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# Referral Tracking Pilot and Referral Outcome Rates for the School Health Program in Panama

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Referral Tracking Pilot and Referral Outcome Rates

for the School Health Program in Panama


by


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A thesis submitted in partial fulfillment
of the requirements for the degree of
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# DEDICATION

*"No one deliberately creates those problems, no one wants them to persist, but they persist nonetheless. That is because they are intrinsically systems problems – undesirable behaviors characteristic of the system structures that produce them. They will yield only as we reclaim our intuition, stop casting blame, see the system as the source of its own problems and find the courage and wisdom to restructure it. Obvious. Yet subversive. An old way of seeing. Yet somehow new. Comforting, in that the solutions are in our hands. Disturbing, because we must do things, or at least see things and think about things, in a different way."* (Thinking in Systems, Donella H. Meadows)

I dedicate this thesis to God in the first place: "Master, to whom shall we go? You have the words of eternal life" (Jn. 6, 68). To my grandmother Olivia, ninety seven years old, who died during my absence from home. I will always owe her too much. To all those who despite the challenges inherent to life, bravely learn to follow their inner thoughts over the confusing voices in the world trying to tell us how to walk our path. To all in the health sector sharing and collaborating for a world that the rest call utopia, where "everyone has the opportunity to attain their full health potential and no one is disadvantaged from achieving this potential because of their social position or other social determined circumstance" (Brennan-Ramírez, 2008).

# ACKNOWLEDGMENTS

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# ABSTRACT

**Background**: The School Health Program (SHP) in the Republic of Panama includes preventive healthcare services delivery and referral issuing at elementary schools nationwide. Despite these early prevention efforts, a majority of referrals are apparently not achieving their desired outcome. This idea is supported by the SHP data showing preventable diseases on the rise. Thus, learning the outcome rates of particular referral outcomes may provide a basis for appropriately targeted action.

**Methods**: Three focus groups were conducted with health workers, medical records staff, and teachers, respectively. Following systems thinking and framework analysis, a pilot plan for referral tracking and referral outcome rates obtainment was developed. Finally, the SHP team was surveyed for their perception on the effectiveness and feasibility of the plan, for future implementation.

**Results**: Themes related to referral tracking led directly to the development of a referral tracking pilot plan (RTPP). Survey data analysis revealed that the SHP team perceived the RTPP as an effective way to obtain complete referral tracking and referral outcome rates, and they also found it feasible to implement.

**Conclusion**: Keeping referral records and tracking the SHP referrals is perceived, by those that will be involved in its delivery, as achievable by implementing a RTPP developed from their own recommendations. Once implemented, the resulting obtainment of referral outcome rates may allow them to know if the SHP preventive

objective for issuing these referrals is being properly achieved, and to prioritize for targeted action where needed.

# BACKGROUND

**The School Health Program in Panama**

The "Programa de Salud Escolar" or School Health Program (SHP) is a regular programmatic task of the "Centros de Salud," which are government supported Primary Care Health Centers (PCHC) all over the Republic of Panama. This government funded program in the Republic of Panama seeks to improve the health level of school-aged children through health promotion, maintenance and recovery activities (PRONASE, 1993). Through this program, around 60% of elementary schools receive periodic visits from the corresponding PCHC of the area (Chong, 2002). A team comprised of physician, nurse, medical technologist, dentist, health promoter, nutritionist, social worker, psychologist, pharmacist, and nurse assistant, among others, is responsible for the delivery of the SHP. During these visits at the schools in different moments all through the school year, the team develops several healthcare assessments and interventions, such as checks of the students' nutritional and immunization status, their physical, mental, and dental health, and other assorted preventive and health promotion services. In addition, blood samples are taken to check hemoglobin, routine medical checkups are performed, and depending on the findings, medical referrals are issued.

The "Policentro de Salud de Parque Lefevre" is a larger PCHC that is responsible for delivering this program in an area considered to have high crime and low socioeconomic status. Data from its SHP has consistently shown increases in the

morbidity rates of those students screened periodically in the schools. Some of the major concerns that arise include dental caries, anemia, and ADHD (Franco, 2011). The team that delivers the SHP to this vulnerable population is concerned that these children's healthcare needs are not being taken care of properly, considering the health promotion and prevention objectives for which the SHP was created. However, these conclusions cannot be completely supported by the data that the SHP is currently gathering (Franco, 2011).

**The Concern: Meeting the Health Care Needs of Children**

Neglect can be defined differently depending on the purpose, and for our purposes we prefer the health driven definition, which is: "when children's basic needs are not met" (Dubowitz, 2010, p. 145). This is a more broad framework in which neglect may be attributed to child, parent, family, or community factors, and its purpose is to enhance children's safety, and not to blame parents. Adequate food, health care, clothing, nurturance, protection, supervision, education and a home are basic needs which are considered a primary responsibility of the parents, but there are other important factors beyond parental behavior. Within neglect, health care neglect may be less taken into account rather than other forms of neglect. Health care neglect has been defined as healthcare recommendations that are not implemented, resulting in actual or potential significant harm to the child (Dubowitz, 2010).

The child can be seen as the center of an **ecological framework** within which lack of medical care may result from interactions among a variety of interdependent factors (Belsky, 1980). Failure to meet the health care needs of children usually takes one of two

forms: failure to heed obvious signs of serious illness or failure to follow a physician's instructions once medical advice has been provided. Either of these situations can be fatal in some cases or can lead to chronic disability (Kennedy, Bailey, & Kainer, 2012; Boxer, Carson, & Miller, 1988). The most common form involves a lack of adherence to health care appointments, treatment, or recommendations, resulting in actual or potential harm (Dubowitz, 2010). For the survivors of the severe cases in which the continuum of adequacy of health care falls in the "grossly inadequate" extreme of the range, the outcomes can vary from internalizing and externalizing behavior problems in the short term (Dubowitz, 2002), to a heavy disease burden in the long term (Cuijpers et al., 2011). Research has also demonstrated that various types of maltreatment often co-occur (UNICEF, 2006).

The SHP team understands very well the range of deleterious consequences that a child could possibly experience currently and in the future, not just because of unmet health care needs but also because of the well-known co-occurrence with other types of neglect and abuse. Precisely, it is this and their knowledge of the increasing morbidity in the target population of the SHP that causes the SHP team concerns. The challenge for professionals, like those working in a health care service delivery program like the SHP, is to be aware of any factors that may affect negatively the program outcomes; more importantly, whether these reflect negative outcomes in the target population (in this case, children). Tracking the referrals issued by the SHP and getting referral outcome rates may show the program outcomes that may be reflective of outcomes in the target population, which are the actual concern of the SHP team.

Although the tracking of the referrals issued by the program is not currently being completely documented, there have been several attempts to do it. There is a need to develop a procedure to completely document the tracking of the referrals; doing this will allow the SHP team to know to what extent the referrals that they issue are followed by the action required. Knowing the referral outcomes would also provide them the opportunity to better assess and serve the children from the SHP with unmet health care recommendations.

**Referral Outcomes**

The scarce literature I found on referrals includes: different aspects of the general practitioner-specialist dyad, factors influencing referral outcomes, referral rate comparisons among different demographic groups, referral activity in specific programs, the importance of the timing of referral just for diseases that critically endanger life (renal, lung, heart diseases), and opportunities for referral to health and welfare services from other health related services or programs. No directly applicable data are available about developing a plan to track referrals and obtain referral outcome rates in an established health program like the SHP in Panama.

In this study we will be working directly with the groups of individuals interacting with the SHP workers (SHP teachers and the PCHC-medical records workers). The ultimate goal is to enable the SHP team to obtain records of referrals issued, as well as the outcome of the referrals by the rates of unmet healthcare recommendations, from which those serious enough to cause actual or potential harm to the child could be drawn. It is necessary to do this before trying to address any solution regarding the school-parent

and parent-health center interactions. It will make no sense to assess why these latter interactions are not working well for the SHP referral tracking if there is no certain information about the outcome of the referrals.

Using the mental models of involved people, I attempt to make a conceptualization model to start a System Dynamics Model building process (Luna-Reyes, 2003). This reference mode of the SHP Referral Tracking Loop (RTL) is a key to understand how to track referrals and how to get the SHP referral outcome rates.

The aim of this study is to develop a pilot procedure that might allow the SHP team to obtain the baseline data of referrals issued and referrals that result unattended health care recommendations, with particular focus on those considered by the SHP workers to be potentially harming to the child's health according to diagnosis and timeframe (to be determined in focus groups).

After future implementation of the referral tracking plan to be developed, tracking the referrals to know the outcomes and the rates might show what part or parts of the RTL are contributing more to a negative referral outcome. Knowledge of this data could influence the allocation of efforts and resources in the future. Based on the present study, further research will shed light on what part or parts of the SHP referral tracking loop might need more assessment and planning regarding the factors influencing a negative outcome of the referrals.

**Factors Influencing Referral Outcome**

According to Dubowitz (2010), from the child's perspective, not receiving necessary care is neglect regardless of the reasons why such care is not provided. With

this child-focused definition, once it has been identified that the basic needs of children are not met, the response is guided by an understanding of the multi-factorial etiology and severity of the neglect, and the availability of appropriate interventions. The quality of health care children receive depends very much on the context. This refers to the environment in which children live, including poverty, culture, religion, and community. The context also shapes the attitude, knowledge, and behavior of the people around children, and ultimately the children as well.

There are many factors associated to failing to meet the healthcare needs of children which include: SES, access to care (not just geographical), dysfunctional family, health illiteracy, lack of trust in health care professionals, impaired caregivers (mentally ill, substance abusers), caregiver's belief systems (i.e., inconsistent with Western medicine), child's attitudes and behavior (reluctant to comply), the health care professional's lack of cultural competence, and lack of communication in the clinical setting (Carole, 2007). Gaps in services and inadequate policies and programs can also be considered etiological factors for children with unmet health care needs (Dubowitz, 2010).

Factors influencing the outcome of the referrals of the SHP might include, among others: parental neglect, lack of patient slots in the PCHC, absence of medical personnel, undelivered referrals, unclear referral instructions, and parental incompetence. Given that currently it is not possible to collect the rates of unattended health care recommendations of the children of the SHP; there is no objective way to show that there is a problem of health care neglect that needs to be tackled, although that is the opinion of the SHP workers. Once the outcomes of the referrals are known, further studies on the factors

influencing these outcomes may allow the identification of cases of health care neglect. Knowledge of these data might also provide the way to start to objectively provide a basis for action, as well as to establish priorities in the course of actions.

# RESEARCH QUESTIONS

1. What do SHP workers, teachers, and medical records personnel say about how they keep records of the referrals? What are the barriers to keeping records? What would be a better way for keeping records of referrals in their corresponding critical point of the referral tracking loop?

2. What do SHP workers, teachers, and medical records personnel say about how to track whether the parents received the referral, followed-up the recommendation in another health care facility, or went to the PCHC to receive the recommended attention? What barriers exist that make tracking the referrals to the end difficult?

3. What do SHP workers, teachers, and medical records personnel say about what would be ways of documenting the referral outcomes for each of the referrals generated by the SHP? What barriers exist that make documenting referral outcomes difficult?

