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# Effectiveness of a training program in implement comprehensive care with focus on family and community health in Peru

## Abstract

For more than a decade, efforts have been made to implement a Comprehensive Health Care Model Based on Family and Community, now updated as a Comprehensive Health Care Model. Objective: determine the effectiveness of a diploma developed with the pedagogy of problematization, to implement the Comprehensive Health Care Model. Method: Retrospective, analytical study on the effectiveness of the diploma "Training Program in Family and Community Health (PROFAM)" developed for basic health teams in the Apurímac, Ayacucho, Huancavelica and Loreto regions in 2012 in Peru. Results: Basic health teams were trained in 38 health establishments, the difference between the baseline and final line results of the evaluated standards shows an association with p-value (< 0.05) in the evaluated services of the regions. Ayacucho, Huancavelica, and Loreto. Conclusion: The in-person diploma with problematization pedagogy positively influenced the implementation of the Comprehensive Health Care Model based on Family and Community, the same cannot be assured in the Apurímac region.

**Keywords:** family and community health, comprehensive care, public health

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## Introduction

In 2016, the World Health Organization recognized that health workers are essential to establishing solid and resilient health systems that contribute to achieving the Sustainable Development Goals and the reduction of inequalities.[1]

In Peru, since 2003, the comprehensive health care model has been promoted as the reference framework for health care in the country, it was stated that these cares should be provided by competent health personnel based on the biopsychosocial, who work as a coordinated health team with the participation of society.[2]

In 2009, the care model was changed to the Family and Community-Based Comprehensive Health Care Model (MAIS-BFC), in accordance with the proposal for Renewed Primary Health Care formulated by the Pan American Health Organization (OPS). This document defines that the primary focus of health care at the first level of care becomes the family and the environment in which its members live, unlike the traditional focus where the approach is predominantly individual or clinical to health. In this conception, the basic family and community health team (EBS-FC) promotes the responsibility of families, community organizations and health services for health care.[3]

The Ministry of Health for the implementation of the MAIS-BFC proposes to strengthen the capacities of the Basic Family and Community Health Teams (EBS-FC), through the Concerted and Decentralized Sector Plan for Health Capacity Development 2010-2014 – "PLANSALUD" Lima 2,011, which aims to provide quality care health with effectiveness, efficiency, quality and social relevance.[4]

Following the Toronto-Canada agreements of 2005, at the VII Meeting of the Human Resources Observatories of the Americas "Toronto Call to Action", challenges are defined that seek to mobilize national and international actors in the health sector and others. Relevant sectors of civil society to collectively build policies and strategies for human resource development that support national priorities and access to quality health services. In this context, in Peru the National Policy Guidelines for the Development of Human Resources in Health were approved, which has as its central axes strategic planning, capacity development and work management.[5,6]

This training program in Family and Community Health (PROFAM) was promoted by the Ministry of Health as a strategy for the implementation of the Family and Community-Based Comprehensive Health Care Model (MAIS-BFC). This program is designed in three phases: Phase I is represented by the Diploma in Comprehensive Health Care with a Family and Community Health Approach aimed at the EBS. Phase II culminates with the Specialization in Family and Community Health of the Nursing and Obstetrics professional. Phase III, with the specialization of the Doctor in Family and Community Medicine.[7]

According to the agreements in the Health Agenda for the Americas 2008 to 2017 – formulated and approved by all the Ministers of Health of the Americas – commitments were established, among others, to strengthen the management and development of people who work in health.[8] In this sense, PAHO provides its technical and financial support in 2012 with the implementation of this training program in its first phase, the Diploma in Comprehensive Care with a focus on Family and Community Health aimed at the EBS (doctor, nurse, obstetrician and nursing technician), called PROFAM, in the regions of Apurímac (Andahuaylas), Ayacucho, Huancavelica and Iquitos.[9]

It is important to specify that the development of PROFAM in person was developed in 2012, then this same program began to be developed virtually in the pre-pandemic due to COVID-19 and continued in the post-pandemic developing virtually.

