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INTEGRATED RURAL BASIC HEALTH CARE IN VALLEGRANDE, BOLIVIA

by

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Summary — In the Province of Vallegrande (30,228 inhabitants, 6,414 km^2) an integrated comprehensive basic health project has been in operation since 1977.

Points particularly stressed are :

— integration of the existing vertical programs;
— conversion of the existing hospital and dispensaries into health centres;
— creation of new rural health centres;
— permanent supervision;
— semestrial assessment;
— staff-upgrading on regular base and on injob training;
— contact with the community, through health committees, promotors and « health weeks »;
— gradual extension of the coverage area;
— national reproductibility.

Evaluation after one year, demonstrated that the methodology can be worked out in Vallegrande and is acceptable to the community and the medical team. The targets for the first year were closely met.

1. Introduction

Since October 16, 1977, the Bolivian Ministry of Health has been carrying out a project of Basic Rural Health Services in the Province of Vallegrande, delegating the tasks of programming, supervision, and evaluation to CENETROP (Tropical Disease Center), an entity initiated in 1974 as a result of a bilateral agreement of cooperation between Belgium and Bolivia, and executed under the direction of the Institute for Tropical Medicine, Antwerp, Belgium.

The health care in Vallegrande is :

1) Integrated :

   the medical team takes responsibility for the promotional, preventive, curative and rehabilitative aspects of the health care. The existing vertically structured programs (malaria, leprosy, and environmental sanitation) become administratively and operationally integrated.

2) Continuous :

   the Center takes care of the patients from the first contact until their reintegration into society, making referrals when indicated. In the long term this implies attention from birth until death (Mercenier, 1971).

3) Comprehensive :

   through a permanent dialogue with the communities, the health care activities are constantly adapted to the local cultural and socioeconomic context.

4) of a « low cost » type :

utilizing to a maximum extent the services of auxiliary personnel (Mercenier, 1976) and voluntary workers.

This methodology is carried out in the zone of coverage, an area which will gradually increase, reaching its maximum after 3 years. The people from outside this area have access to the clinics while emergencies in the province are attended to as quickly as possible.

Since the success of any program is determined by the human element, staff output is optimized through correct programming (specification of jobs, schedule of activities and standardisation of techniques), constant and careful supervision, continuous staff training, and periodic evaluation.

This program was conceptualized considering the possibility of its introduction in other areas of Bolivia; for this reason the staff has been reorganized and additional resources limited to a level that can be supported in the future by the Bolivian government and/or the local communities.

2. **Description of the region**

The Province of Vallegrande (6,414 kf^2, 30,288 inhabitants, according to the 1976 census) is situated in the south-east of the Department of Santa Cruz.

The capital, Vallegrande, 5,039 inhabitants, is situated at an altitude of 2,030 m and at 246 kms from Santa Cruz de la Sierra. There are only 3 villages with more than 600 inhabitants; 42 per cent of the population lives in small hamlets of less than 40 families.

The Province has a varied topography with three microclimates : the mountainous areas are dry and cold; the valleys are temperate and warm; and the subtropical zone is hot and humid. Rainfall is 500 mm per year, with a rainy season (November - February) during which many villages are inaccessible as no paved roads exist in the province.

Ninetyfive per cent of the population is of mixed origin : Spanish, Chiriguano, and Quechua.

Seventy per cent of the population depend on agriculture for their living.

Per capita income in 1976 was 250 US$ in the capital and 125 US$ in the rural areas.

The emigration rate is high; it is estimated that during the last 25 years, more than half of the population has left the area. Fifteen per cent is periodically mobile due to agricultural demands.

There are 218 educational units with a total of 11,322 students and 719 teachers, but the illiteracy rate in adults is about 50 per cent.

There is one radio station that can be heard all over the province.

The population is almost entirely Catholic, the Church exercising a strong moral influence.

The urban population is generally aware of the problems of the region while in the rural areas there exists a complete apathy towards the situation of underdevelopment, the people caring only about their daily subsistence problems.

For health care, the rural population usually resorts to medicine men (« curanderos ») and/or herbalistic treatments.

At the start of the present program, health problems were not well known but official reporting (Liefooghe-De Muynck, 1977; Oficina Regional de Estadistica de Santa Cruz-Bolivia, 1977) existed for leprosy (Girardin, 1976) (1,2 per cent prevalence rate in 1975), bubonic plague (the last epidemic occuring in 1963) endemic goiter, acute and chronic Chagas' disease (in 1976 an entomological survey demonstrated the presence of the vector in 100 per cent of rural houses).