4. What do SHP workers, teachers, and medical records personnel say about how to define cases in which the child's health can be harmed by non-follow-up of the referral recommendations?

5. Does SHP workers feedback on a pilot plan for referral tracking developed from answers to questions one to four indicate preliminary positive perceptions of: a) effectiveness of documenting referral issuing records, b) effectiveness tracking referral outcomes, c) effectiveness of determining referral outcome rates, d) effectiveness of determining a rate for the number of cases in which the child health can be harmed by non-follow-up, and e) feasibility of implementing the tracking pilot?

# METHODS

This project was reviewed before conducting any study procedure by the ethics committees of the University of South Florida and the Panamanian (Gorgas Bioethics Committee). The data gathered will be maintained privately and confidentially with access restricted to the research team. There are no conflicts of interest that may bias the ability of the researchers to conduct this research.

## Research Design

This is an exploratory mixed methods research aimed at understanding the School Health Program (SHP) referral procedures, and barriers for referral records and tracking. By gaining this understanding a Referral Tracking Loop (RTL) is intended to be developed using systems thinking and mixed methods data collection and analysis. This will result in a Referral Tracking Pilot Plan (RTPP): a pilot system for the SHP referrals' records, tracking, and Referral Outcome Rates (ROR) obtainment. Finally, perceptions for effectiveness and feasibility for future implementation were evaluated.

## Study Sample Description and Sample Selection

Participants from three groups were included. The SHP workers, the first group, are the part of the SHP team that usually handles the greater burden of work from the SHP.

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The medical records personnel involved in the development of the SHP of the Policentro de Salud de Parque Lefevre were also included as part of the sample. Although they are not directly responsible for the delivery and results of the SHP, their attitude towards it may impact its outcomes either negatively or positively. They receive parents and teachers that bring the children from either school or home to get attention at the PCHC.

The third group included in the sample were the teachers at one of the schools covered by the Policentro de Salud de Parque Lefevre SHP. They are the SHP teachers, considered by law just as directly and equally responsible for the delivery and success of the School Health Program as the SHP workers are.

**Inclusion and Exclusion Criteria**

All SHP workers from the Policentro de Salud de Parque Lefevre involved in the delivery of the health care services were eligible for inclusion. Medical records workers that have worked in the window for pediatric patients at the Policentro de Salud de Parque Lefevre were included. SHP teachers from the selected school were also included. Health workers that do not participate in the SHP were excluded. Teachers from any elementary school other than the selected school were excluded. Medical records workers from any PCHC other than the Policentro de Salud de Parque Lefevre were excluded.

**Sample Size**

The sampling frame includes all the members of the SHP team from the PCHC Parque Lefevre: health workers, teachers, and medical records personnel. The sample

included three focus groups of approximately six to ten people. One focus group consisted of those responsible for the delivery of the program, the SHP workers. Another, was medical records personnel, and one more focus group was teachers from one of the elementary schools covered by the SHP of the Policentro de Salud de Parque Lefevre. When more than ten were willing to participate in any of the focus groups, the participants were selected randomly out of those. The overall total equaled 22 participants. We had six health workers, six medical records workers, and ten teachers participating in their respective focus groups.

**Recruitment Strategies**

The recruitment was active. The researcher asked for permission from the authorities of the PCHC and the school director in order to gain access to the SHP team members. Based on the inclusion and exclusion criteria, the SHP workers and teachers as well as the medical records personnel, were personally invited to participate in the corresponding focus group.

First, the coordinator/director for each group were approached: the SHP coordinator of the health workers, the director of the medical records department, and the director of the school. The date for each focus group was set with the coordinator/director of the corresponding group. The coordinator/director then set the meeting with the group of her workers who were familiar with the SHP.

At the focus groups, a coming member-check meeting was announced to present the RTPP generated from the focus groups. For the member-check meeting, invitations for lunch were printed and handed out to each of the SHP team members. These included

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the time, place and objectives of the meeting. Time and place were strategically agreed with the directors/coordinators and transportation was set with the group coming from the school to the health center where it was agreed to have the meeting.

**Generation of the Referral Tracking Loop (RTL)**

The first step needed was using system dynamics, a powerful tool in the creation of feedback theories (Luna-Reyes, 2003). Using this method, we started this iterative process by using the mental database residing in The SHP actors' heads as our first source of information in this model building process (Forrester, 1994). The written database represented by the SHP Guidelines was also an important source of information.

A system description and diagram construction of the "mental model" (Randers, 1980, p. 119) of the RTL was the next essential step in our conceptualization of a "reference mode" (Randers, 1980, p. 119) for referral tracking in the SHP. This initial characterization was followed by the explicit representation of a detailed structure and the selection of the variables of importance to be considered for the formulation of the initial RTL.

The next stage was testing the RTL developed in the first two stages of this qualitative modeling process. A focus group guide and a survey were pilot-tested as well, in a small sample of physicians familiar with the program. They received the tools either in Spanish or English randomly. Their input was utilized to improve both, the structure and variable measurement of the RTL that was utilized as the basis for the RTPP that was subsequently developed.

The RTL model generated from the first three stages of the process was described and discussed through focus groups with the RTL actors: the health workers, teachers, and medical records personnel. These insights from the future users of the model and their answers to the focus group questions about the referral tracking process were analyzed to be used in the generation of an RTPP.

Once the RTPP was generated, all SHP workers from the Policentro de Parque Lefevre and the SHP teachers from the selected school were invited to attend a member check meeting. The RTPP was presented and a survey was conducted among the SHP team members to solicit further comments for future implementation of the pilot plan.

**Training of Focus Group Moderator**

No training was necessary because the focus groups were conducted by the primary investigator. In addition, a previously trained co-moderator collaborated during the first of the focus groups. The moderator (PI) and co-moderator were previously trained and certified in human subjects' research.

**Focus Groups Guide and Procedures**

Based on the research questions a focus group guide was constructed (see Appendices). This guide was pilot tested with a small sample of bilingual physicians familiar with the program. They received the guide either in Spanish or English randomly. Their suggestions were implemented to improve the guide, making the questions more colloquial and clear.

The focus groups included the health workers delivering the SHP from the Policentro de Salud de Parque Lefevre, the medical records members from the Policentro de Salud de Parque Lefevre, and the teachers from one of the schools covered by this PCHC SHP, selected purposively. This was an investigation of three of the four elements of the RTL: the health workers, teachers, and PCHC medical records personnel.

Potential participants were actively recruited to attend a meeting at a fixed time and date. Once in the meeting, they received the informed consent. They had time to read through it and ask questions or make comments. Finally, they voluntarily signed the informed consent prior to participating in the focus group. The risk of their participation was minimal.

In the focus groups, different topics were assessed: the current process for keeping record of the referrals, barriers for referral tracking, suggested solutions for these barriers, recommendations for referral tracking, defining unattended health care recommendation, and defining potential harm to a child's health when referral is not followed up. The focus group moderator asked more detailed questions about what participants mentioned as a critical point in the referral tracking process.

We examined what the participants thought might be the way to do a complete tracking of the referrals. The intent was to find a process that would allow them to obtain the number of referrals issued and referrals that result in unattended health care recommendations. In order to attain this, we needed to define when the SHP team considers that a referral outcome might result in the child not receiving the recommended healthcare service. Considerations about diagnosis and timeframe were discussed. The discussion on this topic resulted in a characterization of potential harm to a child's health.

The discussion also included how to track those referrals when recommendations are followed-up in another health care facility, as well as those that arrive at the PCHC but (for any reason) don't receive the treatment recommended in the referral.

Based on the results of the focus groups, a pilot plan for referral tracking that is easy to implement and sustainable was developed from this SHP team input. Finally, the SHP team was surveyed to solicit further comments for future implementation of the pilot plan.

**Incentives**

The participants were provided with refreshments during the focus groups. They were also invited to a meal at a member-check meeting for the presentation of the results of the focus groups. In addition, they received certificates of participation signed by USF authorities and the PI at this meeting.

**Data Analysis**

### RTL qualitative modeling

System dynamics modeling invites us to think in a new way about activities that one is already doing. Qualitative data collection and analysis are incorporated from the mental and written databases into the model building process as the main source of information, especially at the beginning of this process. The structure and variables of the initially conceptualized RTL, analyzed and formalized through systems thinking evolved as the result of the following stages:

1. *Conceptualization* of the SHP RTL began with the mental database information extracted from conversations and emails with experts in the SHP referral processes. In addition, the referral tracking procedures from the SHP guidelines were the written database used for the same purpose. These sources played both a key role in the identification of the reference mode and parameter estimation.

2. *Formulation* was the stage to build the model and to obtain the parameters to be included in the model. This was done by direct diagramming based on the reference mode and using judgmental data. The RTL model was formulated in an iterative way, gradually adding or taking out elements from the structure. The model was repeatedly contrasted and compared with the data gathered from health workers that were familiar with the SHP.

3. *Testing* required expert assessments of the model structure. These were collected through focus groups and analyzed. A final RTL model was generated from this stage.

4. *Implementation* alludes to using the RTL model in the context of the focus groups to facilitate the understanding needed from the participants to get more targeted recommendations for the generation of an RTPP. The final RTL was implemented by including it as a tool in the RTPP presented in the member check meeting. This is not about implementation of the RTPP in the SHP delivery setting.

**Transcription of focus groups**.

Focus groups were audio recorded. Focus group recordings were transcribed verbatim by the P.I. The resulting transcripts were reduced in a systematic, sequential, verifiable and continuous way (Krueger & Casey, 2000).

**Coding into themes**

We continued establishing the trail of evidence through the use of a thematic approach, allowing themes to develop, both from the research questions (definitions, current process of follow-up of referrals, successes, barriers, solutions and recommendations) and from the narrative of the participants.

According to Krueger's 'framework analysis' (1994), focus group analysis occurs concurrently with data collection. This analysis continuum includes the accumulation of raw data, finding the descriptive statements, and the interpretation. However, during this analytical process, the overlapping of its parts may take place. Framework analysis involves five key stages: familiarization, identifying a thematic framework, indexing, charting, and mapping and interpreting.

In order for the researcher to become immersed in the details and get a sense of the collected data as a whole, the tapes were listened to and the transcripts were read entirely several times. During this first stage of familiarization, major themes began to emerge. On the basis of a previously created codebook (see Appendices), categories were revised.

Once the thematic framework was identified, indexing was done by sifting the data and highlighting and sorting out the quotes. Charting was done by lifting the quotes

from their original context and re-arranging them under the newly-developed appropriate thematic content categories. Indexing and charting resulted in data reduction using the systematic process and computer-based approach acknowledged by Krueger & Casey (2000) with specialized software (Atlas-ti). Similarities and differences among groups were compared and contrasted.

Mapping and interpretation, the last of the five stages, is the one in which the quotes were analyzed to find links between them, in order to make sense of the data as a whole. To do this, Krueger (2000) established five criteria:

1.      *Frequency of responses* refers to how often a comment or view is made. This is checked on an individual basis but is even more representative on a group basis.

