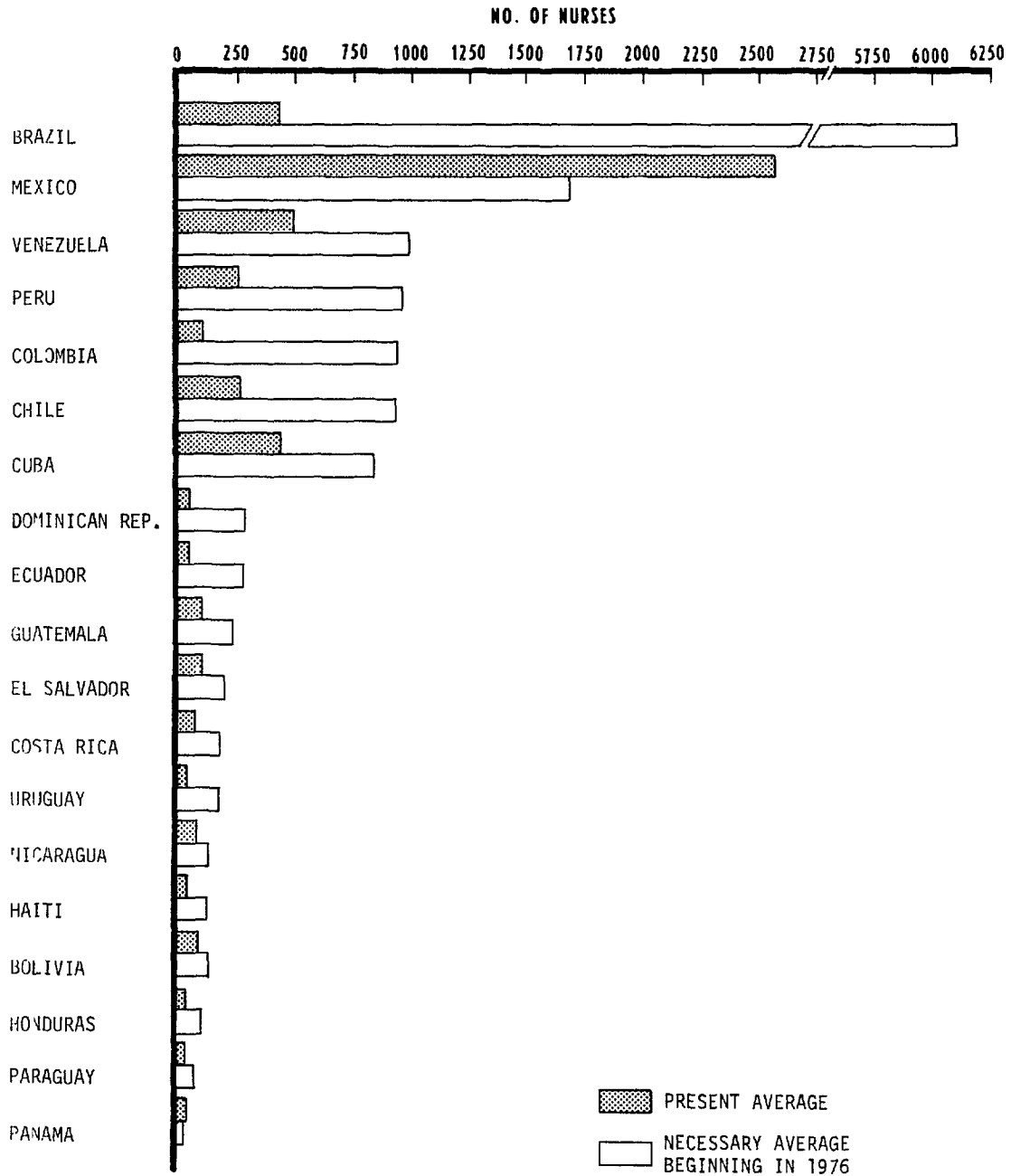
TABLE 5—Preparation of physicians, nurses, and nursing auxiliaries in 16 Latin American countries, circa 1969.