A field study showed that other important health problems exist such as malnutrition, anemia, diarrhea, intestinal parasitosis (especially ascaris), TB and dermatomycoses.

At the beginning of the program, Vallegrande had one hospital of 46 beds, one full time and 2 half time physicians, one dentist, 6 auxiliary nurses and 2 rural dispensaries. The medicine practiced was predominantly curative. At times vaccinations were carried out in the hospital.

There was one private practitioner in the capital.

Eight per cent of the population are insured by the C. N. S. S. (Caja Nacional de Seguridad Social).

3. **The integrated health care program** (CENETROP, 1977)

3.1. *Aims*

3.1.1. *Goal*

To improve the level of health of the target population of the province of Vallegrande, through the implementation of a model integrated health care program.

3.1.2. *Objectives*

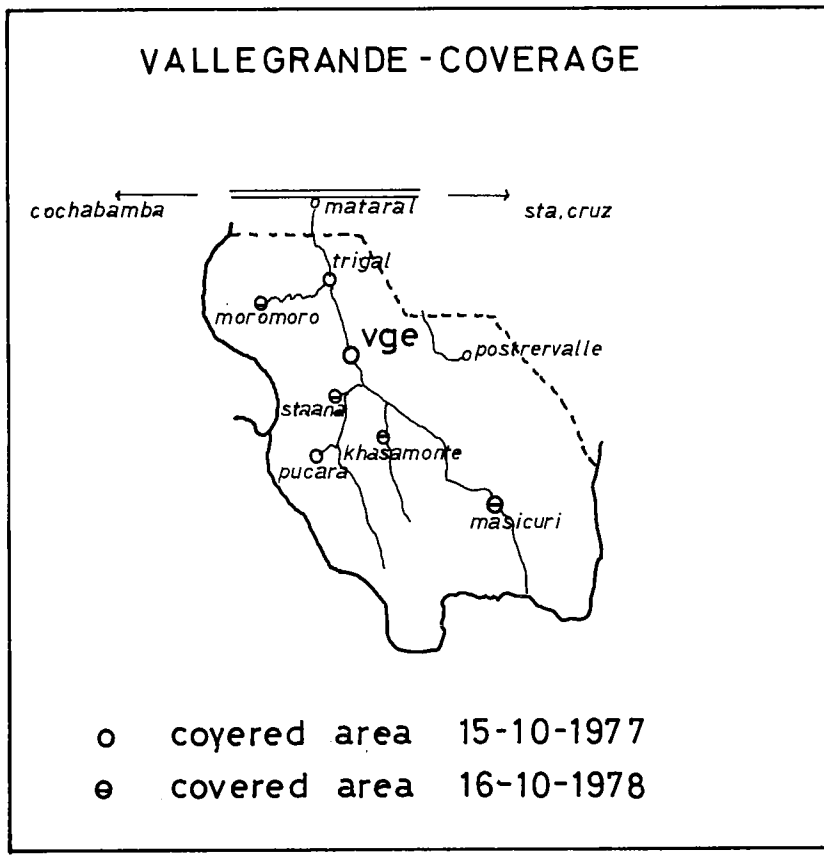
— Organization of an integrated, continuous and comprehensive health care system for the various population groups
— Implementation of specific programs for TB, leprosy, Chagas' disease, diarrhea, goitre, malaria, epidemiological surveillance, and environmental health.
— Gradual increase of the area of coverage.
— Continuous training of the medical team to upgrade the quality of medical care.

3.1.3. *Targets*

a) *Coverage*

We call « coverage area » : the zones from which the inhabitants may reach the nearest health center in less than one hour (walking or horseriding)

a.1. target for the first year : 34 per cent of the population by means of :
— converting the hospital of Vallegrande into a CSH (= an urban
— health centre plus hospital)
— converting the two existing dispensaries into rural health centres
— the creation of 4 new rural health centres.



a.2. target after three pears (= end 1980) : 70 per cent of the entire population of Vallegrande Province.

a.3. effective coverage : the target is to have 80 per cent of the eligible population, living in the area of coverage, participating in the services offered. For out-patients this means a target of 2 consultations/inhabitant/year.

b) *Priority public health problems*

The target is to define the main public health problems and to start corresponding control programs before 1981.

c) *Training*

To organize each year a training course for the auxiliary staff.