2.      *Extensiveness* is the depth in which participants express a particular view.

3.      *Emotions* (intensity and big ideas) point to the strength of the feelings toward the issue and the expression of large trends cutting across the various discussions.

4.      *Big picture* includes broad-based concepts, including things such as structural barriers, or communication problems.

5.      *Specificity* refers to responses that identify particular situations or problematic experiences considered to carry more weight than general statements.

The analysis of the raw qualitative data led to grouping by important topics regarding referral tracking, keeping the three different groups of SHP workers separate. There were several themes that cut across these topics. A table with this information was constructed showing the themes cutting across groups. In addition, the other themes on referral tracking intrinsic to each group of SHP workers were also listed in this table.

These themes were selected for their prominence according to the Mapping and Interpretation stage five criteria, as previously specified. They were defined in relation to the general meaning expressed by various quotes on the same topic in the same group as well as when applicable to more than one group. A quote was selected to represent the group of quotes that generated the theme. Themes, definition, and a representing quote were also set in table format to summarize this analysis.

### Inter-coder reliability

The coding of the text was assessed once the focus group transcripts were coded. The researcher and an additional coder came together and compared their respective coding to determine inter-coder reliability. Peer consultation was used to raise inter-coder reliability by comparing coded data and recoding into agreed-upon categories. There was a 100% agreement in the coding using peer consultation.

### Survey data analysis

A survey instrument with Likert scales and open-ended questions was administered, after a plan to close the loop of the SHP referral tracking was generated from the focus groups. It evaluated perceived effectiveness and feasibility for future implementation from the perspective of the SHP team. A qualitative analysis was also performed on the content of the responses of the open-ended questions. Quantitative analysis was required just to obtain descriptive statistics (relative frequency distributions). IBM SPSS Statistics $20^{®}$ software was used to perform this statistical analysis.

**The Final Referral tracking Loop (RTL)**

The mental and written databases gathered from conversations with School Health Program (SHP) experienced workers led to the elaboration of the reference mode of the referral tracking process in the SHP. The reference mode can be described as the understanding of what happens once a referral is issued in the SHP, either by a SHP worker or a SHP teacher, until it achieves its outcome. It also includes the understanding of what the outcomes are that a SHP referral can achieve.

The SHP referral process can be initiated when an SHP worker comes from the Primary Care Health Center (PCHC) to the school to deliver any of the services provided by this program, and considers that a student requires a health service that cannot be provided at school. Also, if a teacher observes a health problem in the classroom, an SHP referral can be issued by the teacher.

Once the referral has been issued, it is delivered by the teacher to a caregiver. The first referral outcome is that the parent does not follow-up with the referral, keeping the child from receiving the required attention. At this point of the study, we also thought that it could mean that the referral does not get to a caregiver's hands. If the referral is followed up by the caregiver, one out of two things could happen. The caregiver can follow-up the referral by taking the child to get the required attention at the PCHC that corresponds to the SHP from which the referral was issued. Or, the caregiver might find

it more convenient to take the child to another PCHC different from the one corresponding to the SHP from which the referral was issued. But, even though a caregiver takes the child to a PCHC, it does not mean that the required attention will be received.

In the initial RTL, referral outcomes such as "referral not received by the parents," "referral received but not followed-up," and "went to PCHC but did not receive attention," were classified as "unattended healthcare recommendations" that could potentially result in "harm to a child's health." These are the negative outcomes of the RTL. Whereas "referral follow-up completed in another place" and "referral follow-up completed at the PCHC" are the positive outcomes.

At each of these critical points of the SHP RTL when a referral is issued or achieves an outcome, it is necessary to register the result so that each referral can be tracked through the loop. This understanding is the baseline for the generation of a Referral Tracking Pilot Plan (RTPP) and the obtainment of Referral Outcome Rates (ROR).

After conceptualizing a reference mode, as described above, the next stage of qualitative modeling resulted in the formulation of the RTL structure and referral outcome parameters. The first version of the RTL was developed in two steps. The first step consisted of diagramming that conceptualized the reference mode (See Figure 1). The second step was to include the changes suggested by a small group of eight health workers that were familiar with the SHP to make it clearer for the testing stage.
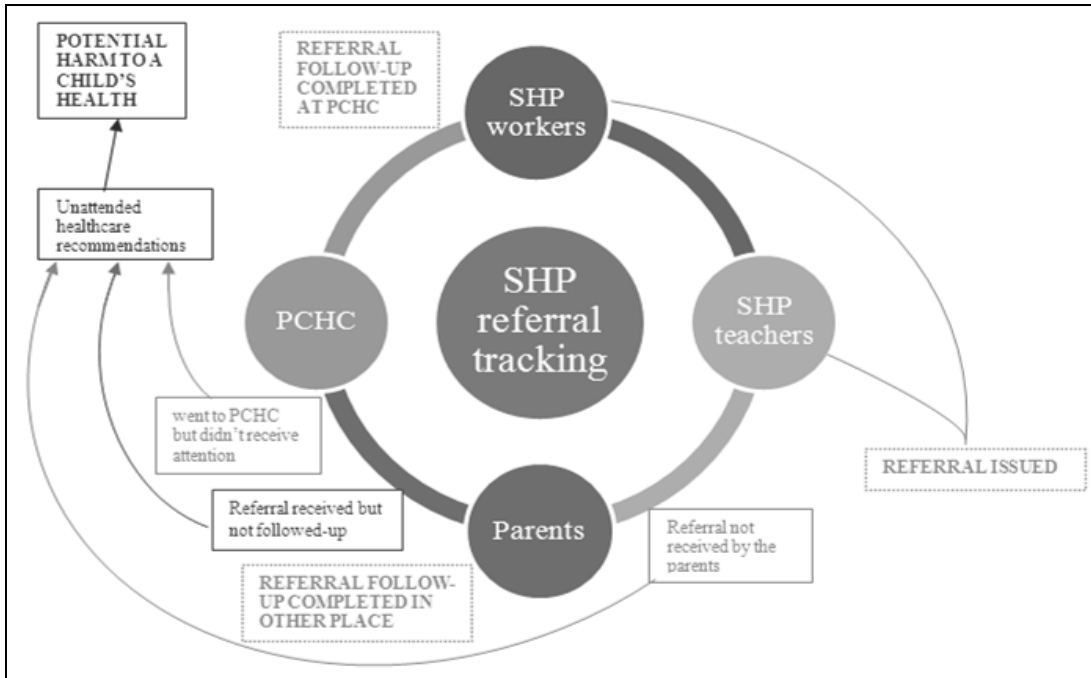
**Figure 1**. Formulation of the RTL. The first step consisted of diagramming the conceptualization of the reference mode.
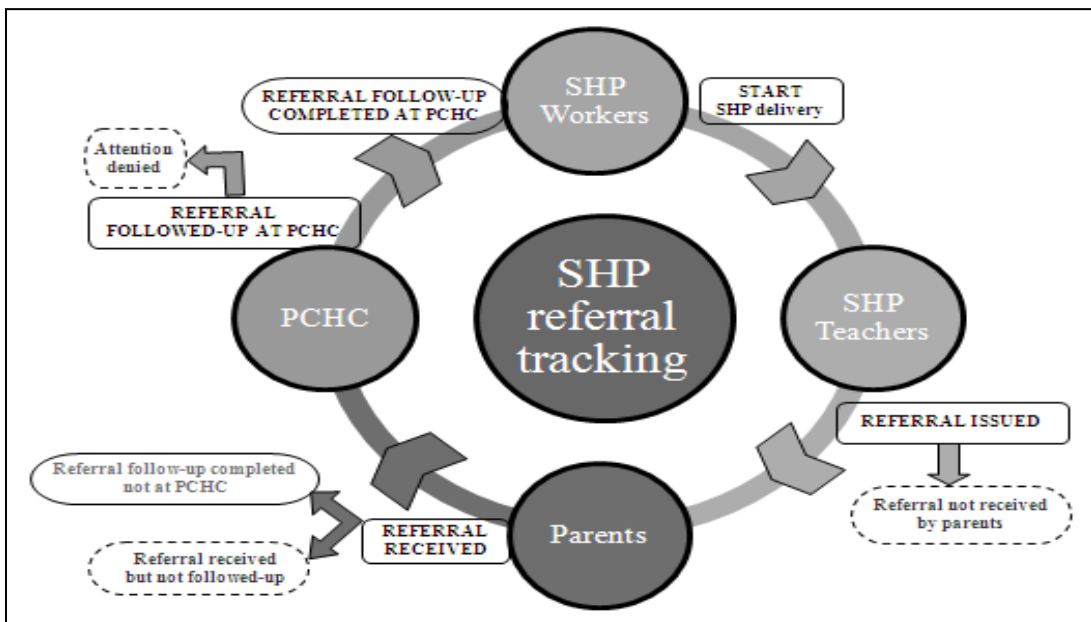


**Figure 2**. Version of the RTL after testing. The second step was to include the changes suggested by a small group of eight health workers that were familiar with the SHP to make it clearer for the testing stage.

The resulting model (See Figure 2) can be explained as follows: The SHP RTL is carried out by the groups represented in the circled figures, with the rectangular boxes next to the circled figures displaying the processes that take place. The solid line round boxes show the positive referral outcomes and the dashed line round boxes show the negative outcomes (unattended health care needs/potential harm to a child's health).

Then, the initial RTL was tested in focus groups with SHP team members (health workers, teachers, and medical records personnel). This revealed some information that changed the structure and outcome parameters of the RTL in important ways (See Figure 3). In the first place, one negative outcome, "referral not received by the parents," was eliminated since in the focus group with the teachers it was firmly stated that the referral will always be delivered to a caregiver only and directly by the teacher.

The other change came out of the focus groups with the medical records personnel. They repeatedly said that denying the appointment once a caregiver approaches the Pediatric medical record window with a referral from the SHP was prohibited by law. They also insisted that it was not their responsibility if the appointment was postponed by the health worker. Consequently, the negative outcome "postponed attention" was moved in the RTL model to a position to better represent this occurrence.