Countries	Schools of medicine			Schools of nursing <sup>a</sup>			Number of nursing auxiliaries graduating	Ratios				
	No. of schools	Avg. No. of students per year (taken over a 3-year period)		No. of schools	Avg. No. of students per year (taken over a 3-year period)			Medical students per Nrs. student	Nurse students per Med. student		Nursing auxiliaries graduating per nurse graduating	
		Admitted	Graduating		Admitted	Graduating			Admitted	Graduating		
Bolivia.....	3	1,431	248	4	143	73	61	10.0	3.4	0.1	0.3	0.8
Brazil.....	73	6,810	2,654	34	913	404	—	7.5	6.6	0.1	0.2	—
Colombia.....	9	869	378	8	262	91	1,437	3.3	4.2	0.3	0.2	15.8
Costa Rica.....	1	48	32	1	60	57	162	0.8	0.6	1.2	1.8	2.8
Dominican Republic.....	2	663	86	2	59	37	128	11.2	2.3	0.1	0.4	3.5
Ecuador.....	5	787	165	5	102	36	84	7.7	4.6	0.1	0.2	2.3
El Salvador.....	1	542	54	2	90	79	83	6.0	0.7	0.2	1.5	1.1
Guatemala.....	1	518	56	2	106	54	272	4.9	1.0	0.2	1.0	5.0
Haiti.....	1	124	51	3	108	48	46	1.1	1.1	0.9	0.9	1.0
Honduras.....	1	55	23	1	49	—	135	1.1	—	0.9	—	—
Nicaragua.....	1	265	41	4	101	71	221	2.6	0.6	0.4	1.7	3.1
Panama.....	1	47	29	1	47	12	188	1.0	2.4	1.0	0.4	15.7
Paraguay.....	1	47	42	2	80	33	31	0.6	1.3	1.7	0.8	0.9
Peru.....	6	1,163	294	18	511	246	237	2.3	1.2	0.4	0.8	1.0
Uruguay.....	1	658	209	2	183	34	355	3.6	6.1	0.3	0.2	10.4
Venezuela.....	7	1,415	619	14	659	493	—	2.1	1.3	0.5	0.8	—
Total.....	114	15,442	4,981	103	3,473	1,768	3,440	4.4	2.8	0.2	0.4	3.8 <sup>b</sup>

<sup>a</sup> Includes schools of nursing at the university and intermediate levels.  
<sup>b</sup> Excluding Brazil, Honduras, and Venezuela.

Source: The Critical Nursing Situation in Latin America and the Caribbean Area.  
Published in the Boletín de la Oficina Sanitaria Panamericana, English Edition,  
Vol. VII, No. 2, 1973

GRAPH 1  
NUMBER OF NURSES GRADUATED ANNUALLY  
PRESENT AVERAGE AND DEMAND TO ACHIEVE THE GOALS OF THE  
TEN-YEAR HEALTH PLAN BEGINNING IN 1976