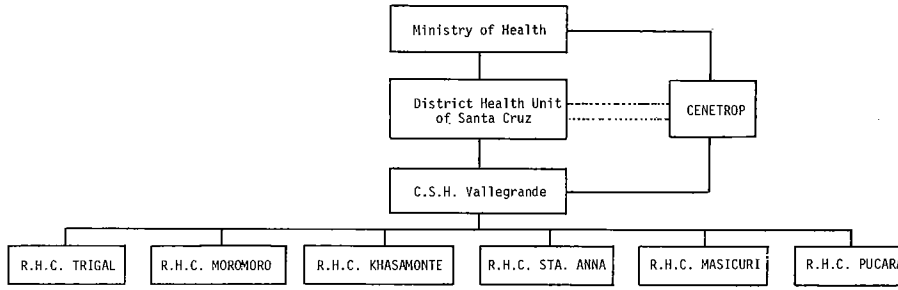
d) *Supervision*

Each health centre will receive at least once per month a supervisory visit.

e) *Evaluation*

To evaluate each year the project.

3.2. *Organigram*



3.3. *Budgeting-Staff*

At this moment the staff of the Vallegrande project comprises 26 members :

2 physicians full-time;
2 physicians part-time;
2 staff nurses;
13 auxiliary nurses (7 for hospital/maternity service and 6 for the rural health centres). N. B. The staff of a rural health centre is actually limited to one auxiliary nurse;
1 dentist;
1 administrator;
1 secretary;
1 driver;
1 watchkeeper;
1 cleaner;
1 cook;
2 MD full-time
1 MD part-time
1 social worker
} temporarily engaged.

At the conclusion of the first three years the permanent medical staff of Vallegrande will be : two full-time and two half-time physicians. The latter are changed every 12 months by government decree.

Their salary does not procure them a reasonable standard of living, and they therefore find it necessary to engage in private practice. In the project, CENETROP supplements their salary 70 dollars/month.

The total amount of supplemental financial assistance comes to 1.050 dollars per month.

3.4. *Activities*

A detailed program was elaborated (CENETROP, 1977), considering for each main health problem and for each risk group, targets, operational details and job description.

The project was inaugurated on October 16, 1977, by the Director of the district health unit of Santa Cruz.

The program started with a seven-week training course of all Vallegrande health personnel.

In the Health Centres the activities were initiated by a team composed of the physicians responsible for the H. C., the general medical coordinator, the head nurse, the environmental sanitation technician, the leprosy staff and the auxiliary nurse. In each health centre all activities including the formation of a health committee, were started simultaneously.

In April of 1978, the first semestrial assessment took place, followed by the second in October (CENETROP, 1978).

After analysing the results of the various sub-programs and the realization of the goals, the second year work program was revised and updated.

The results of the assessment have been very satisfactory. Detailed discussions of the problems of coverage, community involvement, supervision and evaluation follow.

3.5. *Coverage* : Extent and difficulties

3.5.1. Before the start of the program, 22 per cent of the population was covered. This percentage increased to 34 per cent with the opening of 4 new heath centres. In addition an effective integration of health care for the covered population was achieved.

3.5.2. The targets of health service utilization were achieved in the following proportions :

a) *Preventive care*

TABLE 1

Assessment of health service utilization; indicator : inscription rates, Vallegrande 1977-1978

	Prenatal care			Under five's		
Population	Monthly target	Result	Target attained	Monthly target	Result	Target attained
Vallegrande	16	13.1	no	60	36	no
Moro Moro	1.6	2.3	yes	7.5	9	yes
Trigal	1.6	1.9	yes	6	9	yes
Santa Ana	0.5	0.25	no	3	6	yes
Nasicuri	0.5	0.75	yes	2.5	3	yes
Pucara	1.6	1.7	yes	6	17	yes
Khasamonte	0.4	0.3	no	2	3	yes

The target of inscription had not been achieved in two recently inaugurated rural centres and in the capital, but the correct denominator is not yet available for an accurate interpretation of the figures.