Three focus groups were held, two of them at the PCHC (Policentro de Parque Lefevre), one with six health workers, the other with six medical records personnel. The third focus group was held at the selected school with ten teachers. The RTL model obtained from the formulation stage (See Figure 2) was used during the focus groups to explain what we meant by referral tracking, what the questions that the study wanted to

answer were, and to elicit targeted recommendations regarding referral tracking and referral outcomes from them. The final version of the RTL (See Figure 3) was implemented by including it in the RTPP as a summary tool, useful to capture the referral outcomes in a visually attractive way and to get the ROR.
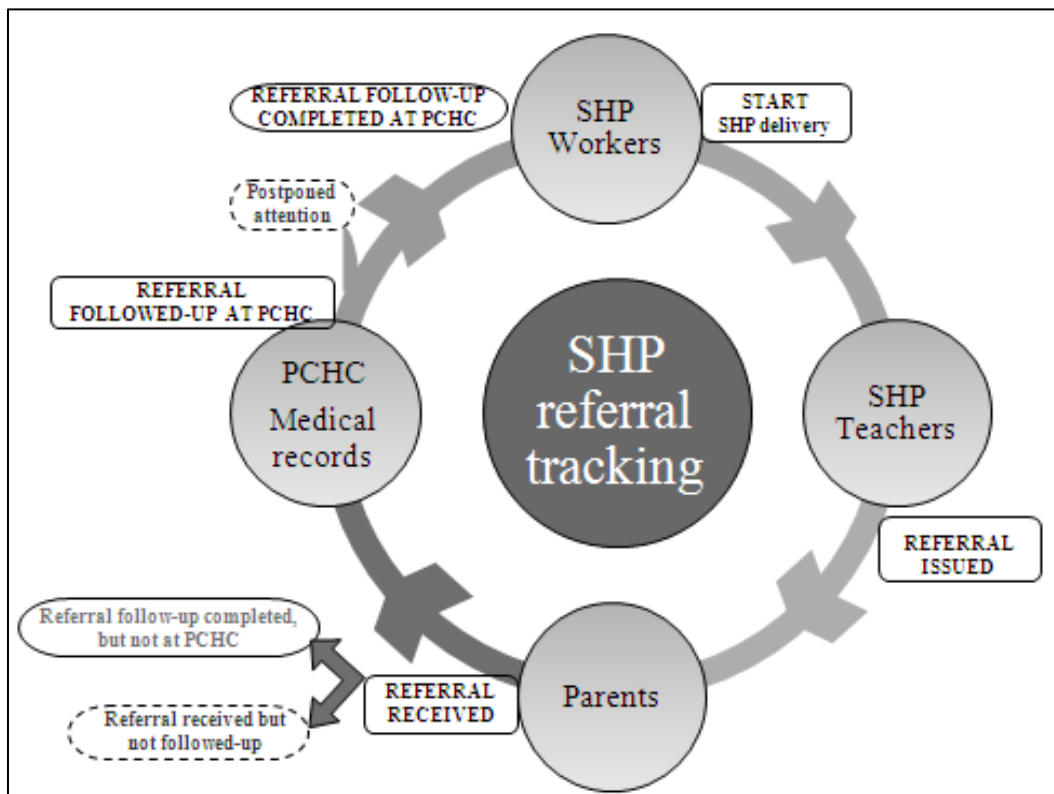


**Figure 3**. The final RTL. The changes made from the first version were two: elimination of one negative referral outcome (referral not received by the parents) and changing and moving the negative referral outcome "attention denied" to "postponed attention."

The analyses applied to these data were focused on getting an RTPP, although participants would sometimes extensively talk about other topics related to the SHP in general. To keep them focused, once we familiarized them with the content of the transcripts, we first identified our thematic framework, the referral tracking.

**Main Topics and Themes Related to Referral Tracking by Groups**

After familiarization and thematic framework identification, framework analysis of coded transcripts was originated, such that indexed and charted quotes were classified in four major topics related to referral tracking. This was done for all of the three different SHP team groups. Then, by topic and by group, thematic content categories were developed. This resulted in considerable data reduction that permitted easy comparison of similarities and differences among groups. The comparison of the different themes by topic and by group can be seen in Table 1.

**Current process**

Regarding the current process for referral tracking, the health workers expressed the lack of a clearly established procedure to know how many referrals are issued in different ways. They said that although there is a page to register the referrals that they issue at the school, reporting of the number of referrals issued is not being done. They also mentioned that they believe that even if these referrals number were reported, it would be harder to get a report of the number of those issued by the teachers.

About reporting numbers of referrals received at the PCHC, health workers said that currently these data are not even being registered in a way that facilitates acquiring a report. Therefore, in order to get a report of the numbers of referrals received, first establishing a procedure to register these referrals is needed. In addition, it was repeatedly stated that one thing making SHP procedures to lack systematization is a human resources need.

A special case, was mentioned however, of health workers (Dentists) that do register both the referrals they issue at a school and which of these come to the PCHC. But even in this case, they do not report the numbers. They added that this is possible in the case of this service because they themselves keep records of the referrals they issue at a school and receive at the PCHC; whereas in the case of other services, it is more common that different members of the SHP team issue referrals, including teachers. Moreover, the person that receives the referral is not necessarily the same that issued it. All of these factors exposed by the health workers show how lacking the systematization of SHP referral related procedures are currently, while they contribute to non-reporting as well.

Medical records personnel said that currently they proceed with SHP referrals by guaranteeing appointment. They categorically denied that they reject a patient that comes to the PCHC with a SHP referral. However, they explained that health workers could postpone a specialized attention for diverse reasons, but not them. Nevertheless, every time they receive an SHP referral, they do not report it anywhere. But they do register it in the clinical chart.

What teachers said about the current SHP referral procedures is that they do not keep records of referrals issued; however, since a teacher has around 30 students under her charge, she/he is usually aware of which of the students in the classroom got a referral. In addition, a copy of every referral issued by a teacher is saved in the student's school record. Regarding referral tracking, variations were mentioned depending on each teacher. One thing they firmly stated is that once a referral is issued, it will always be delivered to a caregiver, directly into their hands.

**Barriers to referral registration and tracking**

In reference to barriers, all of the groups mentioned different components they thought were missing in order to achieve complete referral tracking in the SHP. Human resources, materials, procedures, and specific information were some of the components that the groups determined were missing. The group of health workers additionally expressed that the sense of excessive work burden from the SHP and, on the other hand, the sense of a lack of utility of the information generated from that extra work, could influence their attitude towards the SHP referrals registration and tracking activities.

The health workers specifically mentioned the need for a form that would contain basic information from each referral issued to keep records. Another missing component according to health workers was a secretary or other human resource to exclusively take care of managing the information generated from the SHP activities such as the referral related activities. They also talked about the need for a way to report the number of referrals received at the PCHC coming from its own SHP.

Medical records personnel considered that lack of the materials they needed to appropriately carry out the SHP referral related activities is the major "missing component" in their specific case. However, they did mention lack of human resources as a potential threat to complying with SHP activities, given all of the responsibilities confronted at the Pediatrics window.

The teachers' opinion was that they needed both PCHC and school SHP work groups to remain "on the same page" regarding information sharing. The other missing component they were concerned with was a way to know when a referral achieves an

outcome different than being received at the corresponding PCHC (e. g., not followed-up or completed at another health center).

### Barrier solving recommendation

There was a general recommendation that action to improve team communication and team collaboration within and between groups was much needed. The health workers said on this regard that coordination between health and education sectors was necessary at all levels: local, regional, and national. In the opinion of medical records personnel, however, meetings every certain period of time between all the groups involved in the SHP at the local level are needed. The teachers' recommendation was focused on information communication about the referrals' status between health workers and teachers.

Health workers also mentioned that the program guidelines needed to be updated. Some details in the forms needed improvement. Also, it was important for them that the information that is required according to the SHP guidelines is adapted to the current reality and useful.

### RTPP and/or ROR recommendation

All of the groups gave specific recommendations that would serve as operative solutions to be included as part of a pilot plan to obtain referral registration records, reporting of numbers of referrals issued, referral outcomes, and finally, referral outcome rates. In summary, these are the recommendations specific to achieve complete tracking of the SHP referrals.

PCHC workers (health workers and medical records personnel) recommended, in the first place, the incorporation of a records book. The utility of this will be registering the SHP referrals that are received at the medical records window. Keeping records this way will permit that a number of SHP referrals received at the PCHC can be reported. Only those that come with a referral from the SHP of the corresponding PCHC, name, I.D number, school of origin, department where the referral is directed to, among some other basic information, would be included in the records.

On the other hand, teachers said that in their case it is easier to keep a record in the classroom since every teacher takes care of their own group of students. The teachers also are very interested in having a direct communication line, a number they could call to ask if a student went to the PCHC to get the attention recommended on a SHP referral, or at least, they said, another way of verifying this information.

**Table 1**. Main topics and themes related to referral tracking by groups.

| | THEMES | | |
|---|---|---|---|
| GROUP / TOPIC | Health workers | Medical records | Teachers |
| **Current process** | Lack of systematization<br>Special case<br>Non-reporting | Guaranteed attention<br>Non- reporting | Non- reporting<br>Lack of systematization<br>Guaranteed referral delivery |
| **Barriers to referral registration and tracking** | Missing component<br>Work value | Missing component | Missing component |
| **Barrier solving recommendation** | Program update<br>Coordination | Coordination | Coordination |
| **RTPP &/or ROR recommendation** | Operative solutions | Operative solution (Record book) | Operative solutions |

RT- referral tracking RTPP-Referral tracking pilot plan     ROR-referral outcome rates

The summary in Table above shows how most of the themes related to referral tracking were found across the groups. However, as explained above, each group expressed differences within a theme as a reflection of their position in the RTL.

Next, I will explain how I made sense of all this information, including the RTL model generated up until this point (See Fig 2), to develop an RTPP to be presented to the SHP team in the member check meeting.

**Use of the Final RTL and Thematic Framework for the RTPP Generation**

As explained before, after testing in the focus groups, a final RTL was generated. The implementation of the RTL also started in the focus groups, since the version prior to the final (see Figure 2) was used to show and explain what was meant by RTL and what was the importance of having a closed referral tracking system. Its use was the key, in the focus groups, to getting such targeted recommendations for the generation of an RTPP. This first implementation of the RTL supports its usefulness as a summary tool.

As well as in the prior version, the final RTL captures the SHP referral system with its processes and outcomes at one glance (see Figure 3). We took advantage of this strength by implementing the final version of this visual aid as a summary tool for the RTPP. The RTPP generation consists in using this summary tool according to a plan based on the thematic framework (see Table 2) developed from the topics related to referral tracking in the focus groups. An initial RTPP outline was developed to present to the SHP team in the member-check meeting.

