

Evaluation for SiB/CBM project

Childhood blindness in Latin America: planning and implementing programs for the prevention of blindness in children due to retinopathy of prematurity

Name of evaluators: Alicia Matilde Benitez & Alejandro Dinerstein

External Evaluation

Part A – A.1 Background information

1. Organization and project

Name of project organization: CBM; Seeing is Believing: collaboration between Standard Chartered Bank and International Agency for Prevention of Blindness (IAPB)

Name and title of responsible person: Dr. Andrea Zin

Title of project: "Childhood Blindness in Latin America: Planning and implementing programs for the prevention in children of retinopathy of prematurity. Seeing is Believing. Phase 4. ROP in LA"

Key project partners: Dr. Andrea Zin, Rio de Janeiro, Brazil, Coordinator and Neonatology Department, Instituto Fernandes Figueiras, FIOCRUZ, Rio de Janeiro, Brasil.

Date of field activities beginning: Aug 2, 2013

2. Evaluator

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Affiliation of evaluator(s):

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3. Terms of reference (TOR): purpose and objectives of the evaluation

- Does the program address an issue relevant for public health?

Yes, it does. As is expressed in "Born too soon. The global action report on preterm birth. 2012" (1), "urgent actions are needed to address the estimated 15 million of babies born too soon, especially as preterm births rates are increasing each year. This is essential in order to progress on the Millennium Development Goal of MHO for child survival to 2015, since 40% of under-five deaths are in newborns and it will also give added value to maternal health investments. For babies who survive, there is an increased risk of disability, which exacts a heavy load on families and health systems". The training program POINTS highlights one of the scientifically proven solutions to save lives, provide better care for preterm babies and reduce the high rates of death and disability strengthening comprehensive neonatal care as long as local capacity allows. Latin American Region has an estimated rate of preterm births of less 10% and is increasing each year its capacity of neonatal care and hence survival. Estimated number of preterm births at Brazil at 2010 was 250.000 or more.

LA Region is particularly affected by retinopathy of prematurity (ROP). This disease globally affects premature infants who increasingly survive at Intensive Care Units after severe morbidities or after moderate morbidities but without receiving adequate care. This last situation is currently observed at Latin America and is responsible of the 3rd. ROP epidemic at the Region. As a consequence, a very high number of premature infants require be screened and treated by severe ROP and a significant number of them become low vision or blind individuals. ROP is in the Region the 1st. cause of blindness at infancy. Prevention of blindness by ROP requires a multidisciplinary approach including assisted fertility experts, obstetricians and midwives; neonatologists and neonatal nurses; ophthalmologists, anesthetists and low vision specialists. There also needs to have higher levels of awareness among the general public about the potential complications of preterm birth and related morbidities.

It is anticipated that improving neonatal care will not only prevent ROP but will also reduce mortality and other complications among premature babies. This training program will, therefore, help to contribute to the United Nations Millennium Development Goals, one of which is to reduce mortality among children aged less than five years (under-five mortality rate, U5MR) by two thirds from the 1990 level by 2015. It is estimated that 11 million children die before they reach 5 years of age, most of them from causes that could be prevented or treated. Four million (38%) die in the neonatal period (first four weeks of life), almost all in developing countries. Approximately 1.2 million (28%) of these deaths are due to preterm birth.

- Is the project coherent with the CBM strategy?

Yes, it is.

CBM is an international organization that promotes and practice inclusion as is expressed at the Vision Statements : "An inclusive world in which all persons with disabilities enjoy their human rights and achieve their full potential" and at the Mission Statement: "CBM works in the most disadvantaged societies, irrespective of race, gender or religion.

CBM seeks to:

- Reduce the prevalence of diseases which cause impairments.
- Minimize the conditions which lead to disability.
- Promote equal opportunities for economic empowerment, livelihood security, and full inclusion in all aspects of society for persons with disabilities.
- Reduce barriers, and implement solutions which lead to a more inclusive society"

And: "CBM priorities in Latin America are:

- Working with partners that offer comprehensive services in quality and quantity
- Networking and coordinating with other stakeholders
- Pro-actively promoting the rights of people with disability
- Enabling persons with disability and their organizations"

So we consider that POINTS Training Program fully agree with both Vision and Mission as an innovative approach to improve health in a vulnerable population through capacitation and training of key actors.

Moreover, the SiB main approaches to prevent blindness include:

1. prevention of preterm birth
2. excellent neonatal care to reduce the factors that are known to be associated with an increased risk of ROP (e.g. poor control of oxygen levels, inadequate nutrition, sepsis ,etc.)
3. detection and treatment of babies who develop the severe, treatable stages of the disease (called "type 1" ROP)
4. long term follow-up of premature babies to detect refractive errors and low vision.

- Does the program design and development fulfill scientific quality standards?

The main thrust of POINTS Training Program was to increase the knowledge, skills and understanding of nurses in relation to the care of premature babies. Therefore to provide assistant nurses and auxiliary nurses with a focused education package and to strength the capacity of nurse supervisors in neonatal Units in Rio de Janeiro, Brazil was consistent with the main purpose of the program. In POINTS Training Program, ethical considerations, defined outcomes, phases of intervention, data management and results fulfill scientific quality standards for an intervention at perinatal health level.

- Is the program satisfactory and robust as compared with international quality standards?

Yes, it is. Scientific support, diagnostic situation, analyses and objectives were elaborated following appropriate quality standards and is consistent with the most frequent problems of Neonatal Units at Rio de Janeiro. Intervention is comparable with those of international publications on perinatal/neonatal health.

- Has/can the project lead to relevant policy changes?