SOURCE: REPORT OF THE PAHO/WHO NURSING SECTION, Washington, 1974

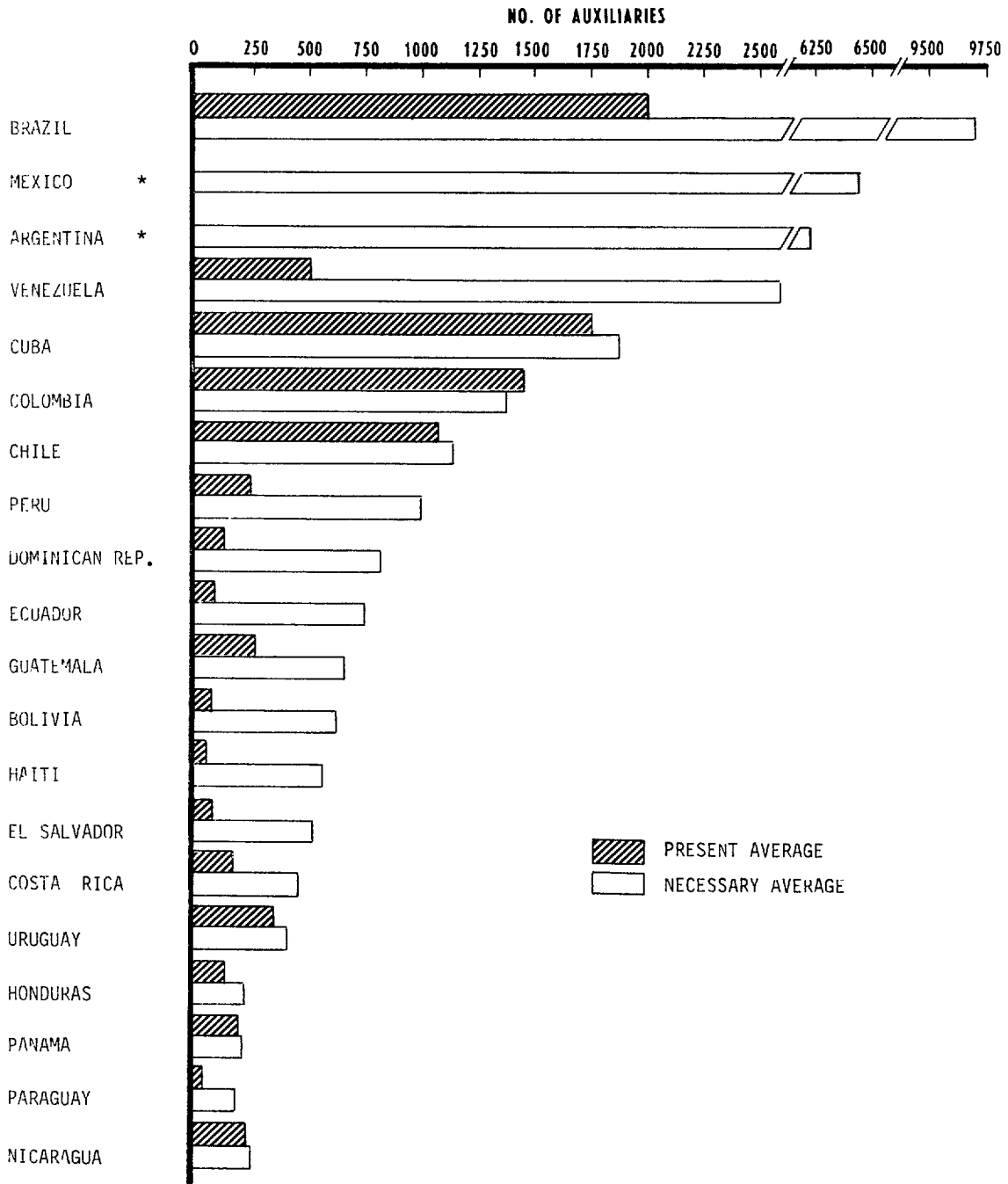
ANALYSIS OF GRAPH 1

NUMBER OF NURSES GRADUATED ANNUALLY  
PRESENT AVERAGE AND DEMAND TO ACHIEVE THE GOALS OF THE  
TEN-YEAR HEALTH PLAN BEGINNING IN 1976

No.	Country	AVERAGE	
		Present	Starting 1976
1	Brazil	404	6,069
2	Mexico	2,580	1,689
3	Venezuela	493	984
4	Peru	246	965
5	Colombia	91	948
6	Chile	250	939
7	Cuba	430	828
8	Dominican Republic	37	292
9	Ecuador	36	277
10	Guatemala	54	226
11	El Salvador	79	194
12	Costa Rica	57	186
13	Uruguay	34	153
14	Nicaragua	71	142
15	Haiti	48	137
16	Bolivia	73	128
17	Honduras	30	100
18	Paraguay	33	65
19	Panama	47	42



GRAPH 2  
NUMBER OF AUXILIARIES TRAINED ANNUALLY  
PRESENT AVERAGE AND AVERAGE NECESSARY TO ACHIEVE THE GOALS OF THE  
TEN-YEAR HEALTH PLAN FOR THE AMERICAS



\* Annual average number of auxiliaries is unknown

SOURCE: REPORT OF THE PAHO/WHO NURSING SECTION, Washington, 1974.