The target of periodic consultations (once per month) for children less than two years old was not achieved in any of the health centres. A cohort study showed that children less than two years old were examined 4.3 times per year whereas the rate was 2.8 children over two years of age (for this group, the target is 2 consultations per year).

For this reason the target was reduced to six consultations a year for children under two maintained at the fixed level for the others. From November 1977 until September 1978, the following doses of vaccine were administered :

Vaccine	Doses		
	1°	2°	3°
DPT	1,460	765	214
Polio	1,093	571	192
Measles	1,366		

Of the under five's, living 65 per cent got their DPT-dose, 57 per cent their first polio-dose and 62 per cent their measles-vaccine.

Second doses were administered to less than 50 per cent of the eligible population.

b) *Curative attention*

Sufficient attention has been paid to the curative activities. As the patients do not originate exclusively from the coverage area and since their origin or their place of residence was not noted, it is impossible to calculate the degree of participation of the covered population in the curative services.

For this reason, the increase in the effectiveness of coverage is expressed by means of the indicator « Number of consultations / inhabitant / year ». For the year 1977, 0.1. consultation was noted for the total population of the province, and in 1978 0.5. (data extrapolated to 12 months). The increase, therefore, is real, in the countryside as wall as in the city, as can be noted in the following table.

TABLE 2
Increase in curative consultations by centres of attention

	1977	1978	1977-1978 increase
City	2,319	6,331	273 %
Rural centres	666	7,521	1,129 %

In summary, we had in Vallegrande in 1977, three consultations in the city for each one in the « campo » (a figure that is similar to the data for the entire department of Santa Cruz (Oficina Regional de Estadistica de Santa Cruz, Bolivia, 1977)), but in 1978, there are 1,2 consultations in the « campo » for each one in the city.

3.5.3. *The leprosy problems*

Until November 1977, there were two auxiliary nurses for leprosy control directly responsible to the Centro Dermatologico in Jorochito, who ran a vertically oriented program in the whole province. One auxiliary nurse now operates a mobile unit while the other works in a rural health centre. Already fifty per cent of the leprosy patients are under control of the health

centres, the regular attendance being 95 per cent, 85 per cent of contacts are under control. For the others, the old vertical program (one visit a year) continues.

3.5.4. *How to increase the coverage area in the future ?*

a) *From 34 per cent to 40 per cent*

By means of an increased mobility of the rural auxiliary personnel, who are not working to their full potential at present.

Each rural assistant will provide promotional, preventive and curative care including vaccinations, once a week in 2-3 villages at five to ten km distance from the health centre.

b) *From 40 per cent to 58 per cent*

This increase is still under study. There are two alternatives :

b.1. The creation of rural health promoters (« Mini health auxiliaries ») with simplified tasks involving promotional, preventive, and curative care. These workers would be paid by their respective community.

b.2. Or the creation of four more health centres, the nurse's salary being paid by the Bolivian government and the building and equipment by the community.

c) *Beyond 58 per cent*

Up to now, 42 per cent of the population may be considered inaccessible. To bring a minimum level of health care to these people, is one of the objectives of the Vallegrande project.

Financial and staff limitations, force to search for an unexpensive approach, utilizing a very minimum member of staff, receiving salary.

Three alternative possibilities are under study :

c.1. Utilizing the naturally occuring concentrations of people, such as markets, fairs, etc.

c.2. Organizing a small mobile brigade, composed of auxiliary nurses, in order to visit at regular intervals, the dispersed population at strategic concentration points.

c.3. To rely upon the educational system, which is the only structured in the remote rural areas, training the educational staff in basic health tasks and the pupils as health promoters.

3.5.5. *How to increase the utilization of offered services ?*

One method that has proved its value in Santa Rosita, an integrated, comprehensive suburban health project in Santa Cruz de la Sierra, Bolivia (Landry & Becht, 1975) is the creation of « urban promotors » (Liefooghe - De Muynck, 1977) who have only promotional tasks. In Vallegrande city and the main localities, the system as utilizing health promoters has been initiated.

3.5.6. *Participation in preventive services by the population living outside the coverage area*

It is important to know to what extent the people who live outside the area of coverage participate in the services. As indicated above, due to an administrative deficiency, these data are not available for the curative

services. Estimating the number of inhabitants living within an area between one and three hours' travelling distance from the health centres equal to the population in the coverage area, calculations show that their average participation in the « under five's » and prenatal clinics and their regularity is significantly less.