At the local level, POINTS Training Program hastened changes at the Neonatal Units in which was implemented and at the Municipal Secretary of Health in Rio de Janeiro. The relevancy of the changes is still to be completely evaluated as they are in progress. Concepts like prevention, reduction of injuries, continuous training of teams, registration and evaluation were incorporated to Neonatal Units first with A Zin et al. works on ROP (2, 3) and then with POINTS Project and POINTS Training Program. Continual improvements of neonatal equipment provision can be observed at the Units visited, including those needed to administrate / monitor adequately oxygen. As is signaled by Cochrane et al (4), improving knowledge and training of health professionals contributes to shortage the gap between best practices recommended and what health professionals finally do at scenarios of inequality. At Neonatal Units of Rio de Janeiro, POINTS Training Program is a stimulating proposal for neonatal nurses. Neonatal nurses at Rio are mostly women and the Program lead to an important group of them to organize and to empower as their own trainers, which was a positive contribution to their self-esteem and to their involvement with an already exigent task. At the level of the Municipal Secretary of Health, POINTS Training Program hastened investments at architectural renovations and provision of new equipment and improved the quality of the neonatal records and the periodic use of data to evaluate the

performance of all Neonatal Units. Moreover, the decision to incorporate progressively at the POINTS Training Program at the Neonatal Units of the State of Rio de Janeiro achieved that authorities at this level of care are increasingly paying attention to the problem of the quality of care offered to premature babies and start acting in that sense in a very interesting process of improvement, in which POINTS Training Program partners are being incorporated as referents and their expertise is being considered.

- How relevant is POINTS Training Program for the regional and international research community? Will the findings advance the field?

There is a notable lack of information about changes that nurses training programs like POINTS can lead to. As ROP is increasingly recognized as an avoidable and severe disease and as a marker of the quality of provided neonatal care, more information is needed about the impact educational interventions could have on quality of care of premature babies and their related morbidities. POINTS achieved good levels of provision, utilization and coverage and despite the inability to show significant changes on the indicators of impact during the period 2009-2011 when results were fully analyzed as the POINTS Project, the POINTS Training Program, designed to deliver knowledge and training to neonatal nurses in Latin America shows good levels of plausibility and performance. To be scaled up, partners should analyze related factors that could explain why a good program cannot demonstrate changes in practices. Lessons learned with POINTS will contribute to extend capability for new projects in the field.

- Has the project significantly contributed to capacity strengthening?

The gap between formal knowledge and practices is significant in Latin America. There are marked barriers to access information, training and other capabilities for neonatal nurses if compared with neonatologists of the same teams at Neonatal Units. Nurses have a key role in prevention of morbidities in premature babies and to strength these role is urgently needed. The POINTS Training Program was well designed to fulfill this purpose and most of nurses who participated at the program who were interviewed at Rio rated it very well. As was marked before, is desirable for neonatal nurses, most of them women, to organize and to empower themselves as their own trainers. POINTS Training Program was a positive effort to their knowledge, their self-confidence and their involvement with an already exigent task.

- Is the project sustainable and potentially apt for scaling up?

Yes, it is. Costs of POINTS Training Program are not expensive for scale up, are substantially less than already afforded costs by managers at Rio Municipal and State Secretaries of Health in remodeling and equipping Neonatal Units and coherent with the comprehensive progress at neonatal care they need. Human resources are sparse and need to be stimulated and improved. It is especially necessary to prioritize the care of human resources.

- Is the POINTS Training Program management and financial administration adequately performed?

Yes, it is, budgets were adequately managed and administered by responsible.

- How could international network be improved? Is there potential for wider knowledge sharing / capacity strengthening within region and beyond?

POINTS Training Program was originally developed as an international collaboration between investigators of United Kingdom, New Zealand and Brazil, and several statements of the Municipal Ministry of Health at Rio de Janeiro, from consultants to neonatologists and nurses, and supported by an international NGO. Antecedents and quality standards followed gave POINTS Training Program an international perspective regardless of the geographical region where finally was implemented. Methods and materials have been published in an open access journal (BMC Nursing) (5). Actually POINTS is a Training Program offered to State and Municipal level, adopted voluntarily by Neonatal Units, has been recently offered to the whole country as an on- line Course with massive response and is to be adapted and reproduced in countries of Latin America and other Regions that afford similar challenges than Brazil.

- Provide 3 best practices that can be taken from the project.
 1. Improved knowledge concerning optimal neonatal care of nurses involved after training.
 2. Availability of senior nurse educators to provide on the job training and support.
 3. Free access to a teaching package and mini courses about key topics of neonatal care from an open access journal (5) and from Internet.
- Provide 6 key lessons learned
 1. Conclusions about effectiveness of POINTS Training Program are limited by the complexities of the Public Health Jurisdiction in which it was carried out.
 2. Confounding factors could be responsible of the lack to demonstrate an impact on selected Neonatal Units, this influence could not be properly measured during the evaluation.

Examples of confounding factors may be:

**changes in governmental policies:*

- a. State Neonatal Units have changed its management and the redistribution of human resources led to considerable moving of neonatal staff and trained and not trained nurses.
- b. there is no suitable distribution of chief nurses schedules in the State Units and this hinders the management of work teams.
- c. access to adequate oxygen delivery in delivery room is delayed in most of the Units.

** biases in the collection of information between the participating Units.*

1. perception of problems to solve was uneven at the Units visited whereby some points of the Training Program (i.e. hypothermia) were not incorporated to the clinical practice by the health team.
2. different knowledge between neonatologists and nurses was observed.
3. New approaches are needed to evaluate a complex intervention at public health as POINTS Training Program and they must include analyses of barriers to the application of new knowledge and quality audits.

6- levels of government are involved progressively but still is not enough.

- Provide 3-5 recommendations for project in moving forward.
 1. To increase the level of involvement at all instances of perinatal care: from Municipal and State Secretaries of Health of Rio de Janeiro to directors of hospitals and the perinatal caregivers.
 2. To identify indicators with a very low level of compliance (i. e.thermoregulation, oxygentherapy) as an opportunity for the health team to discuss and implement single interventions to improve the quality of care. This could allow put into practice the concepts of POINTS program.
 3. To increase the visibility of prematurity and their consequences to local community through local agencies, media and families as a way to strength training programs and to obtain the resources needed to scale up.
 4. to involve parents in the care of premature infants: they should be the principal caregivers of their children, collaborating with nurses and offering special care to them, which includes breastfeeding , protection against infections and neurodevelopmental and emotional support, the last involving mothers too. They must be exhaustively informed about prematurity and their morbidities and involvement must be promoted during hospital stay and post discharge. To this end, mothers and families should have facilities to remain with their children throughout the hospital stay.
 5. Entire perinatal health team must be involved: training can be individual but to bring knowledge into practice requires teamwork. Competencies of each team member must be analyzed and should be included in a future strategy of training. (i.e. prenatal administration of steroids by obstetricians)
 6. Because of knowledge disparities, training should be universal.
 7. empower the neonatal nurse in all levels of health administration, implementing motivational strategies and adjusting salaries to avoid double work which is very harmful for the task. It requires strong and sustained local leadership and working to be able to objectively demonstrate that investment in nursing wages is an investment in health that cannot be replaced by other investments.