ANALYSIS OF GRAPH 2

NUMBER OF AUXILIARIES TRAINED ANNUALLY  
PRESENT AVERAGE AND AVERAGE NECESSARY TO ACHIEVE THE GOALS OF THE  
TEN-YEAR HEALTH PLAN FOR THE AMERICAS

(Gross - real 25%)

No.	Country	Average Annual Production		Necessary + 25% Compen- sation for Losses
		Present	Necessary	
1	Brazil	2,048	7,746	9,682
2	Mexico	-	5,175	6,468
3	Argentina	-	4,964	6,205
4	Venezuela	500	2,048	2,560
5	Cuba	1,750	1,492	1,865
6	Colombia	1,437	1,116	1,395
7	Chile	1,052	910	1,137
8	Peru	237	787	983
9	Dominican Republic	128	633	791
10	Ecuador	84	587	733
11	Guatemala	272	533	666
12	Bolivia	61	497	621
13	Haiti	46	455	568
14	El Salvador	83	431	538
15	Costa Rica	162	367	458
16	Uruguay	355	343	428
17	Honduras	135	175	218
18	Panama	188	165	206
19	Paraguay	31	158	197
20	Nicaragua	221	125	156

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NURSING ACTIVITIES IN THE CONTROL OF ENTERIC INFECTIONS

Promotion of Health	Case Detection and Referral	Care of the Sick	Follow-up	Required Structure
<ul style="list-style-type: none"> <li>- Carry on promotional work on basic sanitation measures</li> <li>- Motivate the community to obtain them</li> <li>- Instruct mothers on breast feeding</li> <li>- Instruct mothers on balanced diet</li> <li>- Encourage active participation of leaders in the solution of health problems</li> <li>- Create community awareness of the transmission cycle for enteric diseases--ingestion of fecal material through water or food</li> </ul>	<ul style="list-style-type: none"> <li>- Identify the primary symptoms of enteric infection</li> <li>- Refer cases at risk to other levels of care</li> <li>- Instruct midwives, healers, teachers and others to direct and refer cases of enteric infections</li> </ul>	<ul style="list-style-type: none"> <li>- Instruct local leaders on:                             <ul style="list-style-type: none"> <li>- application of oral rehydration</li> <li>- prescribing and distributing anti-diarrheal medicines</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Supply supplementary foods</li> <li>- Refer children to other levels for medical control</li> </ul>	<ul style="list-style-type: none"> <li>- Community that is sufficiently organized and motivated</li> <li>- Possibilities that nursing auxiliary or other nursing worker may visit the community</li> <li>- Utilization of natural community leaders, such as midwives, healers and others, to care for cases of diarrhea</li> </ul>

SPORADIC CARE LEVEL  
(Using members of community)

NURSING ACTIVITIES IN THE CONTROL OF ENTERIC INFECTIONS

Promotion of Health	Case Detection and Referral	Care of the Sick	Follow-up	Required Structure
<ul style="list-style-type: none"> <li>- Carry on community education activities to promote acquisition and utilization of environmental sanitation measures:</li> <li>- Water supply with in-house connections</li> <li>- Proper construction and use of latrines</li> <li>- Improvement of conditions in the home to avoid contamination of food</li> <li>- Protection against vectors and pets</li> <li>- Collection and disposal of waste</li> <li>- Provide instruction to mothers as part of the maternal and child health and nutrition program on:               <ul style="list-style-type: none"> <li>- Washing hands</li> <li>- personal hygiene and cleanliness of children's toys, etc.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Carry on educational activities under the maternal and child health program in:               <ul style="list-style-type: none"> <li>- Identification of first symptoms of diarrhea</li> <li>- Care to be given in home when diarrhea appears (suspend feeding and administer oral rehydration)</li> <li>- Prompt resort to medical care services</li> <li>- Instruction to midwives on enteric infections</li> <li>- Instruction to other community leaders</li> <li>- Identification of symptoms of malnutrition</li> <li>- Referring malnourished children for supplemental feeding and attention by other levels of care</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Identify symptoms of enteric infection</li> <li>- Register patient at the health post</li> <li>- Apply oral rehydration under partial hospitalization system</li> <li>- Apply certain therapeutic measures, according to written medical guidelines:</li> <li>- Prescribe and deliver anti-liver antidiysenterics</li> <li>- Prescribe and deliver antispasmodics</li> <li>- Apply antipyretic treatment</li> <li>- Instruct mothers individually on care of children:               <ul style="list-style-type: none"> <li>- washing hands</li> <li>- personal hygiene</li> <li>- supplementary feeding</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Follow up on both healthy and sick children as part of maternal and child health care and nutrition programs through educational visits, nursing consultations and home visits, according to prescribed standards and priorities</li> <li>- Motivate family to utilize sanitation measures</li> <li>- Control appointments for periodic medical surveillance</li> <li>- Develop educational content that will cover needs of the child in nutrition, personal hygiene and specific protection</li> <li>- Control under-nourished child according to prescribed standards</li> </ul>	<ul style="list-style-type: none"> <li>- Existence of services to individuals with defined objectives and goals</li> <li>- Continuing provision of a nursing auxiliary with sufficient training to carry on these activities</li> <li>- Existence of a manual defining the scope of nursing functions, standards and procedures</li> <li>- Existence of possibilities for case referral</li> <li>- Existence of physical equipment and materials to provide safe and timely care</li> <li>- Continuing provision of medicines, electrolysis (equipment), food and other supplies</li> </ul>