The strengthening of existing services will thus only partially resolve the health problems of the population living outside the actual coverage zone.

4. **Supervision and evaluation**

4.1. *Supervision*

4.1.1. *Of the general progress of the program*

To launch the project, CENETROP assigned two public health specialists to this project (one physician and one nurse) and intensively supervised the work during the first year by means of an M. P. H. — epidemiologist — who visited Vallegrande one week per month.

After three years, the supervision will be taken over by the Ministry of Health, which has for this purpose a rural medical supervisor in each District Health Unit.

4.1.2. *Of the Health Centres*

Each centre is under the supervision of one physician who has his main base in the hospital. He visits the centres under his responsibility for three or four days twice a month. A graduate nurse supervises preventive and nursing activities once every three months.

Standardized forms are used as guides for these activities. Particular emphasis has been given each month to one subprogram. As this supervision system was built up only recently, it is too early to evaluate the results.

Having the rural health centres closely supervised by physicians is expensive, but no alternative is possible at the present time in Bolivia.

In 1974 three were in this country (Liefooghe-De Muynck, 1977).

One physician per 2,400 inhabitants.
One graduate nurse per 9,000 inhabitants.
One auxiliary nurse per 4,000 inhabitants.

Thereafter the disequilibrium became even more accentuated; at the present time about 800 physicians graduate each year, the Ministry of Health being able to employ only a limited number.

4.2. *Evaluation*

The general progress of the project is assessed every six months, as of this moment, two evaluation sessions have been held (CENETROP, 1978). The whole team participates in these sessions which are under the direction of a CENETROP public health specialist.

At the present time, the assessment is mainly quantitative, comparing the achievements in the proposed targets and correcting the latter if indicated (Warren, 1971, 1975).

The general public, through the Health Committee, participates in the sessions.

Quality control has only sporadically been carried out. The monitoring of the quality of activities and the assessment of the epidemiological impact of the project, is not yet possible because of the absence of simple indicators.

In any event the evaluations allow an indirect impression to be obtained on the quality of the work performed. In a general way, it may be stated that the proposed targets were satisfactorily achieved during the first year of activities, further more in the field of preventive medicine, staff training and community organization the obtained results largely exceed the expections.

5. **Participation of the public**

For several reasons, at the time of initiating the program, there existed in the province apathy and even antipathy toward the health team. The hospital was underutilized both in OPD as well as bed occupation.

The participation of the public is indispensable for :

1) Adaptation of the services to the local culture.
2) Determination of felt needs and priorities.
3) Provision of constructive criticism of the work.
4) Reaching and optimum output of the program in general and the specific subprograms in particular.

In Vallegrande the community participates by means of :

a. *Health Committees*

Have been formed wherever a health center was initiated.

They are mainly composed of the natural community leaders. An attempt is made to maintain a certain degree of geographical balance. A democratic election is not possible, because in order to have people who will take upon themselves a certain degree of responsibility for the health of their neighbours, one has to select those with demonstrated or potential interest in general development.

In the capital, for example, the president of the Health Committee is at the same time president of the Vallegrande Regional Development Committee, thereby integrating health with general development.

The responsible health center physician is an active member of the Health Committee, but not its president.

Normally these committees meet once a month with a predetermined agenda, in order to discuss practical problems the solution of which is within the possibilities of the community, for example, organization of a Health Week, fixation of consultation fees, control of the Health centre's budget, searching for optimal collaboration in a particular monthly subprogram.

A Provincial Health Committee, composed of one representative of each Health Committee, will be formed and meet twice a year at the time of the semestrial evaluation, allowing a dialogue with the whole community.

b. *Urban health promoters*

In Vallegrande « health promoters » have been nominated.

Their function (Liefooghe-De Muynck, 1977) are to :

a) act as an agent of sanitary and nutritional education to the block's inhabitants through a permanent dialogue and by means of their own personal example in reference to :
   — good family alimentation
   — concern over the family's vaccination status
   — the hygiene level of their home.
b) encourage the continuity of treatment, especially in chronic diseases (e.g. TB), and the attendance at prenatal and under 5's clinics.
c) increase the comprehensiveness of medical care with advice, opinions, suggestions, etc., so that the services offered become more and more adapted to the local socio-economic and cultural context.
d) serve as a source of epidemiological information in relation to pregnancies, births, serious illnesses, migration and dealths.
e) transmit information received from the medical team to the block's inhabitants.
f) actively participate in the organization and execution of special programs directed at the community, such as the Health Week and information meetings.