**Table 2.** Thematic framework.

| THEME | DEFINITION | ORIGINAL QUOTE | TRANSLATION |
|---|---|---|---|
| 1. **Lack of systematization** | There is no systematic process currently established for referral tracking. | *"… se habló de que iba a haber un engranaje entre MEDUCA y salud para eso, pero no sé, realmente en lo concreto, maestro qué tiene que hacer…"* | *"… it was said that it was going to be a gear between MEDUCA and Health for this, but I eldon´t know really, in particular the teacher, what has to do…" (HW)* |
| 2. **Non-reporting** | Currently, the SHP referrals are not being registered by the health workers or by the teachers when generated. Neither are they registered by medical records personnel when received at the PCHC. | *"Pero no se registra, al final, o sea, cuando ella termina esa escuela, ¿cuántos niños se refirieron? ¿Cuántos niños se refirieron a Nutrición, cuántos se refirieron a Salud Mental, cuántos se refirieron a Odontología? Ese dato no existe."* | *"But it is not registered, at the end, I mean, when she finishes that school, how many children were referred? How many children were referred to Nutrition, how many were referred to Mental Health, how many were referred to Odontolgy? That information does not exist." (HW)* |
| 3. **Special case** | Odontology service is currently the only one with an established RT process. This is possible just because the referrals are issued and received only by the same person. | *"En el caso de nosotros los odontólogos, nosotros hacemos un examen general de la boca del niño, con su nombre y su cédula, de todo el salón. Cuando yo doy la cita o la referencia, yo anoto a los niños y anoto en mi agenda a quién se las di. Y el día que vienen, sea que venga uno o vengan todos yo le pongo un ganchito a ese niño, entonces yo puedo saber de los 10 que cité, quién vi y quién no vi."* | *"In our case, the odontologists, we do a general examination to the child's mouth, with the name and the ID number, for all the students in the classroom. When I give the appointment or the referral, I write in my agenda who I gave the appointment to. And the day that they come, one by one or all of them the same day, I checkmark that child, so I can know from the ten I appointed, who I saw and who I didn't." (HW)* |
| 4. **Guaranteed attention** | Children referred from the SHP get medical attention at the PCHC without exception. Attention is never denied. | *"Tengo hasta nota del nivel regional y por eso está pegada. El departamento de registros médicos no puede decir: "se agotó cupo". Esa palabra para nosotros es sumamente borrada. No podemos decir: 'no hay cupo'.* | *"I even have a note from the Regional Level and that's why it is stuck. The Medical Records Department cannot say: 'no doctor's appointment available.' This word for us is extremely deleted. We cannot say: 'no doctor's appointment available.'"(MR)* |
| 5. **Guaranteed referral delivery** | Referrals issued at school are delivered by the teachers to the parents without exception. | *"P: Siempre llega* (la referencia). *M: ¿Siempre llega? P: Sí porque nosotros se lo damos directamente a él. Nosotros no se lo damos al niño, al padre de familia. M: ¿Eso varía por escuela o es así en todos lados? P: Es así en todos lados. P: Debe ser así porque ese documento por llamarlo así, no puede dárse al niño: "llévaselo a…". Hay que directamente dárselo al papá."* | *"P: It always gets there* (the referral). *M: Does it? P: Yes, because we deliver it directly to him. We do not give it to the child; we give it to the parent. M: Does it change by school or is it the same everywhere? P: It is the same everywhere. P: It must be like that because this document to call it in this way, it cannot be given to the child: 'Here you have it, take it to …' It must be given directly to the parent."(T)* |
| 6. **Missing component** | An element (human resource, procedure and/or document) that has been identified as a barrier to achieve complete registration and tracking of the referrals (by service in the PCHC and by classroom in school). | *"Hace años había un formulario de referencia, cuando yo inicié en el metro donde estaba: referido, motivo por el cual se refería, que tenía pero yo no sé qué pasó con ese formulario, pero existía."* | *"Years ago there was a referral form, when I started* (working) *in the Metropolitan Area that had* (the form)*: referred, the reason why he/she was being referred, but I don't know what happened to that form, but it existed."(HW)* |
| 7. **Work value** | Perceived imbalance between the workload and the impact of that work acting as a barrier by influencing health workers' attitude towards the SHP referrals' registration and tracking activities. SHP workers have expressed disappointment regarding the work value of the SHP. | *"…se hace el informe, se manda y no se toma en cuenta. Porque si vieran el informe se darían cuenta que abajo esa casilla está vacía. Cuántos referidos llegaron de la escuela, se va vacía."* | *"…the report is made, it is sent and it is not taken into account. Because if they saw the report they would realize that the grid from the bottom is empty. How many referred came from the school, is sent empty* (this grid)*." (HW)* |
| 8. **Coordination** | Actions that were mentioned by all groups of participants regarding the need for team communication and collaboration within and between groups in order to achieve complete track of the SHP referrals. | *"…yo acepto que necesitamos más comunicación de ambos lados... Por otro lado que nosotros manejáramos si fue o no fue* (a la cita). *No por parte del padre de familia sino por parte de la misma institución, siento que sería fabuloso."* | *"…I accept that we need more communication from both parts... On the other side, that we could know if he/she went or not* (to the appointment). *Not from the parents, but from the institution, I feel that that would be fabulous" (T)* |
| 9. **Program update** | Revising and to bring up to date the program guideline, forms and indicators for the final report in order to improve the existing procedures and materials, and to add missing components and work value to SHP referrals' registration and tracking activities as expressed by the health workers. | *"No hay, no hay esa alimentación y esa utilización de una información que hay. Entonces creo que así, realmente, algo, que si se revisa la norma, se actualiza y se va haciendo según la realidad, creo que también es algo que favorece."* | *"There is not, there is not this kind of feedback and the use of existing information. Then, I believe that, really, something, if the norm is checked, is updated and it is shaped according to the reality, I think it would be something favorable." (HW)* |
| 10. **Operative solutions** | Specific recommendations that could be easily and systematically applied on a daily basis to achieve complete tracking of referrals and obtaining referral outcome rates. Also includes planning and evaluation efforts. | *"El desarrollo del plan piloto para el rastreo de referencias y la obtención de tasas de destino final ayudaría, pero necesita algo más. Esto puede ser, agregar los números al diagrama y una leyenda al pie del diagrama con explicaciones."* | *"The development of the pilot plan for referral tracking and the obtainment of referral outcome rates would help, but it needs something more. It could be to add the numbers to the diagram and a legend at the foot of the diagram with explanations." (HW)* |

**The Initial RTPP Outline**

A document containing clear indications for systematic application of the RTPP will be written in Spanish and formally delivered to the authorities in Policentro de Parque Lefevre. The objectives of an RTPP for the SHP are: to facilitate referrals registration, to achieve complete tracking of the referrals to get referral outcomes, and to obtain referral outcome rates. To accomplish these, the experiences of members of one SHP were used to elaborate an RTL model (see Figure 3) and to build a thematic framework (see Figure 2) as explained in previous sections. The final RTL was transformed to a reporting sheet (see Figure 4) by including around the model the parameters needed to obtain referral outcome rates. The following is an outline of the generated RTPP.

**How to facilitate SHP referral records (registration and reporting)?**

Referral registration needs to be addressed at two different issuing times. Both occur at the school but one happens when the health workers are delivering the SHP services; the other time is whenever a teacher considers that a referral needs to be issued. The first item in the 'SHP Referral Tracking Report Sheet (RTRS)' (see Figure 4) refers to this first critical point in the RTL.

Currently, when an SHP referral is issued by a teacher, no registration and/or reporting procedure is carried out other than making a copy for the school chart and making a note on the ID number of the student.

> *"...we do not handle statistics. Simply, the Health Center has asked us to write down the ID number. But we do not handle statistics here." (T)*
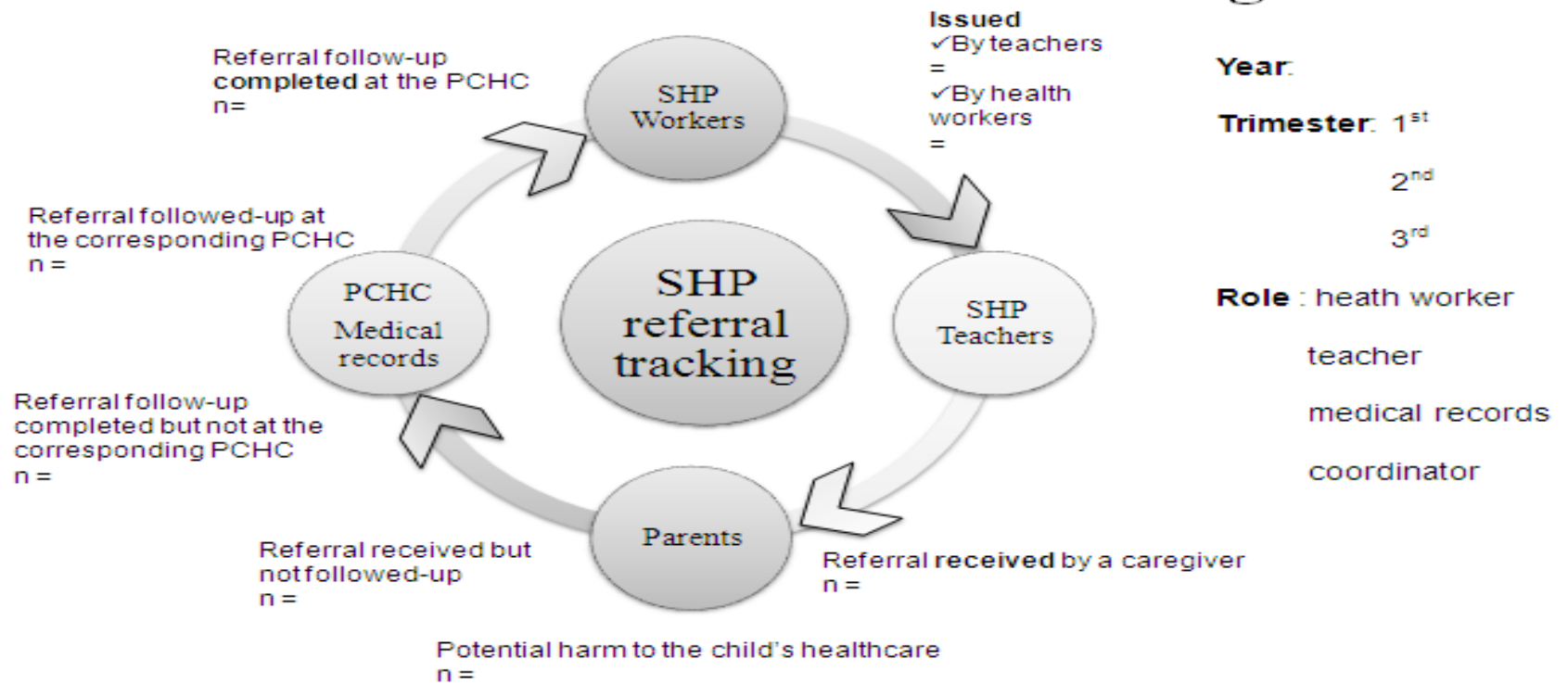
**Figure 4**. The SHP Referral Tracking Report Sheet (RTRS).

However, they also make a note of the referral's issuing date, and each teacher (regularly handling a group of around 30 students) is aware of which of her/his students got a SHP referral. But this information is not being registered or reported to the SHP, only kept as a personal note.

> *"...we do make a copy of the referral and there it goes the date. From the school chart you can tell the amount of students... the amount of referrals that we have issued." (T)*

> *"I referred around fifteen students, ten students... I mean, one personally takes a note on it, because one can identify them; one knows how many students have problems and to how many persons you have referred." (T)*

On the other hand, when the referral is issued from the health worker side, they necessarily have to register it in a SHP records sheet. What they do not register anywhere is a number of how many students they have referred.

> *"But it is not registered, at the end, I mean, when she finishes that school, how many children were referred? How many children were referred to Nutrition, how many were referred to Mental Health, how many were referred to the Dentist? That information does not exist."* (HW)

According to the thematic framework, a missing component that the SHP team has identified regarding this critical point is that a way needs to be found in which both teachers and health workers are aware of a referral issued by either part of the SHP team. This component should be able to unify the information generated by both parts of the team at different times.