## NURSING ACTIVITIES IN THE CONTROL OF ENTERIC INFECTIONS

Promotion of Health	Case Detection and Referral	Care of the Sick	Follow-up	Required Structure
<ul style="list-style-type: none"> <li>- Improved maternal diet</li> <li>- Use of diapers for infants under 2 years and chamber pots for children under 5 years</li> <li>- Utilization and preparation of complementary foods and supplementary foods</li> <li>- Process of transmission of diarrhea feces in water and food, preventive measures</li> <li>- Apply specific vaccines against enteric infections (typhoids), whooping cough and measles, according to prescribed standards</li> <li>- Instruct teachers on education for integrated health care in elementary school teaching</li> <li>- Motivate teachers in the community to improve sanitary conditions in schools.</li> </ul>	<ul style="list-style-type: none"> <li>- Take and send samples of material for epidemiologic research and clinical diagnosis</li> <li>- Refer high-risk cases to other levels of care</li> <li>- Notify and register cases of enteric infections, according to specific epidemiologic surveillance standards</li> <li>- Coordinate with authorities and other community resources in discovery and timely referral of cases at risk</li> <li>- Carry on prenatal control of pregnant women, according to prescribed standards, as a measure related to detection of enteric infections and their prevention</li> </ul>	<ul style="list-style-type: none"> <li>- use of diapers for children under 2</li> <li>- use of chamber pots for children 2 to 5</li> <li>- oral hydration</li> <li>- administration of medicines</li> <li>- Supply some anti-parasitics according to prescribed guidelines</li> <li>- Identify symptoms of malnutrition</li> <li>- Provide care of undernourished child, according to guidelines</li> </ul>	<ul style="list-style-type: none"> <li>- Demonstrate diets and supplementary feeding according to nutrition program</li> <li>- Distribute complementary foods specifically for pregnant women</li> </ul>	<ul style="list-style-type: none"> <li>- Existence of specific standards on administration of electrolytic treatment and other therapeutic prescriptions entrusted to nursing personnel</li> </ul>

NURSING ACTIVITIES IN THE CONTROL OF ENTERIC INFECTIONS

Promotion of Health	Case Detection and Referral	Care of the Sick	Follow-up	Required Structure
<ul style="list-style-type: none"> <li>- Carry out research and register pregnant women in prenatal control centers</li> <li>- Give dietary education to pregnant women on feeding of newborn infants</li> </ul>				