A.2. Approach and methodology

- *What approach was used for the evaluation (desk review, site visit, etc.)?*
- *At what project stage the evaluation was conducted?*
- *Who among the project partners and beneficiaries was contacted for the review?*
- *What instruments were used to conduct the evaluation (questionnaires, interviews, discussions)?*

This external evaluation was designed to assess effectiveness of an intervention in a model oriented to decision makers. Indicators of provision, utilization, coverage and impact were assessed in a cross –sectional mode at the end of the intervention. (6)

At phase 1, during three weeks, desk review of all publications of the group was performed, including Dr. Andrea Zin et al antecedent papers. Project partners provided all the non- published information on results needed. The Secretary of Health of Rio de Janeiro (Dr. Nicole Gianini) provided information about births rates, incidence of prematurity and survival by birth weight and gestational age of each Maternity at the city at 2012. Verbal information was provided by the State Secretary of Health of Rio de Janeiro during the interview.

The National Guide for Evaluation of Neonatal Services of the Ministry of Health of Argentina (Annex 1) (7) was used for the global evaluation of Neonatal Units visited. The guide was shortened for items that were considered not relevant for the purpose of this evaluation.

Information was recorded by instruments designed by evaluators (Annex 2):

- Registration Form on the clinical condition of the patients on the day of the visit
- Registration Form of oxygen-therapy use on the day of the visit
- Interview Form for nurses
- Interview Form for chief of nurses
- Interview Form for chief of Neonatal Units
- **At phase 2**, a visit to the city of Rio de Janeiro was done. At the time, six Neonatal Units selected by partners were visited, 3 from the Municipal Jurisdiction and 3 from the State Jurisdiction; 4 of them had been included in the training program.

At each visit the following activities were done:

- a. Evaluation of the actual level of the Neonatal Unit with the Neonatal Guide.
- b. Evaluation of the clinical condition of all premature babies assisted at the Neonatal Unit and of good practices of care at the time of the visit. This evaluation was done by round of patients, observation of charts and visual observation, along with a neonatologist and a nurse, and all observations were registered.
- c. In all premature patients on oxygen therapy, saturation and adjustment of alarms were recorded at the time of the visit.

d. Facilitators were interviewed to assess their involvement with the intervention. Beneficiaries of the intervention at each Unit were interviewed through a structured questionnaire to inquire about level of involvement, provision, utilization and impact of the intervention perceived and about factors that could be identified by interviewers as barriers for the actual utilization of knowledge and training provided by POINTS Training Program. Interviews had a component to evaluate self- satisfaction with level of training, quality of delivered care and recognition of her/his work . It was also evaluated the level of knowledge about all the topics included in the training materials.

A total of 27 nurses, 5 chiefs of nurses, 5 chief of Units, 2 directors of Hospital were interviewed and a synthesis is provided (Annex 3). The neonatal responsible at Secretary of Health of Rio de Janeiro Dr. Nicole Gianini, the Secretary of State Health Dr. Ana Lucia Neves and the principal investigator Dr. Andrea Zin were interviewed.

Two local meetings were done with the local partners Dr. Andrea Zin, Dr. Cinthia Magluta , Lic. Margareth Dutra, Lic. Marcele Campos, Lic.Edneia Oliveira and with Dr. Juan Carlos Silva, Regional Advisor in Ocular Health from OPS and Dr. Carlos Mauricio de Paulo Maciel, Director of Instituto Fernandes Figueiras.

At phase 3, during four weeks, information was analyzed and results of evaluation written.

Overview of different phases of the external evaluation of the POINTS Training Program.

| Phase 1 | Phase 2 | Phase 3 |
|--------------------|--------------------------------|---------------------------------------|
| 3 weeks | 1 week | 4 weeks |
| Desk review | Visit to Rio de Janeiro | Analysis and writing of report |

Countries in which evaluation has taken place (specify country, region, district or towns as appropriate):

Evaluation phases 1 and 3 at Buenos Aires, Argentina

Evaluation phase 2 at Rio de Janeiro, Brazil.

A.3. Results:

- a. **Evaluation of Neonatal Units:** At this point, level of attaining of the following requirements are shown:

PF= building structure

EI= equipment

RH= human resources

SC= complementary services for diagnosis and treatment

OF= functioning and organization

Total= synthesis

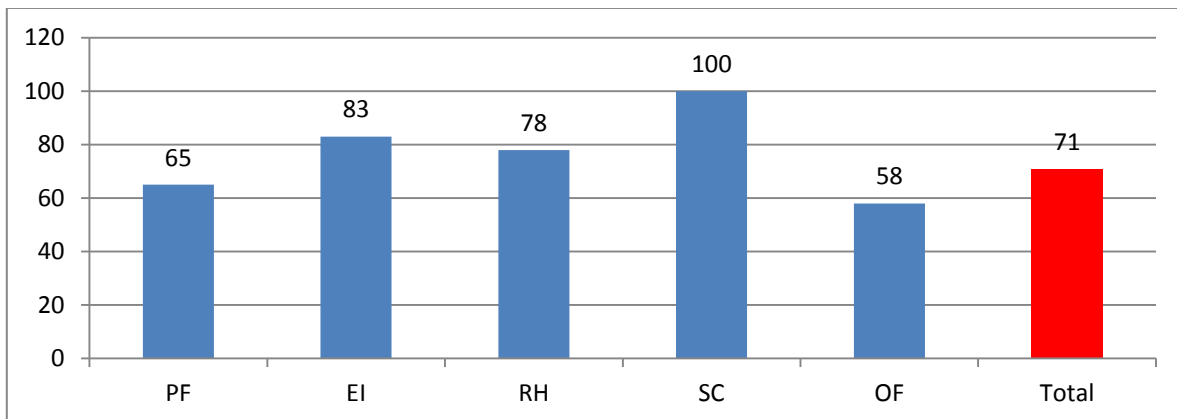
(Values are expressed as %)