> *"... for me, that depends on the Health Center and I am going to explain why. If we are sending them, if there is no control, neither from their part nor from ours, then I believe that we are not speaking the same language." (T)*

Since the RTL was suggested as an operative solution to be implemented as a summary tool, for tracking purposes of numbers of SHP referrals only, issued referral

numbers, in this particular case, can be reported by both teachers and health workers in the 'Referral numbers report sheet for the SHP referral tracking.'

> *"The development of the pilot plan for referral tracking and the obtainment of referral outcome rates would help, but it needs something more. It could be to add the numbers to the diagram and a legend at the foot of the diagram with explanations."* (HW)

As explained earlier, this would occur at different times, but now both teachers and health workers would be able to unify their information easily, since they will have at hand the same tool to summarize their work. By registering on the back of the report sheet the same basic information and reporting the numbers on the front, obtaining the SHP referrals issued will be greatly facilitated for both tracking and follow-up.

**How to achieve complete tracking of the SHP referrals to obtain referral outcomes?** Following the RTL in the 'SHP RTRS' (see Figure 4), it can be seen that the next step in tracking SHP referrals is to report that the referral got to the parents' hands. From our thematic framework, regarding this part of the loop, teachers assured that they themselves deliver the referral directly to the caregiver:

> *"P: It always gets there* (the referral).
> *M: Does it?*
> *P: Yes, because we deliver it directly to him. We do not give it to the child; we give it to the parent.*
> *M: Does it change by school or is it the same everywhere?*
> *P: It is the same everywhere.*
> *P: It must be like that because this document to call it in this way, it cannot be given to the child: 'Here you have it, take it to ...' It must be given directly to the parent."* (T)

However, to keep tracking records objective, we choose not to assume that the first number reported (referrals issued) will be the same as 'referrals received by a

caregiver.' This number can be easily reported by the teachers by classroom and the date written as part of the information in the back of the report sheet.

Once referrals issued and received are made reportable by this system, we have achieved tracking the referral half the loop. To complete referral tracking a referral needs to be tracked to its ultimate outcome in the SHP RTL, whether it is received at the corresponding PCHC. In the thematic framework it was defined that if a caregiver comes with an SHP referral to the PCHC, the attention is guaranteed according to medical records personnel.

> *"I even have a note from the Regional Level and that's why it is stuck* (in the wall)*. The Medical Records Department cannot say: 'no doctor's appointment available.' That word* (phrase) *for us is extremely deleted. We cannot say: 'no doctor's appointment available.'" (MR)*

A key operative solution that was identified to obtain records of SHP referrals completing the RTL at the corresponding PCHC is to have an SHP referrals record book where medical records personnel will register the SHP referral recipients coming to the PCHC:

> *"If we comply with the record book a 100 %, we are going to achieve what we want; we can really get the fruit that we want from that. Yes, we can, because it can be done. I know that, well, I want you to take the message on behalf of the medical records department, that we will do it."* (MR)

Once the referrals get to the PCHC and they are registered, getting the numbers for 'referral followed up at the corresponding PCHC' and the 'referral follow-up completed at the PCHC' is just a matter of periodically counting them from the record book and filling the corresponding spaces in the 'RTRS.' These two referral outcomes should ideally be obtained by direct communication between institutions and information sharing, made easier through the report sheet. This was highlighted in the thematic

framework especially by teachers who expressed that they preferred to obtain this information from better coordination with the health workers than from "chasing the caregiver" to get it:

> *"Rather it is what we need because actually sometimes we do not realize if he/she went or not* (to the PCHC). *That way we can be sure, it is better that there is a bridge of communication. "(T)*

> *"...I accept that we need more communication from both parts... On the other side, that we could know if he/she went or not* (to the appointment). *Not from the parents, but from the institution, I feel that that would be fabulous" (T)*

However, there are other referral outcomes that cannot be obtained through better coordination and communication between institutions, since they depend on decisions that are made by the caregivers that keep them from going to the PCHC. A caregiver can decide not to follow up a referral or to follow it up at another PCHC. A referral can be tracked to any of these two outcomes only by asking to the caregiver directly about it.

Recording a combined number for these two latter outcomes in the reporting sheet can also be obtained by subtracting the number of the referrals reported at medical records in the PCHC record book from the number of referrals issued. But, in order to separate which referrals correspond to a particular outcome, directly questioning caregivers by the teachers is needed.

**How to obtain the SHP referral outcome rates?**

Once the report sheet is completed, obtaining ROR can be done by dividing each referral outcome by the total of referrals issued in the selected time period.

> *"... and it is a lot of work, because it is extra work that we have. Coming to the SHP does not mean that this day we are just going to work on SHP.* (They all agree) *It would be to see the SHP in addition to what we have to do in our daily journal." (HW)*

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*" ... I think that a barrier is the human resource. If there was a secretary exclusive to the SHP, when those clinical charts arrive, this secretary is going to check how was it and among other things she would write: this child from such classroom, such school, was referred to psychology by "X" causes. This is one of the reasons, my thought; it seems to me that it might be a human resource barrier." (HW)*

**How to determine cases in which the child health can be harmed?**

The next step in the RTPP will be then, just a matter of setting periodical meetings. It was suggested that these meetings be held once every school trimester ends (three times a year), at the beginning of the next trimester. The teachers mentioned that they consider that if after four weeks of a referral being issued the child has not received the referred attention, it is assumed that the referral will not be followed up.

On the other hand, the health workers believe that no matter what time frame a referral form is issued, or what severity or type of diagnosis, once a referral is issued, it requires immediate attention or it is already an alert of potential harm to the child's health.

*"I think that from the moment I issue a referral, it is because I know that if this disease is not treated, it is going to bring a sequel." (HW)*

The trimester period gives time to the teachers to talk to the caregivers that have not brought the child to the PCHC according to the Medical Records SHP referrals record book. The teacher talking to the parents is the only way to know the numbers for referrals that the caregivers decided not to follow up or to follow up at another PCHC.

In these trimester meetings, PCHC workers as well as teachers will need to bring their respective SHP referral tracking reporting sheets to share information missing for each of them that was collected by the others. For instance, health workers will receive

the information regarding referrals issued by teachers, and teachers will receive information about the referrals received at the PCHC.

Having a completed SHP RTRS, the ROR can be obtained. Finally, a rate for potential harm to a child's health can be determined from adding up the negative outcome numbers and dividing this number by the number of referrals issued.

## Other Themes

Other themes, not directly about referral tracking but about related topics, emerged spontaneously. These reflect other worries that the SHP consider important, essentially with regard to better delivering the SHP and getting better outcomes from it. Since we are limited by the scope of the study, we proceed to mention them briefly as other themes.

### Healthcare authority

One barrier identified by the teachers was the parents' attitude towards referrals issued by teachers. It is important to establish and follow clear SHP team criteria for referral issuing, tracking, and follow-up.

> *"Also that the Health Center involves a bit more by offering talks for the parents, selecting a small group of those having more problems here in the school. And inform the parents regarding why to bring the child."* (T)

> *"Well, and it is true, as my workmate says, educating the parents, because they are often wrong and they judge us, the teachers."* (T)

**Follow-up**

There is a parallel process taking place while the referral is moving through the RTL. This parallel process includes all the related to factors influencing the referral outcome. The main factor mentioned by both PCHC workers and teachers was the parents.

> *"That's where the problem is, the parents almost never bring the children to the appointment... The teachers, at least, if the child falls from its feet or something, they themselves bring the child from the school with the referral filled up for attention and they go to the Emergency Room. But then, why does the parent not bring the child? That is where the problem is."* (HW)

> *"Sometimes the teacher gives the referral, because it happens to me they give the referral and the parents either dump it, lose it, do not bring it (-or it does not come –* in the background*). Or if they come "yes teacher, but right now I do not have a clue where the referral is"; and that happens to a plural number of persons. So, it is a pattern."* (HW)

Another important issue related to follow-up repeatedly mentioned was communication between the different groups of the SHP team. For example, the difficulty that teachers face in knowing what changes to implement in the classroom to better help a child, especially when referred to the Psychology service.

> *"... suggestion: the Doctor should send a note back, as we do it, he should send a note back for us to know if the student was actually attended and what are the guidelines we must follow to treat that student inside the classroom; but they do not do this."* (T)

Apparently, there is an unsatisfied need for a Psychologist exclusive to the SHP as a result of a growing demand for this service.

> *"...one of the recommendations is that a Psychologist is hired to work only in the schools or one per school, which is like asking..., for a utopia."* (T)

Another interesting finding regarding follow up is that teachers have developed individual techniques as making the appointments instead of waiting for the parents to make them. In contrast, other teachers have used coercive methods, such as not letting the student come to the classroom unless the student brings proof of the appointment made.

> *"...when she comes here* (to the school)*, she comes with all the appointments and she delivers them: "Fulanito, this day is your appointment, Sutanito, this day is your appointment." So as a result, there is no way to say that 'I am not going to take him/her' because even the appointment has been set for you..."* (T)

> *"I am one who gives follow-up to the referrals and I would rather go, as the Teacher says, by the coercive way, 'you* (the caregiver) *bring it and I welcome the child back because he/she is being problematic in the classroom.' Because I believe that if I do that job, it implies that I am taking a responsibility away from the parents by me going to get the appointment, and me going to look for the referral, when that is their responsibility."* (T)

### Incorrect procedure

The medical records personnel described a problem with not using the correct clinical chart, which according to the SHP guidelines is not the PCHC clinical chart but the SHP clinical chart.

> *"...for me, it should be used the chart of the program, the SHP's one, that chart is not being used, another is."* (MR)

### SHP Team Perceptions on RTPP Future Effectiveness and Feasibility

The initial RTPP outline presented to the SHP team in the member-check meeting was assessed for their perceptions of its effectiveness to achieve complete tracking of the referrals issued. Perceptions of its effectiveness to get the parameters needed to obtain the ROR and on its feasibility for future implementation were assessed as well.