The objective of this study is to determine to what extent the development of the PROFAM diploma in face-to-face mode, with a pedagogy of problematization, will influence the improvement of comprehensive health care for individuals, families, and the community in health facilities of the intervened regions of Apurímac, Ayacucho, Huancavelica, and Loreto. Secondary objectives have been defined to determine the benefits in the organization, management, delivery, and effectiveness of the training program in the beneficiary health services[10] (Table 1).

### Pedagogy of problematization

The pedagogy of problematization, a methodology based on improving the student's ability, was incorporated into the development of the 06 modules and agent of social transformation to detect real problems and seek original and creative solutions. Charles Magüerez represented problematizing pedagogy through the "arc method", formed by the interrelation between observation, key points, theorization, hypothesis, and application to reality. The role of the students is to bring information about real problems in their work context in each educational module, bibliographic material is reviewed that can help metabolize these problems and find solutions, and finally work in groups, at this time the solutions are practiced and established. That the basic health team found in its analysis of reality.[11,12]

## Methods

This is a retrospective, analytical study on the effectiveness of the Family and Community Health Training Program (PROFAM) aimed at basic health teams, to implement the comprehensive health care model based on family and community in the first level of care, in the Apurímac, Ayacucho, Huancavelica and Loreto regions developed in 2013.

The selection of health establishments and participants were defined by a Diploma Management Committee in each region, considering the following criteria: health establishments of the first level of care that are head of Micronetwork (category I-4 or I-3), that have complete basic health teams (Doctor, Obstetrician, Nurse, and Nursing Technician).

To evaluate the health establishments intervened with the PROFAM program, an instrument designed by the Ministry of Health "Baseline Instrument in Comprehensive Care with a Focus on Family and Community Health" was used,[13] the baseline was determined and after completion The graduate measured the final line. The information was recorded in an Excel program database for the analysis of basic descriptive statistics, and to estimate statistical association analysis, the STATA/IC 12.0 statistical program was used.[14]

**They are two variables of the study:**

**First:** The Effectiveness of the Diploma is an independent, qualitative, dichotomous variable where it is valued as effective and not effective, is "the diploma course effective in implementing comprehensive care with a family and community approach", when after the baseline and exit evaluation there is a positive and significant difference ($p< 0.05$).[15–17]

**The second:** It is the Family and Community-Based Comprehensive Health Care Model (MAIS-BFC). It is a Dependent variable, qualitative in nature, it is evaluated based on the rating of the degree of progress in implementing its organizational components, management, and the essential elements of Primary Health Care of the MAIS-BFC. Its measurement scale is ordinal, according to the results obtained they are classified as Deficient: < 50%; Regular: From 50% to 80%; Good: > 80%.[18–22]

## Results

### Description of establishments and study population

Tables 2 & 3.

Figure 1 shows the results of the evaluation by standards, a total of 250 items evaluated that are equivalent to 250 points (100%), in the components of management, organization, and the essential elements of primary health care.[23] The regions generally show an increase in the percentage of items evaluated as good (> 80%), and a reduction in the percentage of items classified as poor (< 50%). The Apurímac region in its 08 establishments had a slight decrease in poor standards from 28% to 23%, but good standards were also reduced from 14% to 7% (Table 4).[24–26]

**Table 1** Educational modules of the diploma in family and community health (PROFAM in person)

| | Credits | | Hours | |
|---|---|---|---|---|
| **Modules** | **In-Person Phase** | **Non-face-to-face phase** | **In-Person Phase** | **Non-face-to-face phase** |
| The educational approach and the search for information | 2 | 2 | 3. 4 | 68 |
| Accessibility and coverage | 2 | 4 | 3. 4 | 136 |
| Comprehensive and integrated care | 2 | 4 | 3. 4 | 136 |
| Introduction to Family and Community Health | 2 | 4 | 3. 4 | 136 |
| Health promotion and disease prevention | 2 | 4 | 3. 4 | 136 |
| Optimal organization and management | 2 | 4 | 3. 4 | 136 |
| Integration workshop | 2 | 0 | 3. 4 | 0 |
| Total: 6 modules 1 Workshop | 14 | 22 | 238 | 748 |