Hospitals from the State Jurisdiction:

1. Hospital Melquiades Calazans



2. Hospital Adao Pereira Nunes

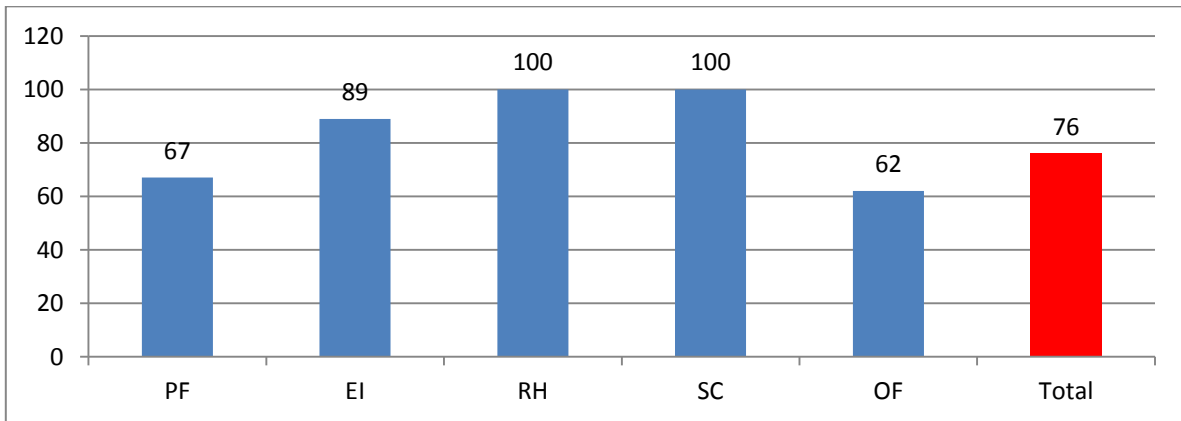


3 . Hospital Albert Schweitzer

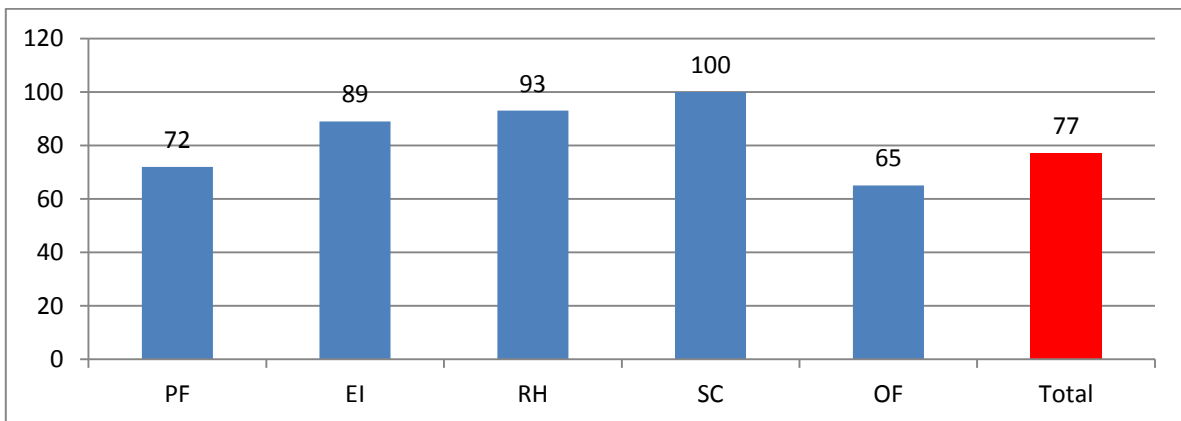


Hospitals from Municipal Jurisdiction

1. Hospital Carmela Dutra



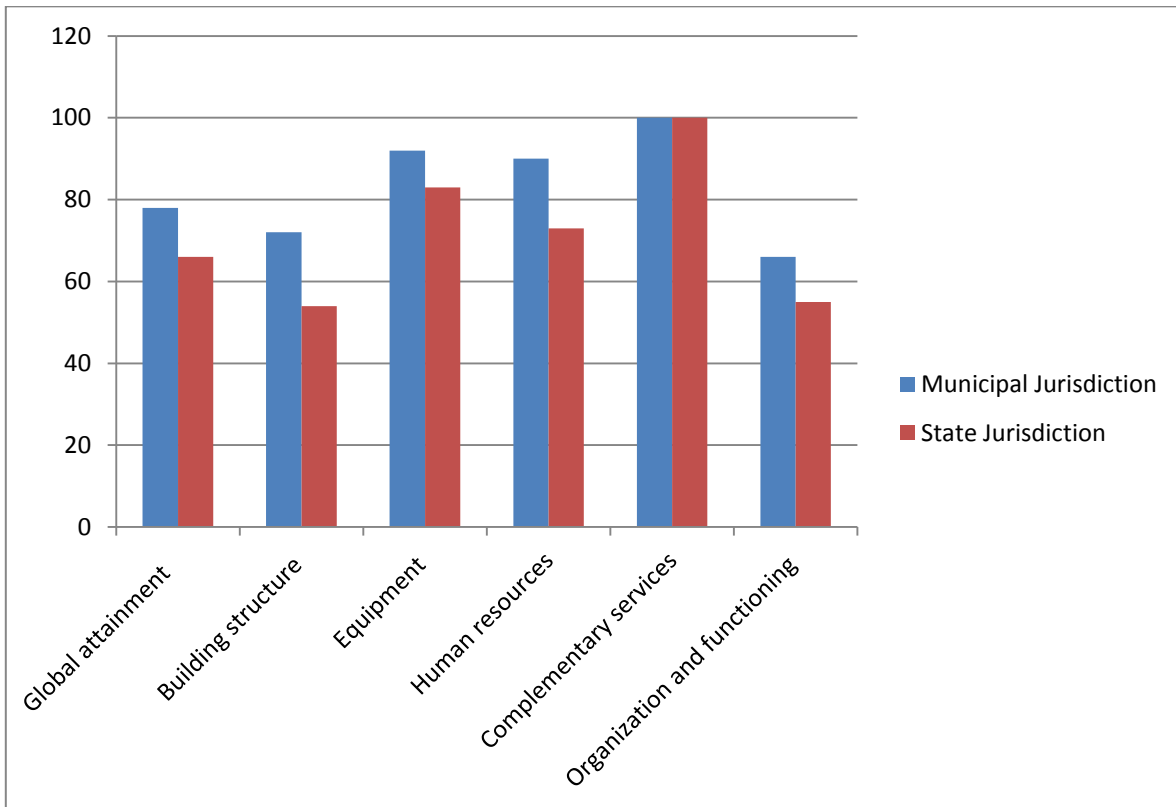
2. Hospital Fernando de Magalhaes



3. Maternidade Leila Diniz



Comparative graphic of level of attainment by Municipal or State Jurisdiction



As minimal requirements for functioning were considered in this modified form of the Guide, the results of 100% of attaining at Complementary Services (Images, Laboratory, sub- specialties) must be considered with caution.