The respondents were 36% health workers, 16% medical records personnel, 28% teachers, and there were 20% of the respondents who did not identify their role. The following pie chart (see Figure 5) illustrates this distribution.
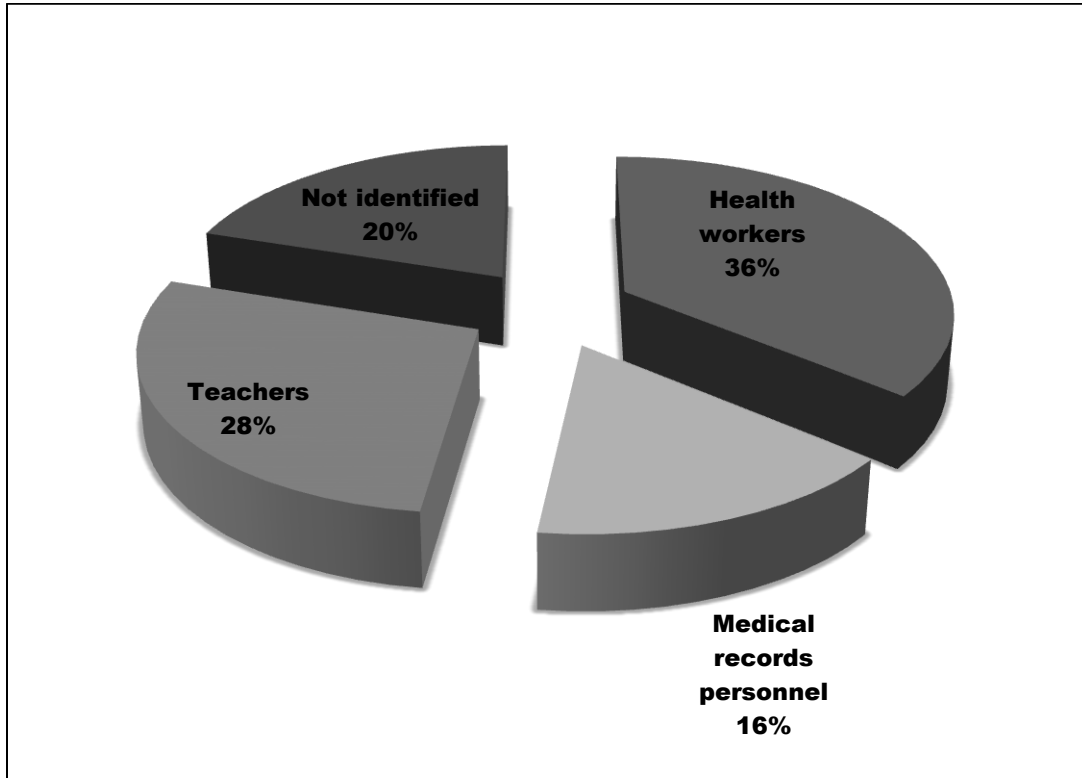


**Figure 5**. Survey respondents role.

The survey consisted of 11 Likert scaled (from one to five) questions that had additionally two opened questions: "Why?" and "What would you change?" Ten out of the eleven questions asked about perceived effectiveness of the RTPP. The last one questioned about perceived feasibility for future implementation of the RTPP. To facilitate the understanding of the results, questions were divided in four groups (see Table 3): those that obtained always five in the Likert scale (really effective), those that obtained equal or greater than four in the Likert scale (effective), those that obtained less

than four in the Likert scale (not necessarily effective), and those that were not answered once or twice.

There were two questions (1 & 3) that obtained five in the Likert scale without exception (100% of the cases): "The RTPP will be effective in **counting the number of referrals issued**" and "The RTPP will be effective in **achieving complete tracking** of the referrals issued by the SHP." This result implies that all of the respondents perceive that the RTPP will be very effective in getting the report of the number of referrals issued, as well as in achieving complete tracking of the referrals.

The questions (2, 5, 7, 9, & 11) that obtained equal or greater than four in the Likert scale were as follows: "The RTPP will be effective in **making it easier to keep records of referrals**," "The RTPP will be effective in obtaining **rates of referrals received by the parents or caretakers**," "The RTPP will be effective in obtaining **rates of referrals for which parents or caretakers bring child to the PCHC but didn't receive the attention**," "The RTPP will be effective in **obtaining rates of referrals for which the health care recommendation was met in the corresponding primary care health center (PCHC)**," and "It is **feasible** to use the RTPP in a daily basis during the SHP delivery."

Therefore, all of the respondents perceive that the RTPP will be effective in keeping records of the referrals such as referrals received by a caretakers, referrals for which a caretaker bring the child to the PCHC but did not receive the attention, and referrals for which the healthcare recommendation was met in the corresponding PCHC; they also perceive that it is feasible to use the RTPP on a daily basis during the SHP delivery.

The following three questions (4, 6, & 8) obtained twice, less than four in the Likert scale: "The RTPP will be effective in obtaining **rates of cases in which the child could be harmed by non-follow-up**," "The RTPP will be effective in obtaining **rates of referrals for which the health care recommendation was met in another health care facility**," and "The RTPP will be effective in obtaining **rates of referrals received but not followed up by parents or caretakers**." But, the following question (10) obtained, just once, less than four in the Likert scale: "The RTPP will be effective in **obtaining referral outcome rates (ROR).**"

From the paragraph above, it can be said that not all, but most of the respondents perceive that the RTPP will be effective in obtaining referral outcome rates (ROR) in general and specific rates such as the rates of cases in which the child could be harmed by non-follow-up, rates of referrals for which the health care recommendation was met in another health care facility, and rates of referrals received but not followed up by parents or caretakers.

Among the previous groups, except for the group of those that obtained five in the Likert scale in one hundred percent, most of the questions (2, 5, 6, 7, 8, 9, 10, & 11) were not answered once or twice; for 3.6% of not answered questions (see Figure 6).

**Table 3**. Scaling and scoring by question number.

| Question | Scaling | Scored 5 | Scored 4-5 | Scored <4 | NA |
|---|---|---|---|---|---|
| (1) The RTPP will be effective in **counting the number of referrals issued.** | All Strongly agree | 100% | | | |
| (3) The RTPP will be effective in **achieving complete tracking** of the referrals issued by the SHP. | | 100% | | | |
| (2) The RTPP will be effective in **making it easier to keep records of referrals.** | All Strongly agree and Agree | | 96% | | 4% |
| (5) The RTPP will be effective in **obtaining rates of referrals for which the healthcare recommendation was met in the corresponding primary care health center (PCHC)**. | | | 96% | | 4% |
| (7) The RTPP will be effective in obtaining **rates of referrals received by the parents or caretakers**. | | | 96% | | 4% |
| (9) The RTPP will be effective in obtaining **rates of referrals for which parents or caretakers bring the child to the PCHC but didn't receive the attention**. | | | 92% | | 8% |
| (11) It is **feasible** to use the RTPP in a daily basis during the SHP delivery. | | | 96% | | 4% |
| (4) The RTPP will be effective in **obtaining referral outcome rates (ROR).** | Most Strongly agree and Agree | | 92% | 8% | |
| (6) The RTPP will be effective in obtaining **rates of referrals for which the healthcare recommendation was met in another health care facility**. | | | 88% | 8% | 4% |
| (8) The RTPP will be effective in obtaining **rates of referrals received but not followed up by parents or caretakers**. | | | 88% | 8% | 4% |
| (10) The RTPP will be effective in obtaining **rates of cases in which the child could be harmed by non-follow-up.** | | | 88% | 4% | 8% |
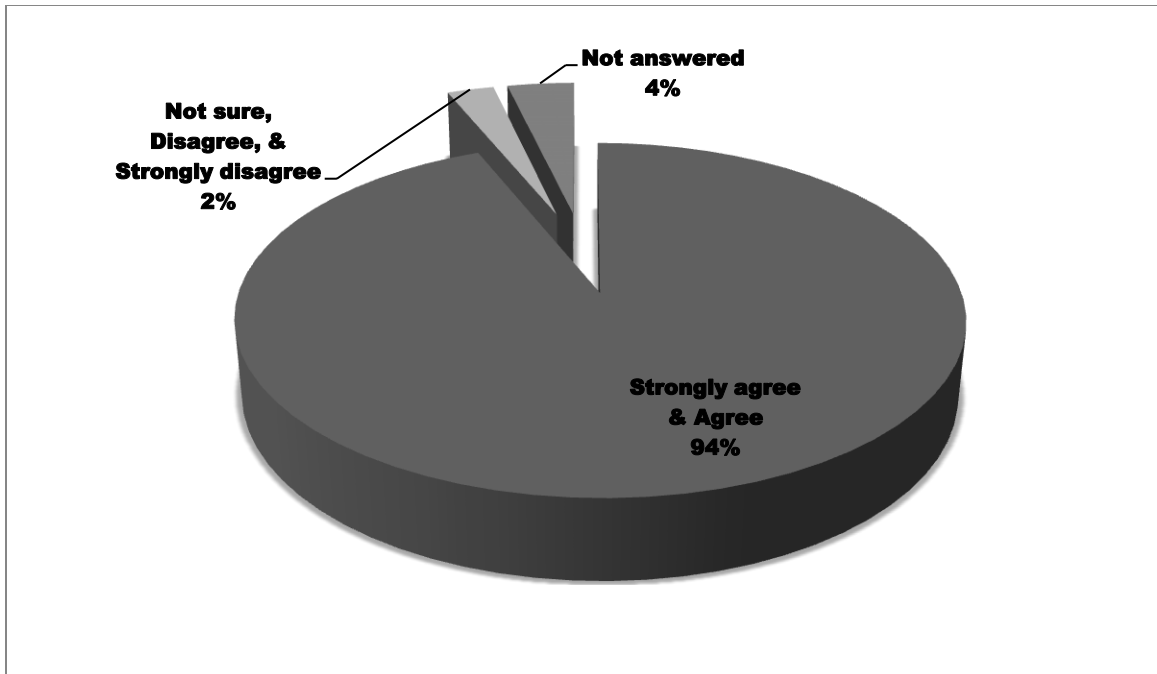
**Figure 6**. Summary of answers.

## DISCUSSION

**Conclusion**

This is a study particularly developed with the intention of planning for future implementation of a pilot for referral tracking in an ongoing program, based on the experiences, recommendations, and needs expressed by the team members of the program. The main goal was the development of practical, simple, and useful tools that the SHP workers could identify as easy to use, time-saving, beneficial, and worthy of being used on a daily basis for keeping referral records, referral tracking, and the generation of referral outcome rates.

Initially, this study generated an RTL (Referral Tracking Loop) to aid in the creation of an RTPP (Referral Tracking Pilot Plan) with the SHP (School Health Program) team input to be tested afterwards. The RTPP is intended to be an "alive system" that will be responsive to periodic input to make it more effective, feasible, and easier to implement. This input can keep it evolving until it fully meets the needs of the SHP workers to show the suspected poor achievement of the desired referral outcome (completion of the RTL). If so, this would reflect a failure of the early prevention efforts for which the at school referral issuing procedure exists at schools. It will also reveal, through the outcome rates of each referral outcome, what is the priority for targeting corrective actions.

This research project benefits most the SHP team, which struggles day-to-day to gather the data required to show the results of their efforts. Development of a plan to improve the quality of the data collected for referral tracking during the delivery of the SHP and defining the cases of potential harm to a child's health is a first step needed that may also benefit the population served by the SHP. The children in school will be the ultimate recipients of increased efforts to contribute to alleviating any problems coming to light from improved data collection.

**Limitations**

The research methods and design required to develop a pilot plan is quite labor intensive. Interviews to key informants included in the initial design after the focus groups and before the member-check meeting were eliminated. The collection of these data would have allowed for insights about the mental models of experts in the SHP referral processes. The richness and details that these would have brought to the modeling process to challenge and/ or complement the RTPP was sacrificed, since there were very limited funds to conduct this research, the research team was very small, and most of the study procedures had to be carried on by the P. I. in a very short period of time.

**Recommendations**

Going back to SHP guidelines it says: "It has to be taken into account that in regard to the health of the elementary school aged children, parents and teachers have the opportunity to capture early any risk factor that could affect the child's health and that way direct the child to the corresponding health center. This is why the role of the triad

health, education, and family is so important." The development of the RTPP refers us back to the spirit for which the SHP was originally created, early prevention. Perceived by the SHP team as effective and feasible, the RTPP needs to be implemented.