**Source:** DGC-DGGDRH-MINSA Training Area.

**Table 2** Health establishments and personnel that participated in the Diploma in Comprehensive Care with a Focus on Family and Community Health, 2012

| **Regions** | **N° EESS** | **Trained health personnel** | **Health establishments** | |
|---|---|---|---|---|
| Apurimac | 8 | 30 (22%) | Andarapa Huancaray Pacucha San Jerónimo | Talavera CS Andahuaylas Turpo Kaquibamba |
| Ayacucho | 9 | 35 (26%) | Huamanguilla Tambo Santa Rosa San Martín Llochegua | Luricocha San José de Secce Vischongo Vilcashuaman |
| Huancavelica | 11 | 33 (25%) | Acobamba Tinquerccasa Caja Espíritu Paucara Anta Acostambo | Daniel Hernández Pazos Surcubamba Acraquia Colcabamba |
| Loreto | 10 | 36 (27%) | 6 de Octubre Bellavista Nanay Progreso San Juan Cardozo | Belen Morona Ccocha San Antonio Mazan Indiana |
| Total | 38 | 134 (100%) | | |

The list of the 38 primary care health facilities participating in the diploma is shown, the 134 students distributed by regions: Apurímac Region 22%, Ayacucho region 26%, Huancavelica region 25% and the Loreto region 27% respectively.

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**Table 3** Evaluation of the baseline (LB) and final line (LF) after the development of the diploma in health establishments, with standards for Comprehensive Health Care, 2012.

| Evaluation standards | | Apurímac | | Ayacucho | | Huancavelica | | Loreto | |
|---|---|---|---|---|---|---|---|---|---|
| **Management and organization evaluation** | **Ideal Score** | **LB%** | **LF%** | **LB%** | **LF%** | **LB%** | **LF%** | **LB%** | **LF%** |
| 1. Operational planning | 15 (100%) | 43 | 50 | 40 | 52 | 38 | 44 | 51 | 58 |
| 2. HR Management | 18 (100%) | 47 | 52 | 43 | 58 | 43 | 60 | 45 | 63 |
| 3. Medication management | 15 (100%) | 80 | 74 | 70 | 79 | 70 | 79 | 74 | 75 |
| 4. Supplies management | 24 (100%) | 77 | 65 | 66 | 77 | 61 | 75 | 67 | 75 |
| 5. Information management | 24 (100%) | 64 | 57 | 54 | 71 | 56 | 73 | 49 | 61 |
| 6. Doc management use | 9 (100%) | 61 | 46 | 42 | 57 | 54 | 76 | 63 | 64 |
| Sub total 1 | 105 (100%) | 62 | 57 | 53 | 66 | 54 | 68 | 58 | 66 |
| **Evaluation of aps essential elements** | **Ideal Score** | **LB%** | **LF%** | **LB%** | **LF%** | **LB%** | **LF%** | **LB%** | **LF%** |
| 7. Universal access and coverage | 30 (100%) | 59 | 64 | 59 | 70 | 54 | 78 | 47 | 70 |
| 8. Comprehensive care | 21 (100%) | 72 | 70 | 62 | 69 | 67 | 81 | 64 | 68 |
| 9. Promotion and prevention | 33 (100%) | 58 | 61 | 52 | 72 | 50 | 75 | 43 | 58 |
| 10. Ensure quality | 12 (100%) | 61 | 65 | 55 | 56 | 57 | 82 | 54 | 63 |
| 11. Family and community | 18 (100%) | 49 | 40 | 48 | 47 | 39 | 65 | 37 | 51 |
| 12. Participation mechanisms | 6 (100%) | 46 | 54 | 59 | 93 | 58 | 64 | 44 | 60 |
| Sub Total 2 | 120 | 58 | 59 | 56 | 68 | 54 | 74 | 48 | 62 |
| **Final baseline evaluation** | **Ideal Score** | **LB%** | **LF%** | **LB%** | **LF%** | **LB%** | **LF%** | **LB%** | **LF%** |
| Sub Total 1: Management and organization | 105 (100%) | 62 | 57 | 53 | 66 | 54 | 68 | 58 | 66 |
| Sub Total 2: Essential elements of aps | 120 (100%) | 58 | 59 | 56 | 68 | 54 | 74 | 48 | 62 |
| Total | 225 (100%) | 60 | 58 | 55 | 67 | 54 | 71 | 53 | 64 |

The general results show that the evaluation of the standards to provide comprehensive health care, in management and organization of health services, 3 regions presented favorable results except in the Apurimac region. In the essential elements component of the APS, all presented favorable results, Apurímac only showed one percentage point more from 58% to 59%.

