Quaternary Prevention: from social medicalization to integral care on the Primary Health Care

Prevenção Quaternária: da medicalização social à atenção integral na Atenção Primária à Saúde

Resumen

Objetivo: conocer las percepciones y perspectivas de los profesionales de la salud para el desarrollo de la Prevención Cuaternaria en Atención Primaria de Salud. Método: Investigación Apreciativa, que aplicó las fases del “ciclo 4-D”, en inglés: discovery, dream, design y destiny. Este artículo analiza los resultados de la fase discovery (descubrimiento), en los cuales los encuestados correspondientes participaron nueve profesionales de Atención Primaria. Se realizó análisis de contenido, siguiendo los pasos de pre-análisis, exploración de material y procesamiento de datos. Resultados: la Prevención Cuaternaria representa un potencial en la innovación asistencial, con posibilidad de reducir la medicalización social, que se produce por sobremedicalización, sobrediagnóstico y sobretatamiento. Como perspectivas, se presenta la necesidad de concienciar a la sociedad y los profesionales sobre estos excesos y de (re) posicionamiento de la industria, el mercado y los medios de comunicación sobre el significado de “estar saludable”. Conclusiones e implicaciones para la práctica: es necesario prestar atención a la ética en la prestación de cuidados, que ocurre mediante sobremedicalización, sobrediagnóstico y sobretatamiento. Como perspectivas, se presenta la necesidad de concienciar a la sociedad y los profesionales sobre estos excesos y de (re) posicionamiento de la industria, el mercado y los medios de comunicación sobre el significado de “estar saludable”.

Palabras clave: atención primaria de salud; educación continua; enfermería; atención primaria de salud; prevención cuaternaria.

Karine Schopf
Carine Vendruscolo
Clarissa Bohrer da Silva
Daniela Savi Geremia
Aline Lemes de Souza
Lucas Lasta Angonese

Corresponding author
Karine Schopf.
Email: karinaschopf70@gmail.com.

Submitted on 05/25/2021.
Accepted on 08/17/2021.

INTRODUCTION

The determinants of health can involve social, cultural, political, economic, environmental, behavioral, and biological factors. Recognizing the influence of these factors is essential to plan public health actions, meeting the principle of integrality, based on health promotion and disease prevention. In the prevention field, the psychosocial, economic and cultural dynamics is fundamental and implies the effectiveness of Quaternary Prevention (P4).

The P4 is proposed in the context of the three classic levels of prevention, understood as a fourth level, which reverberates in changes in the way of performing clinical practice, protecting the individual from excessive intervention in health, such as medicalization and screening, which culminate in over-diagnosis and overtreatment and, in a way, other profitable interests resulting from the commodification of health. In this sense, it is necessary to reflect on the influence of the so-called “health industries” on the actors who collaborate in their production, whether they are professionals, public managers, or the community.

Medicalization linked to dependence on professional interventions reduces the autonomy of the individual when his health status is related to situations of suffering, illness, loss and bereavement, causing increased interventions and social harm. Health professionals must identify actions and manage demands in order to avoid social medicalization in Primary Health Care (PHC) services.

The P4 involves the health professional's responsibility to identify patients/users who are at risk of unnecessary interventional practices, which can cause more harm than good to health, and to take care of these individuals. To this end, the ethical and moral principles of user protection need to prevail before the risk of harm caused by excesses, especially when it comes to healthy people.

Clinical interventions and drugs are often endorsed by false promises of longevity, denying the person’s right and capacity to deal with health-related misfortunes. In face of these, the need for a clinical diagnosis causes individuals to continuously and unnecessarily seek health services, which generates the consumption of medical technologies and eventually transforms risk factors into disease. For health professionals, the imposition of society to reach a diagnosis leads to over-diagnosis and overtreatment, which, most of the time, bring no benefits to the user, and may also cause damage in the short, medium or long term.

It should be noted that small changes in diagnostic limits directly influence health, lead to over-diagnosis and overtreatment, often in asymptomatic people, who are diagnosed and treated with the use of technological and professional inputs, anchored by cultural influences, narrowing the threshold of what is health and disease. Added to this is the implementation of protocols and health campaigns, sometimes distorted, that dazzle the population with the ease of preventing and treating diseases, causing a false sense of protection.

The excess of tests and diagnoses associated with the production of health shows conflicting paradigms in which the decision making of professionals may sin by the excess in detriment of the lack. This kind of professional attitude brought about by the biomedical culture and permeated by fear and uncertainty, makes health professionals uncomfortable about P4. Moreover, people seek to improve their quality of life through health interventions, believing that these can solve possible adversities, corroborating a defensive and paternalistic medicine, which favors health industries, consumerism, and unnecessary interventions.

Thus, the dialogue about the P4 goes beyond the medical field and requires the action of different health professionals, especially prescribers. PHC is considered the cradle of the P4 because it is the appropriate field for its development through qualified listening, bonding, and individualized adaptation of health care. Moreover, the P4 meets the principles advocated in the Family Health Strategy (FHS) by encouraging inter-professionalism. This organization of teamwork helps to avoid possible iatrogenesis caused by excessive clinical interventions, such as screening and over-medicalization, through the collaborative work of Family Health Teams (FHS), Oral Health Teams (OHT), and Extended Family Health and Primary Care Centers (EFHC-PC).

From this perspective, this research aimed to know the perceptions and perspectives of health professionals for the development of the P4 in PHC.

METHOD

This is a qualitative study, based on Appreciative Research (AR), which aims to transform the individual and team reality, experienced by the participants, through strengths, positive experiences and new ideas. Among the possibilities offered by AR are: transforming problems into opportunities; identifying the strengths of the participants and the institution; creating possibilities; reducing criticism and enabling growth based on strengths and successful experiences.