Since the plan for referral tracking can still be more deeply and precisely defined, another recommendation is to accomplish this task by conducting interviews with key informants. These interviews can also be used to determine the best way for teachers to approach the parents and gather the information regarding caregiver follow-up and referral outcomes in this specific part of the RTL.

**Future research**

Achieving complete referral tracking in the SHP will allow studying factors related to referral outcomes and follow-up. Future research on these may be the key to finding ways to update the always new and original aim of this joint work: "to achieve an optimal health of the children, the potential productive and work force in the country for the future" (SHP guidelines).

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# APPENDICES

## Apendix 1: USF e-IRB Aproval

**USF**
UNIVERSITY OF
SOUTH FLORIDA

DIVISION OF RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 336124799
(813) 974-5638 • FAX (813) 974-5618

January 24, 2013

Jesica Candanedo, M.D.
Community and Family Health
3710 Magnolia Apartments
Tampa, FL 33620

RE: **Expedited Approval for Initial Review**
    IRB#: Pro00009300
    Title: REFERRAL TRACKING PILOT AND REFERRAL OUTCOME RATES FOR
           THE SCHOOL HEALTH PROGRAM IN PANAMA

Dear Dr. Candanedo:

On 1/24/2013 the Institutional Review Board (IRB) reviewed and **APPROVED** the above
referenced protocol. Please note that your approval for this study will expire on 1/24/2014.

Approved Items:
Protocol Document(s):
Referral tracking pilot and referral outcome rates for the School Health
Program in Panama

Consent/Assent Documents:
Minimal risk consent form.pdf
Spanish MR consent form.pdf

It was the determination of the IRB that your study qualified for expedited review which
includes activities that (1) present no more than minimal risk to human subjects, and (2) involve
only procedures listed in one or more of the categories outlined below. The IRB may review
research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR
56.110. The research proposed in this study is categorized under the following expedited review
categories:

(6) Collection of data from voice, video, digital, or image recordings made for research purposes.

(7) Research on individual or group characteristics or behavior (including, but not limited to,
research on perception, cognition, motivation, identity, language, communication, cultural
beliefs or practices, and social behavior) or research employing survey, interview, oral history,
focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note, the informed consent/assent documents are valid during the period indicated by the
official, IRB-Approval stamp located on the form. Valid consent must be documented on a copy
of the most recently IRB-approved consent form.
As the principal investigator of this study, it is your responsibility to conduct this study in
accordance with IRB policies and procedures and as approved by the IRB. Any changes to the
approved research must be submitted to the IRB for review and approval by an amendment.

We appreciate your dedication to the ethical conduct of human subject research at the University
of South Florida and your continued commitment to human research protections. If you have
any questions regarding this matter, please call 813-974-5638.

Sincerely,

*John A Schinka, Ph.D.*

John Schinka, Ph.D., Chairperson
USF Institutional Review Board

**Appendix 2: Focus Group Guide**

Hello, welcome to this session. First, I would like to thank all of you for participating. The goal of this session is to obtain your feedback and to get your ideas for the School Health Program referral tracking process. The valuable comments and suggestions you provide today will shed light on the development of a Referral Tracking Pilot that implemented in the future would allow to get referral outcome rates.

1.   What is the current process of referral tracking?

2.   What are the barriers to referral tracking?

3.   What has been tried before in terms of referral tracking?

   a.   What parts of what has been tried before to track the referrals were successful or you like it and why?

   b.   What parts of what has been tried before were unsuccessful or you didn't like and why?

4.   What are your recommendations for addressing the barriers to referral tracking in each of the critical steps of the referral tracking loop? (If the referral was received by an adult, if it was received but the adult didn't followed-up, if the attention was received in other health center, if the child was taken to the corresponding health center but didn't receive the attention).

   a. What is needed to ensure successful implementation of your recommendation (add)?

   b. What would inhibit successful implementation of your recommendation (remove)?

5.   How do you know when an unmet health care recommendation specified in a SHP referral could potentially harm a child's health?

   Recommendations

6.   What else would allow a SHP team to obtain a complete tracking of the referrals generated during the delivery of the SHP?

Thank you for coming and for the gift that is for us to have you sharing your thoughts, insights and feelings. Following your inputs a RTPP will be developed. Then, further input on its effectiveness and feasibility will be solicited through a survey.

**Appendix 3: Codebook**

| Code | Type (Question #) | Definition |
|---|---|---|
| No process | A priori (1) | There is no process in place currently for referral tracking |
| Current process | A priori (1) | Anything being done currently regarding referral tracking |
| Job overload | A priori (2) | A barrier to referral tracking is that the personnel working in the SHP have too much work |
| Bad attitude | A priori (2) | A barrier to referral tracking is that the personnel working in the SHP really don't care about it enough |
| Other barriers | A priori (2) | Any other barriers not described among the a priori barriers |
| Previous attempts | A priori (3) | Anything tried before to track the SHP referrals |
| Successful PA | A priori (3a) | parts of what has been tried before that were successful or liked |
| Unsuccessful PA | A priori (3b) | parts of what has been tried before that were unsuccessful or disliked |
| SPA why | A priori (3a) | Reasons for considering successful or liking parts of previous attempts |
| UPA why | A priori (3b) | Reasons for considering unsuccessful or disliking parts of previous attempts |
| BR (recommendation) | A priori (4) | Recommendations for addressing the barriers to referral tracking |
| Promoter | A priori (4a) | A need to ensure successful implementation of recommendation for addressing barrier to referral tracking |
| Inhibitor | A priori (4b) | Anything that would inhibit successful implementation of recommendation for addressing barrier to referral tracking |
| Harm | A priori (5) | Situations where an unmet health care recommendation is considered potential harm to child's health |
| RTPP | A priori (6) | Specific recommendation regarding the development of a plan for referral tracking. |
| ROR | | Specific recommendation for getting referral outcome rates |

PA-previous attempt
SPA-successful PA
UPA-unsuccessful PA
BR- barrier recommendation
RTPP-referral tracking pilot plan
ROR-referral outcome rates

**Appendix 4: Effectiveness and Feasibility for Future Implementation Perception Survey Referral Tracking Pilot Plan for the School Health Program**

**Role: _____**

Rate the following statements about the referral tracking pilot plan (RTPP) regarding the items in bold letters. Circle **5** if you strongly agree with the statement, **4** if you agree, **3** if you are not sure, **2** if you disagree, and **1** if you strongly disagree.

1.  The RTPP will be effective in **counting the number of referrals issued.**

    1   2   3   4   5

    Why?

    What would you change to the RTPP to make it more effective in this matter?

2.  The RTPP will be effective in **making it easier to keep records of referrals.**

    1   2   3   4   5

    Why?

    What would you change to the RTPP to make it more effective in this matter?

3.  The RTPP will be effective in **achieving complete tracking** of the referrals issued by the SHP.

    1   2   3   4   5

    Why?

    What would you change to the RTPP to make it more effective in this matter?

4.  The RTPP will be effective in **obtaining referral outcome rates (ROR).**

    1   2   3   4   5

Why?

What would you change to the RTPP to make it more effective in this matter?

5. The RTPP will be effective in **obtaining rates of referrals for which the health care recommendation was met in the corresponding primary care health center (PCHC)**.

1          2          3          4          5

Why?

What would you change to the RTPP to make it more effective in this matter?

6. The RTPP will be effective in obtaining **rates of referrals for which the health care recommendation was met in another health care facility**.

1          2          3          4          5

Why?

What would you change to the RTPP to make it more effective in this matter?

7. The RTPP will be effective in obtaining **rates of referrals received by the parents or caretakers**.

1          2          3          4          5

Why?

What would you change to the RTPP to make it more effective in this matter?

8. The RTPP will be effective in obtaining **rates of referrals received but not followed up by parents or caretakers**.

   1        2        3        4        5

   Why?

   What would you change to the RTPP to make it more effective in this matter?

9. The RTPP will be effective in obtaining **rates of referrals for which parents or caretakers bring child to the PCHC but didn't receive the attention**.

   1        2        3        4        5

   Why?

   What would you change to the RTPP to make it more effective in this matter?

10. The RTPP will be effective in obtaining **rates of cases in which the child could be harmed by non-follow-up.**

    1        2        3        4        5

    Why?

    What would you change to the RTPP to make it more effective in this matter?

11. It is **feasible** to use the RTPP in a daily basis during the SHP delivery.

    1        2        3        4        5

    Why?

    What would you change to the RTPP to make it more feasible?

**THANK YOU**

**Appendix 5: Invitation to the Member Check Meeting**



**Invitación**

Reunión-Almuerzo

**Lugar**: Salón de reuniones de la tercera edad
**Hora**: 11:30 am-12: 15 pm

**Tema**: Estudio para la generación de un plan piloto para rastreo de referencias en el Programa de Salud Escolar del Policentro de Salud de Parque Lefevre.

**Objetivos:**
1. Presentar el Plan Piloto para rastreo de las referencias en el PROSE.
2. Evaluar percepción de efectividad y factibilidad del plan piloto generado para su futura implementación.
3. Entregar certificados de participación de University of South Florida.

**Gracias**

**Appendix 6: Certificate for Participation**



Creating a
**healthier** world.

# CERTIFICADO DE PARTICIPACIÓN

Se concede este certificado a

como agradecimiento por su participación en el

*ESTUDIO PARA LA GENERACIÓN DE UN PLAN*
*PILOTO PARA RASTREO DE REFERENCIAS EN EL*
*PROGRAMA DE SALUD ESCOLAR DEL POLICENTRO*
*DE SALUD DEL PARQUE LEFEVRE*

Ciudad de Panamá, Marzo del 2013

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Dra. Martha Coulter, Dr.PH.
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**Appendix 7: Timeline**

**2012** USF and Panama IRB
>   Training and planning
>   Permissions for recruitment and data collection

**Jan 2013**: conducting focus groups and interviews

**Feb 2013**: transcribed focus groups and interviews

**Mar 2013**: data coded and analyzed

Mar 2013: last week-member check meeting for evaluation of the generation of the pilot plan

**Apr 2013**: 1st week-coding and analysis of evaluation

Apr 2013: 2nd week-final results

**May 2013**: 3rd week-final advisor review

**Jun 2013**: 3rd week- final presentation

## ABOUT THE AUTHOR

Jesica Eileen Candanedo Pérez was born in Panama City, Republic of Panama. She earned her Medical Doctor Degree from the University of Panama. During her studies in the College of Medicine she participated extensively in research related activities and in promoting these among other medical students. Consequently, she received several recognitions and awards at graduation. Her career path is distinguished by her interest in working with disadvantaged populations both in the professional and research arenas. From 2005 to 2008 she worked in the clinical ground to experience the diverse sectors and levels of care: public and private sectors, primary and tertiary levels of care. After that, she was a coordinator for clinical trials from 2009 to 2011. She was awarded with a scholarship from the government of Panama (SENACYT-IFARHU) to pursue the MSPH studies at USF in the International Public Health Research, Policy, and Planning Program.