**Table 4** Evaluation of the effectiveness of the diploma to implement comprehensive health care in regions: Test of population homogeneity, 2012

| Qualification in implementing the Comprehensive Health Care Model | APURIMAC | | AYACUCHO | | HUANCAVELICA | | LORETO | |
|---|---|---|---|---|---|---|---|---|
| | LB | LF | LB | LF | LB | LF | LB | LF |
| Deficient | 28 | 23 | 35 | 17 | 43 | 13 | 42 | 12 |
| Regular | 58 | 70 | 61 | 61 | 49 | 52 | 51 | 70 |
| Well | 14 | 7 | 4 | 22 | 8 | 35 | 7 | 18 |
| Chi square statistics | 3,949 | | 18,692 | | 33,114 | | 24,490 | |
| p value | 0.139 | | 0 | | 0 | | 0 | |
| Degrees of freedom | 2 | | 2 | | 2 | | 2 | |
| Significance level | 0.05 | | 0.05 | | 0.05 | | 0.05 | |
| Final decision | p>0.05 | | P<0.05 | | P<0.05 | | P<0.05 | |

Table shows the determination of the association or independence of the variables 1) Development of the PROFAM diploma and 2) Change in comprehensive health care in health establishments. It can be concluded that in the Ayacucho, Huancavelica, and Loreto regions the chi-square test (X2) allows us to indicate that there is a positive and significant difference (p<0.05), except in the Apurímac region. Therefore, the implementation of the Diploma in Comprehensive Health Care based on Family and Community in the basic health teams (EBS) in person is effective for the development of the Comprehensive Health Care Model based on Family and Community (MAIS- BFC) in the intervened health facilities.

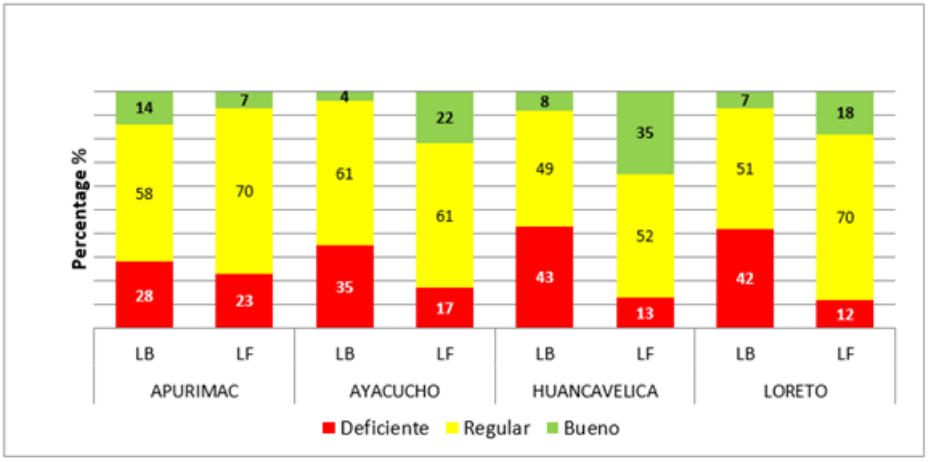


**Figure 1** Final result based on evaluation standards classification. Diploma in Integrated Health Care, 2012.

## Discussion

The PROFAM training program was applied for a period of 7 months in 04 regions of Peru (Apurímac, Ayacucho, Huancavelica, and Loreto), with 38 benefited health establishments (selected by the regional health authority) with criteria of having EBS (basic equipment health), in total 134 health professionals and technicians have been completed, out of 33 basic teams.[27]

The results in the measurement through standards to provide comprehensive health care, the baseline evaluation was carried out and at the end of the intervention. The results show that the evaluation of the standards to provide comprehensive health care, in management and organization of health services, 3 regions presented favorable results except in the Apurímac region. In the benefit component, all presented favorable results, Apurímac only showed one percentage point more from 58% (baseline) to 59% (final).[28]