The global attainment ranged from 60% to 83%. Global attainment, as well as individually selected areas, was higher in hospitals from Municipal Jurisdiction. The areas Building Structure and Organization and Functioning rated the lowest scores in both Municipal and State jurisdictions.

At a number of Maternities neonatal reception rooms lack the minimal standards and 100% of them have no blenders for oxygen administration.

Accompanying of woman during labor was not allowed at various Maternities visited.

B. Evaluation of the clinical condition of all premature babies assisted at the Neonatal Unit and of good practices of care at the visit.

Condition of patients at the visit. Data are separated by jurisdiction.

- CLINICAL INFORMATION**

This evaluation was directed to attainment of good practices related to the six topics of POINTS training.

| Clinical data | Municipal | Statal |
|---|------------------------|--------------------|
| GA at birth (w) ** | 30(24-34) | 31 (26-36) |
| Birth weight (g) ** | 1012(635-1290) | 1283 (884-1810) |
| Antenatal steroids ** | 83% | 43% |
| Clinical data | Municipal Units | State Units |
| Resucitation at birth ** | 75% | 53% |
| FIO2 at resucitation ** | 100%(100-100) | 100%(100-100) |
| Hypothermia on admission** | 50% | 33% (1) |
| Normothermia at the visit * | 92% | 80% |
| CPAP ** | 25% | 40% |
| MV ** | 50% | 67% |
| Nasal cannula ** | 17% | 7% |
| Hyperoxia ** | 65% | 60% |
| Hypoxia ** | 42% | 40% |
| Late Onset Sepsis ** | 33% | 20% |
| Transfusion ** | 42% | 33% |
| Newborns accompanied by his/her mother * | 83% | 27% |
| Adequately positioned baby * | 92% | 60% |

(1) Without data in 33% of clinical records.

Information obtained by patient observations (*) and from clinical records (**)

At the time of the visit, patients hospitalized at Municipal Units were smaller and more immature. It was not possible to obtain mortality rates by Neonatal Unit. Antenatal steroid administration was proportionally higher at the Municipal level. Resuscitation at birth was frequent and oxygen was used inadequately in 100% of patients at the delivery room. Episodes of hypoxia and hyperoxia were frequent. Presence of mothers accompanying her newborns and adequate positioning of the baby had a good level of compliance at the Municipal Units.

- NUTRITIONAL INFORMATION**

| Nutritional information | Municipal Units | State Units |
|--|-----------------|------------------|
| Weight at day 28. | 1195(800-1616) | 1392 (1345-1440) |
| Feed with Human Milk | 92% | 50% |
| Feed with Banked Human Milk | 58% | 21% |
| Use of Fortifiers of Human Milk | 8% | 0% |

| Nutritional information | Municipal Units | State Units |
|--|-----------------|-------------|
| Start Parenteral Nutrition (PN) | % | % |
| Day 1 | 67 | 27 |
| Day 2 | 25 | 40 |
| Day 3 | 9 | 7 |
| Day 4 | 0 | 0 |
| Day 5 or ahead | 0 | 7 |
| Without PN | 0 | 20 |
| | | |
| Start enteral nutrition | | |
| Day 1 | 33 | 14 |
| Day 2 | 8 | 14 |
| Day 3 | 25 | 21 |
| Day 4 | 0 | 29 |
| Day 5 or ahead | 33 | 21 |
| | | |

All nutritional practices seemed to be better at the neonatal Units of the Municipal Level. Use of human milk, use of banked human milk, time at initiating parenteral and enteral nutrition were better at Municipal level ; low use of fortifiers of human milk seems to be a clinical standard but there were no written recommendations.