## NURSING ACTIVITIES IN THE CONTROL OF ENTERIC INFECTIONS

Promotion of Health	Case Detection and Referral	Care of the Sick	Follow-up	Required Structure
<ul style="list-style-type: none"> <li>- The same measures applied at the minimum care level, with the following additions:</li> <li>- Promote refresher courses for nursing personnel to participate in control measures</li> <li>- Participate in epidemiologic studies to identify the etiologic agent, to suggest possible sources of the infection, and to identify those exposed to risk of infection</li> <li>- Protect vulnerable groups by administering specific vaccines, according to prescribed standards (typhoid)</li> </ul>	<ul style="list-style-type: none"> <li>- The same measures applied at the minimum care level with the following additions:</li> <li>- Select cases of enteric infection for priority handling among children who seek care at the services</li> <li>- Refer cases of enteric infections to rehydration centers</li> <li>- Refer high-risk cases for hospitalization</li> <li>- Notify cases of enteric infection, according to prescribed epidemiologic standards</li> <li>- Identify and control contacts and carriers of enteric infections, according to prescribed standards</li> </ul>	<ul style="list-style-type: none"> <li>- Apply immediate therapeutic measures according to prescribed standards</li> <li>- Administer oral and parenteral rehydration and other therapeutic measures, as prescribed by physician</li> <li>- Give specific care to child under the partial hospitalization system</li> <li>- Instruct mothers through their participation in care of the child</li> <li>- Apply measures of asepsis to prevent spread of infection in rehydration room:</li> <li>- washing hands</li> <li>- use of hospital gowns</li> <li>- proper collection of clothing contaminated by feces</li> <li>- Proper cleanliness in handling of nursing bottles and other objects</li> <li>- Protection from flies</li> </ul>	<ul style="list-style-type: none"> <li>- In addition to activities at the minimum level:</li> <li>- Follow up convalescent children by nursing consultations and house visits</li> <li>- Follow up cases of undernourished children by:</li> <li>- Individual instruction of mothers</li> <li>- Demonstration of preparation of foods supplied</li> <li>- Control of weight and nutrition, according to prescribed standards</li> </ul>	<ul style="list-style-type: none"> <li>- Existence of service to individuals, with defined objectives and goals</li> <li>- Existence of manual on organization and operation of health programs</li> <li>- Existence of properly trained nursing personnel for activities at this level</li> <li>- Existence of physical installations for operation of rehydration room, under the system of partial hospitalization</li> <li>- Existence of professional resources for continuing supervision of children receiving special treatment</li> <li>- Existence of adequate nursing tools to give the care required under the partial hospitalization system</li> </ul>



## NURSING ACTIVITIES IN THE CONTROL OF ENTERIC INFECTIONS

Promotion of Health	Case Detection	Treatment	Follow-up	Required Structure
<ul style="list-style-type: none"> <li>- Give refresher training to nursing personnel in hospitals on measures to control intrahospital infections</li> <li>- Standardize procedures for care of newborn and children in pediatric wards, primarily to prevent fecal contamination</li> <li>- Periodically review and evaluate instructions and practice of asepsis applied by nursing personnel in prevention and control of intrahospital infections</li> <li>- Cooperate in measures designed to maintain proper sanitation in the hospital</li> <li>- Participate in epidemiologic studies on the problem</li> <li>- Cooperate in surveillance of preparation, preservation and transport of milk products for newborn and nursing infants</li> <li>- Develop a program of instruction for mothers, emphasizing maternal feeding during puerperium</li> </ul>	<ul style="list-style-type: none"> <li>- Participate in studies on transmission of intrahospital infection</li> <li>- Take samples for identification of etiological agents</li> <li>- Cooperate in health control measures for nursing staff</li> <li>- Apply admission procedures for patients, relating to detection and identification of enteric infection cases</li> </ul>	<ul style="list-style-type: none"> <li>- Provide intensive nursing care for recovery of serious cases</li> <li>- Apply therapeutic measures as prescribed by physician</li> <li>- Apply isolation techniques in cases of enteric infections that present the greatest risk of contamination (typhoid fever)</li> <li>- Instruct and supervise mothers in care of hospitalized child</li> <li>- Apply strict measures of asepsis to prevent cross infections</li> <li>- Instruct members of the family of adult patients with regard to enteric infections</li> <li>- Alert nursing personnel on transmission of enteric infections by fecal contamination of hands and articles used in patient care</li> </ul>	<ul style="list-style-type: none"> <li>- Participate in research on enteric disease control in hospitals</li> <li>- Cooperate with outpatient services in extended care</li> <li>- Evaluate asepsis and isolation measures utilized by nursing personnel, with emphasis on washing hands and handling clothing and other material contaminated by feces</li> </ul>	<ul style="list-style-type: none"> <li>- Nursing personnel trained in techniques of asepsis and isolation</li> <li>- Physical installations that assure application of isolation techniques, when required</li> <li>- Running water and hand basins in all areas of patient care</li> <li>- Existence of a manual of standards and procedures for care of the newborn, children in pediatric wards, and patients with communicable diseases</li> <li>- Supervision and evaluation of the working methods and techniques, principally in units exposed to greatest risk of contagion and spread</li> </ul>