Promotors are selected on the following criteria :

— considered natural leaders and enjoy the respect and esteem of their neighbours;
— have time available to devote to the people of their neighbourhood (2-3 hours per week).
— preferably women and housewives since men in general have less free time. Women also are more familiar with health problems in the home.
— women must have their husbands'agreement.

They receive training in a two weeks course, 3 hours a day, and further annual updating courses.

They receive no salary but are awarded an honor scroll after three years of satisfactory service. They are also given a special badge and a diploma after having participated in the courses. These serve as a social status symbol in the community.

On the average there is one promoter per 37 families. In the Health Committee there is one representative of the health promoters per neighbourhood.

In Vallegrande the health promoters have still not been working long enough to allow a quantified assessment of their impact, although it can be anticipated that there is a tendency toward an increase in coverage in the bloks with promoters.

c. *Health Week*

Once a year, in the capital as well as in the six rural health units, a Health Week is organized with the following objectives (Liefooghe -De Muynck *et al.*, 1977) :

a) to make the public aware of its health problems;
b) to present the program and activities of the Center;

c) to encourage a dialogue between the health team and the community;
d) to motivate them for community actions, e.g. environmental sanitation;
e) to obtain the participation of the community in the solution of particular health problems.

Talks, demonstrations, movies, slides are presented; exibitions and contests on health themes are organised.

The Health Committee, assisted by the medical team, organises the Week, the health promotors being the principal executors.

In Vallegrande in 1978, the health promotors and the members of the health committee prepared special songs, a theatrical production, and social dramas to better publicize the message of the Health Week.

d. *Participation of the medical team in the global development*

In Vallegrande, health is considered in the context of general welfare. The communities are encouraged to take upon themselves the responsibilities of the solving of the problems of underdevelopment. In practice, this means that in the long run the health committees will become development committees.

Wherever such a development committee exists, the health team supports its actions.

For example, in the capital, the health team has its representative on the Vallegrande Regional Development Association.

Soins de santé de base ruraux intégrés à Vallegrande, Bolivie.

Résumé — Dans la province de Vallegrande (20.228 habitants, 6.414 km^2), un projet de soins de santé de base globaux et intégrés, est en opération depuis 1977.

L'accent a été mis spécialement sur les aspects suivants :

— intégration des programmes verticaux existants;
— transformation de l'hôpital existant et des dispensaires en centres de santé;
— création de nouveaux centres de santé ruraux;
— supervision permanente;
— évaluation semestrielle;
— promotion du personnel par des cours réguliers et par formation sur le tas;
— contacts avec la communauté par les comités de santé, les promoteurs et les « semaines de santé »;
— extension graduelle de la couverture;
— reproductibilité nationale.

L'évaluation, après un an, a démontré que la méthode peut être utilisée à Vallegrande et qu'elle est acceptable pour la communauté et pour l'équipe médicale. Les objectifs pour la première année ont été atteints, à peu de choses près.

Geïntegreerde rurale basis gezondheidsdiensten in Vallegrande, Bolivia.

Samenvatting — In de provincie Vallegrande (30.228 inwoners, 6.414 km^2) is sinds 1977 een projekt van geïntegreerde globale gezondheidszorg in werking.

Er werd vooral de nadruk gelegd op de volgende punten :

— intergratie van de bestaande vertikale programma's;
— kontakt met de geemenschap, langs gezondheidskomitees, promotors en « gezondheidscentra;
— oprichting van nieuwe gezondheidscentra op het platteland;
— doorlopend toezicht;
— beoordeling per semester;
— bevordering van de bekwaamheid van het personeel door regelmatige kursussen en door opleiding op hun werk;
— kontakt met de gemeenschap ,langs gezondheidskomitees, promotors en « gezondheidsweken »;
— geleidelijke uitbreiding van het gebied dat bestreken wordt;
— nationale reproduktibiliteit.

De evaluatie na een jaar toonde aan dat de methode uitgewerkt kan worden in Vallegrande en dat ze aanvaardbaar is voor de gemeenschap en voor de medische ploeg. De doelstellingen voor het eerste jaar werden grotendeels verwezenlijkt.

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