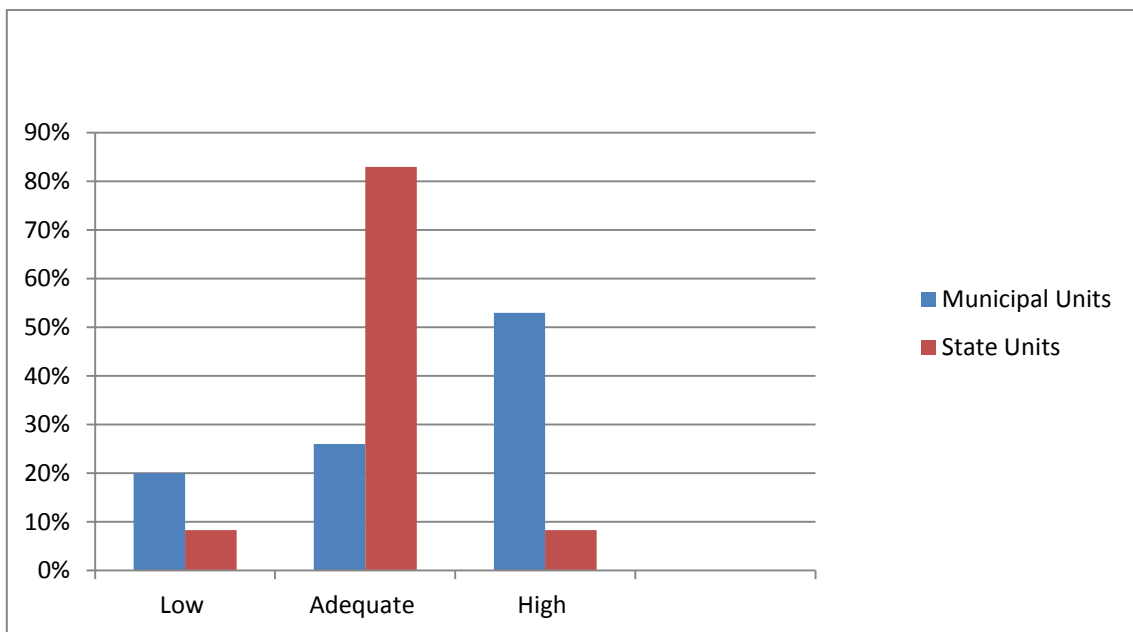
- **ROP INFORMATION**

| | Municipal Units | State Units |
|--------------------|-----------------|-------------|
| Adequate screening | 100 % | 100 % |
| ROP grado 0 | 60% | 60% |
| ROP grado 1 | 30% | 0% |
| ROP grado 2 | 6,6% | 38,6% |
| ROP grado 3 | 3,4 % | 1,4% |
| | | |

Screening and treatment of ROP are adequately afforded at all Neonatal Units visited. Severe forms of ROP are low at both jurisdictions in this limited number of patients.

OXYGEN ADMINISTRATION

Saturation levels observed in premature newborns on oxygen therapy during the visit at the Neonatal Units in Río de Janeiro, by jurisdiction. August 2013.



Alarms were off at 90 % of the patients. Twenty seven patients observed. (100%)

- **INTERVIEW RESULTS**

Population characteristics of interviewed nurses by jurisdiction

| | Municipal Units | State Units |
|---------------------------|------------------------|--------------------|
| Age | 42 SD 7,35 | 36 SD 7,38 |
| Sex fem | 100 % | 100% |
| Time in the charge | 8,9 SD 8,13 | 6,75 SD 4,1 |
| Internet access: | | |
| Home | 92% | 80% |
| Hospital | 35% | 75% |
| Another job | 42% | 80% |

Most of interviewed nurses had access to Internet, especially at home, and a high number had double job, especially at the State Level Units.

Self-assessment of their level of knowledge and their professional performance was high.

All concerned the shortage of human resources as the main barrier for the implementation of training into practice.

Their perceptions of the valuation of their work and their opinions by their chiefs was higher in relation to doctors of the unit that of their heads of nursing.

Level of knowledge about topics included in POINTS of nurses from Municipal and State Units of Rio de Janeiro, expressed as the % of correct answers.

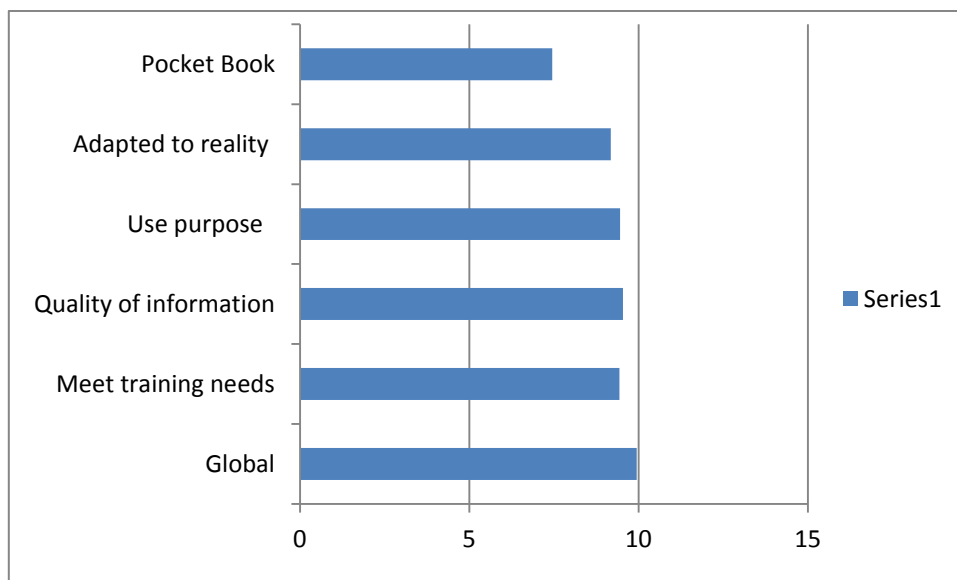
| Knowledge | Municipal Units | State Units | P value |
|--------------------------------------|------------------------|--------------------|----------------|
| Saturation levels | 45% | 66% | 0.3 |
| Minimal Enteral Nutrition | 45% | 76% | 0.7 |
| Analgesia | 100% | 76% | 0.08 |
| Control of infections at NICU | 100 % | 100% | NS |
| Thermoregulation * | 25% | 30% | NS |

No differences were observed at any of the evaluated topics between nurses working at the Municipal or the State jurisdictions.

However, a higher proportion of patients with inadequate oxygen delivery and monitoring was observed at Units of Municipal jurisdiction, where the proportion of correct answers related to this topic was lower.

In reference to thermoregulation, most of nurses interviewed did not recognized hypothermia as a recurrent problem of their Units. The other topics were considered relevant at interviews.

Evaluation of training program POINTS by beneficiaries. Scale 1 to 10.



All trained nurses referred to be using daily new knowledge incorporated and only 45% referred they have used the pocket book at the last week for resolution of problems.

Thirty six per cent referred to have received any training after POINTS.

Thirty six per cent suggested changes to training program for the future.