According to the classification established in the item evaluation of the standards as: Deficient: < 50%; Regular: from 50% to 80%; Good: > 80%, the results of the evaluation by standards at the baseline and final time show that the regions generally show an increase in the percentage of items evaluated as good (> 80%), and a reduction in the percentage of items classified as deficient (< 50%). The Apurímac region in its 08 establishments had a slight decrease in poor standards from 28% (baseline) to 23% (final), but good standards were also reduced from 14% (baseline) to 7% (final).[29]

To know the effectiveness of the study, the association or independence of two qualitative variables with a certain degree of significance was determined; the chi-square test (X2) was used, with which the results observed between the effectiveness variables of the study were contrasted. diploma and the comprehensive health care model. The difference between the observed and expected results shows a p-value (< 0.05) in the evaluated services of the Ayacucho, Huancavelica, and Loreto regions, and it can be stated that the two variables under study are associated. That is, the in-person diploma had a positive influence on the implementation of the comprehensive family and community-based health care model. The same cannot be assured in the Apurimac region.[30]

The Ministry of Health of Peru, in recent pre-pandemic years, has been promoting virtual diploma courses, without the requirement of basic health teams participating in the diploma course in family and community health, such as D-PROFAM with a self-training nature. The pedagogical model is focused on the identification of situational problems, self-learning, search, or exchange of professional experiences.[31]

An important aspect to discuss is the methodology developed in the face-to-face PROFAM diploma, the pedagogical approach of problematization was applied, with a face-to-face phase where the modules are developed in workshops designed with the Arc method of Charles Magüerez, then a blended phase where the basic health teams have tasks for the application in the services of the improvements proposed in the modules.[32] While the D-PROFAM uses the methodology aimed at the development of instrumental cognitive competencies in the context of work, in a self-taught phase and phase virtual.

The COVID-19 coronavirus pandemic during 2020 forced humanity into isolation and, with it, the need for communication by electronic means. Therefore, distance or virtual training also became more relevant than in-person training. It has the advantage that people can go back, pause, or fast forward the video as many times as they need, or even watch it several times, for a better understanding of the topic. The D-PROFAM, which is the diploma in Comprehensive Care with a Family and Community Approach in Virtual Self-Training modality, during the years 2014 to 2016, trained 49,244 students.[33]

The study had some limitations due to the time it took to obtain more information, such as the students' evaluation of the different modules of the PROFAM diploma, information that would have allowed us to know the lack of effectiveness in the development of the diploma in the Apurímac region.

The effectiveness of the study in the regions of Ayacucho, Huancavelica, and Loreto, to implement the health care model would now allow assessment of the development of the PROFAM diploma in its face-to-face modality, when applied to the implementation of the Comprehensive Health Care Model by Life Course. However, the key element of this process is the problematization methodology used. This problematization methodology has been shown to stimulate the protagonism, creativity and autonomy of students, so the strategies used have the potential to contribute to the training of adults and generate social transformations.[34]

Similar experiences have been developed since 2000 and through its Department of Family and Community Medicine, the University of Toronto developed international programs with emphasis on the formation of multidisciplinary teams in Primary Care in Brazil, Chile, and Colombia. Each module promotes group work and project development. Presentations and exercises in small groups emphasize the concepts, attitudes, and skills, in addition to the fundamentals of Family Health.[35]

In Peru, a similar educational experience was developed in 2008, a diploma course was designed and developed with the methodology with the didactic approach of problematization, the basic health teams developed intervention strategies to change reality, through projects that reflect interaction and teamwork, based on the analysis of health services management practices, and reflected on how to improve actions for health care centered on the person, family and community, it was not achieved measure its effectiveness at the time.[36]

Finally, this experience shows the effectiveness of implementing a Comprehensive Health Care Model Based on Family and Community, using a comprehensive care diploma with a focus on family and community health, a baseline measurement has been carried out with an instrument designed to evaluate the components main aspects of the Comprehensive Health Care Model approved by the health authority, and after the development of the diploma, the same final line measurement was carried out; The results are generally positive, or suggest that the in-person diploma course was effective in implementing the components of the Comprehensive Health Care Model. The main element of the diploma is the pedagogy of problematization used in the development of all educational modules.

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## Conflicts of interest

The authors declare that there is no conflict of interest.

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