Ninguna de ellas sugeriría cambios en su contenido pero varias sugerían cambios en su implementación, la posibilidad de uso de internet es considerada positiva aunque el

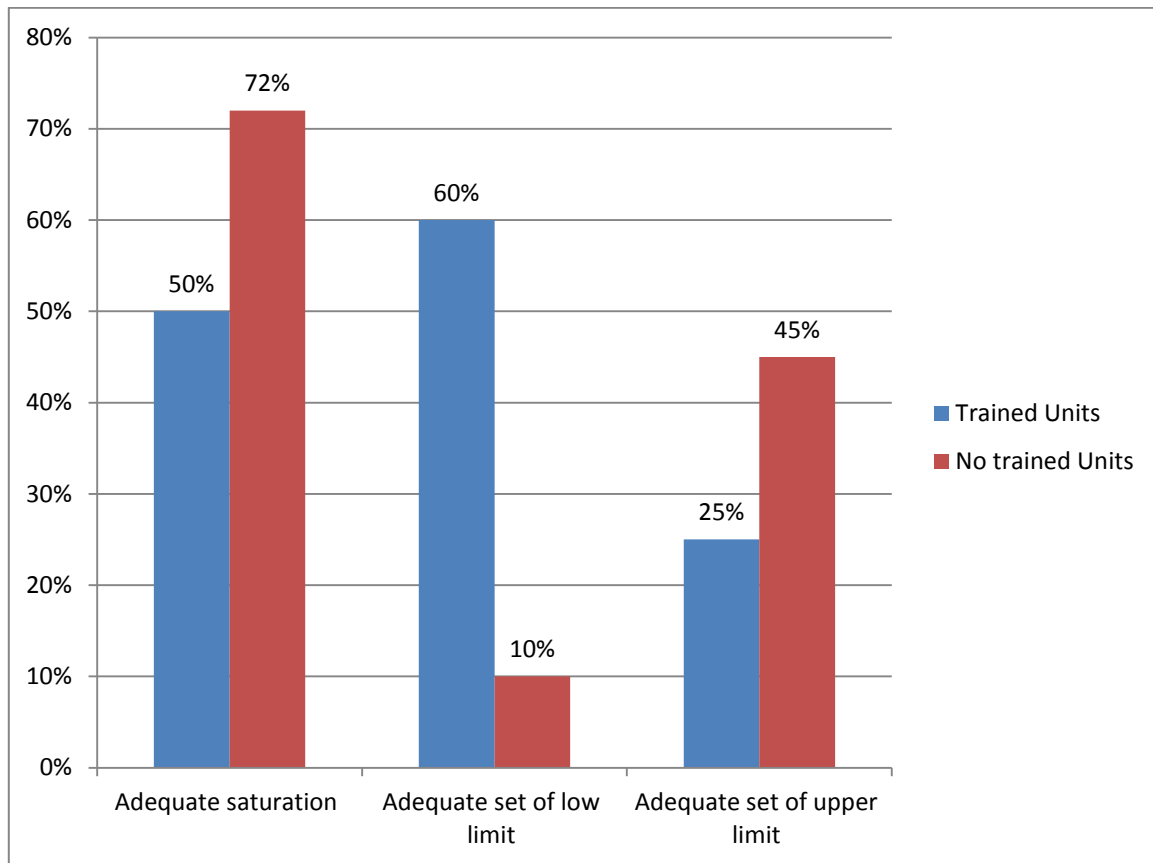
acceso institucional no siempre está garantizado, y sugieren además la reiteración periódica de los contenidos.

Although knowledge about POINTS Training Program was uneven, all the Chiefs of Neonatology evaluated it as a useful and necessary intervention.

Potential influence of the training program on neonatal practices was evaluated comparing results in Neonatal Units with more than 50% of trained nurses versus Neonatal Units with less than 50% of trained nurses or without training.

| Demographic data | Trained Units | No trained Units |
|---------------------|-----------------|------------------|
| Gestational age (w) | 30.1 (24-33) | 31.5 (27-36) |
| Birth weight (g) | 1175 (635-1860) | 1133 (815-1359) |

Oxygen monitoring in premature infants receiving oxygen therapy at the visit of the Neonatal Units. Comparison between Units by proportion of trained nurses.



(adequate saturation $p= 0.23$; adequate set of low alarm $p= 0.09$; adequate set of upper alarm $p= 0.05$)

Clinical evaluation of patients in trained and no trained Neonatal Units

| | Trained Units | No trained Units | P value |
|--|---------------|------------------|---------|
| Resuscitation FiO2 100% (1) | 100% | 100% | NS |
| Normothermia at the visit | 95% | 62% | NS |
| Episodes of hyperoxia | 33% | 50% | NS |
| Episodes of hypoxia | 47% | 50% | NS |
| Starting minimal enteral nutrition (day) | 3,83 ± 2 | 2,12 ± 1,12 | NS |
| Mother with her newborn | 42% | 37% | NS |
| Late onset sepsis | 31% | 12% | NS |
| Adequate positioning | 83% | 95% | NS |

(1) Patients who required resuscitation

No differences were observed between trained or no trained Neonatal Units as defined by the referred criteria.

Part B – Executive summary

B.1. Provide a brief description of the program, its overlying objectives and targeted beneficiaries.

Antecedents: Previous studies undertaken by authors of the program in seven NICUs in Rio de Janeiro, Brazil, (2, 3) showed that mortality rates and rates of ROP needing treatment varied widely among infants with birth weights (BW) of less than 1500 g. Survival rates ranged from 57% to 93 %, and rates of ROP from 2.1% to 7.8%. Babies affected with severe ROP in the poorer performing NICUs had BWs or gestational ages (GA) above developed countries screening criteria. Authors find much could be done to improve neonatal outcomes in these units.

Purpose: to work with staff and nurse supervisors in government neonatal intensive care units in Rio de Janeiro, Brazil, to develop a package of interventions, the aim of which was to improve a range of neonatal outcomes.

Project description: The overall objective of POINTS training program was to reduce mortality and morbidity i.e. BPD, ROP, sepsis and NEC, and to improve the nutritional status of premature babies being cared for in 6 NICUs in the Municipal Jurisdiction and 6 NICUs in the State Jurisdiction in Rio by training nurses.

The specific objectives were:

1. To develop a training package for nurses, in collaboration with local neonatologists and neonatal nurses.

2. To train nurses in relevant topics of neonatal care, included on the pathogenesis of the conditions of interest, and how to monitor oxygen.
3. To assess the level of knowledge that nurses gained through training.
4. To evaluate accomplishment of good practices.
5. To disseminate the findings through workshops and publications.

Beneficiaries: Neonatal nurses and premature babies born at Neonatal Units of Rio de Janeiro and their families.

Of the program in general:

POINTS Training Program is an educational approach designed to strength knowledge and training of nurses in the provision of care to premature babies in a crucial time of life. Their six modules are addressed to Pain control, optimal Oxygenation, Infection control, Nutrition interventions, Temperature control and Supportive care. POINTS program was developed as an opportunity to measure knowledge, practices and attitudes and staffing levels commonly applied at Neonatal Units at the public sector of Brazil and to periodically assess changes after an intervention in a group frequently disregarded as are the neonatal nurses.

On the policy implications:

Information obtained from evaluation of the POINTS Training Program shows that:

- Nursing levels of knowledge is still low and needs to be improved.
- No differences were observed in knowledge neither in good clinical practices at the Units visited.
- Number of nurses is still sparse and training is difficult for a significant number of them.
- Nurse education needs to be organized and continued professional development needs to be installed.
- Lack of leadership is a problem in some Units, neonatologists and nurses often work in more than one Neonatal Unit and rotation of teams is frequent.
- Protocols are not usually in place (i.e. upper and lower oxygen saturation targets) so additional training is needed to obtain a cultural change at the Units.

POINTS Training Program is an excellent initiative to improve knowledge that needs to involve progressively at the perinatal health team as a whole, and cannot be limited to nurses.

POINTS Training Program has the potential to be used as a tool to obtain changes in actual clinical practices through education, analysis and prioritization of practices to be changed, to define interventions and to evaluate continuously the progress.

POINTS Training Program needs the compromise of managers who should provide financial support to improve quality of assistance: building structures, organization, staff training in the areas of management and organization of services.

Of the North-South collaboration:

The project enhanced collaboration between institutions in the United Kingdom, Brazil and New Zealand, was an opportunity to transfer knowledge and technology from developed to middle-developed countries and to generate expertise that could be used hereinafter to enhance new interventions. Concepts like “quality of survival” and “periodical register and evaluation” were incorporated, so the project contributed to advance neonatal care in a comprehensive way.

Of the feedback from beneficiaries:

Satisfaction with POINTS Training Program was very high at interviews administered at the end of training and at interviews done in Rio de Janeiro at November 2012 and at August 2013.

Despite the knowledge of nurses increased at previous evaluations, their persistency could not be demonstrated in this evaluation. Training must be repeated periodically for maintenance, as the proportion of nurses who change their jobs is still very high.

A governmental policy is still in progress at State Units which redistribute nursing staff to underserved areas as a means of addressing the human workforce crisis; salaries are low and double work is common, this factor could contribute to the lack of impact observed.

B.2. Key findings

Project relevance:

There are marked barriers to access information, training and other capabilities for neonatal nurses at Neonatal Units of middle-developed countries as Brazil, especially at the public sector. Nurses have a key role in prevention of morbidities in premature babies and to strength these role is urgently needed. The POINTS Training Program was well designed to fulfill this purpose and most of nurses who participated at the project who were interviewed at Rio rated it very high.

Topic relevance:

The public health issue addressed was how to improve the outcomes of preterm birth, which are worse in many units in Latin America than in developed countries. The question addressed was whether improving the knowledge and skills of neonatal nurses would reduce the incidence of ROP and improve survival and other complications of preterm birth.

Capacity building:

The main purpose of the project was to focus on nurses and nurse supervisors to strength their leadership and knowledge and this was partially achieved. Other strengths were producing educational materials, the collaborative way in which the training package was designed, growing capability of registering clinical evolution of patients and improvements to evaluate results of the Neonatal Units observed.

Miscellaneous criteria:

The POINTS Training Program promoted at the Neonatal Units: use and availability of clinical recommendations, use of registers, periodic evaluation of results and interest to work in a collaborative way. Changes of practices triggered by the program facilitated that strengths and weaknesses became evident for the health teams. Concepts as “prevention of morbidities” were reinforced. All these issues were mentioned by nurses at interviews.

Most interviewed nurses identified barriers for the use of knowledge and training achieved with the POINTS Program, the most common were: sparse workforce, low salaries, work overload and low commitment. Additional barriers mentioned were lack of leadership and low level of organization.

It was mentioned that neonatologists needed to be included at training programs similar to OPINTS as their level of knowledge and training was uneven. This seemed to be especially important at Neonatal Units in which the level of autonomy of nurses is low and all their practices are to be supervised by doctors.

Project management and financial administration:

Budgets were adequately managed and administered by the responsible partner. The POINTS training Program is not expensive: provided big sums are spent at technologies and equipment is necessary at the same time to improve in number and quality the task force that cannot be replaced by machines. Educational projects like POINTS are appropriate to catch up in this way.

B.3. Lessons learned

What are the most important lessons learned for future activities?

1. Practice transformation is a continuous and long term process. A training program is a component of a global intervention to obtain changes in practices. A global intervention needs involvements of all partners, leadership and capability to determine priorities, and flexibility to continuously re-evaluate and to change strategies if necessary. (8)
2. Hazardous circumstances can divert results and not always can be advanced, so instability factors should be considered at the time of choosing the design of a program.
3. Simple and direct interventions can enhance notably the performance of a group generally overlooked but with a key role at a network of care.
4. The ability to manage their own resources and to identify its own necessities empowers groups and is a tool that allows them to maintain a good level of performance and set aside skepticism and discouragement. A quality improvement program should offer specific support tools with this purpose.
5. The delay in changes in outcomes and practices can be attributed to concurrent factors as staff turnover, lack of leadership, lack of prioritization of interventions and fiscal stress.

B.4. Global assessment

By evaluation team:

POINTS is evaluated as a very good rising program for an essential group in the care of premature babies

By project beneficiaries:

Evaluations have been very successful and all the respondents expressed that they must continue with these educational strategies.

By other resource persons:

Health managers evaluated positively the project as a need for neonatal teams and gave their approval and support.

B.5 Project outlook – specific recommendations

What recommendations would you make for the program to optimize future activities?

- To include all training interventions within the broadest campus of quality assurance framework for health care.
- To involve all members of the perinatal health teams avoiding nurses loss of autonomy in the design and implementation.
- To allow parents to take an active role in the care of their children, involving them at the prevention process and promoting the exercise of their rights.
- To improve public diffusion of the issue of prematurity and their morbidities to sensitize society and allow more persons act as a pressure group at the political level.
- To design a program that allows inclusion of subjects or subjectivities to the analysis, as is suggested by Maria Cecilia de Souza Minayo, (9) considering that all practices related with health are included in the totality of the social campus. This consideration can help to evaluate the influence of social factors, i.e. beliefs, perceptions and values, on the practice.

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