The AR “4-D cycle” consists of four pillars whose name was formulated from the English language: discovery - in which the group identifies strengths and core competencies; dream - in which, together, they imagine positive possibilities for the future; design - in which there is the projection of aspirations for each opportunity and, finally, destiny - in which the group elaborates the process and structures to achieve them (Figure 1).

The research was conducted with nine professionals working in PHC, belonging to a FHS, a BHS and an EFHC-PC team, in a city in the Far West of Santa Catarina. Inclusion criteria for the study participants were: to be a senior professional, working in one of the aforementioned teams for two years or more. Participants who, for some reason, were away during the information production period were excluded. Nine professionals participated: nurses (one); physicians (one); dentists (one); pharmacists (one); psychologists (two); physiotherapists (two); nutritionists (one); and physiotherapists (two).

In all, the research included five meetings, covering the four phases of the 4-D cycle. The discovery phase was organized in two meetings and its objective was to know the professionals'
Figure 1. Introduces the “4D cycle” of Appreciative Research\(^5\).
Source: Adapted by the authors, 2020.

...perception about the P4 and raise their strengths, personal and institutional skills for the development of actions. The third meeting was the dream phase, with the objective of imagining the best ideas for actions aimed at P4 that could be carried out in the team’s daily routine. The fourth meeting, referring to planning, aimed to create possibilities for P4 actions based on the reality of the team and the institution. Finally, the fifth and last meeting of the 4D cycle - the destination - was the one in which the participants agreed on the P4 actions chosen by the team in an intervention matrix.

All meetings were held in July 2020, at approximately seven-day intervals, and lasted an average of one hour and fifteen minutes each. The average participation in each meeting was of six professionals. The organization of the meetings was defined according to the methodological rigor of the AR; the dialogues were constructed by the group and guided by trigger questions related to the theme under consideration.

A logical sequence was applied to the meetings, ensuring appropriate time and the effective participation of the group in the dialogues. At the beginning of each meeting, a “warm-up” moment was used in order to interact and involve the participants in the research. At the end of the first three meetings, each participant received a reflective activity to be carried out individually until the next meeting, to be resumed and discussed in the group. The reflective activity is to enable reflection about the object of study and contributes to the strategy to prepare for the next meeting\(^15\).

In this paper, we will analyze and discuss the results of the first and second AR meetings, which corresponded to the discovery phase. The meetings were audio-recorded and later transcribed with the consent of the participants. In addition, the main themes that emerged during the dialogues were recorded in the form of a field journal produced by the researchers in order to facilitate data transcription and analysis.

For the treatment of information, we used the Thematic Content Analysis,\(^16\) following the moments of pre-analysis, material exploration and data treatment. The pre-analysis consisted in the organization of the transcribed statements by resuming the initial objectives of the research. All the material from the meetings (dialogue transcripts and diary entries) was read and re-read, and the reports were organized, aiming to have an overview of what was said by them, and to perceive the particularities. The exploration of the material allowed us to grasp the relevance of the speeches of each participant, classify the central ideas and organize them into two categories: Professionals’ perceptions of P4 and Perspectives for the development of P4 actions in PHC.

It should be noted that during the meetings, different reflections and ideas emerged from the dialogues, some of them in line with the authors referenced in the reflective activities and others not, which influence, directly or indirectly, the perception about the concept and the possible practices of P4 that could be adopted by the team. However, the ideology that guides participatory research presupposes this collective construction and the purpose is the transformation of reality\(^15\).

The research was approved by the Ethics Committee for Research with Human Beings under Protocol number 3,375,951 on June 6, 2019. To ensure the participants’ anonymity, the following codes were used: the initial letter of the professional category followed by a sequential number in case there was more than one professional from the same category.

RESULTS

Professionals’ perceptions of P4

From the reality and experience in the service, regarding the perception regarding the P4, the professionals showed apprehension and difficulty in recognizing the P4 in practical actions. The study participants alert to an ideology of users marked by the centrality of the disease and the cure, through medication, in addition to the pressure exerted by the media and political agents, who influence the population and hinder the realization of P4 actions

[...the media helps a lot in the issue of being sick, of wanting to be sick, that already brings help for something that you don’t even have [...] the user already comes to the consultation knowing what he will want, sometimes, without medical indication or orientation [...] (FO1).

[...judicialization [...] not paying due attention to the framework that, in the future, may be installing itself [...] is what, many times, induces professionals to want to cover all the possibilities that exist to establish a diagnosis or, at least, to rule out a possible one (D1).

[...the users] already come with a list of medications and exams, especially the more complex ones, most of the time, not even consistent with the symptoms they are presenting [...] (M1).

[...]We see that it is much more difficult to demystify the need for exams [...] the institution itself through some agents; you are charged to try to favor the patient’s taste and not exactly the technique and the scientific part or
the correct conduct that should [...] then, the professional ends up being induced [...] (E1).

Among the assisentialist actions and practices identified by the team that can cause more harm than good to the users' health are the indiscriminate performance of tests and medications. From the professionals’ point of view, it is evident the manifestation of the users’ beliefs that the exam alone is the solution, since it reveals the disease. Meanwhile, the lack of awareness of users influences the control of some pathologies, such as dyslipidemia, regulated by the indiscriminate use of medication to the detriment of diet and other healthy habits. The health professionals, in their statements, clarify how this happens.

[...]the mammograms with indiscriminate requests. It should be performed a physical examination and individual interpretation to be requested, remembering that, within the screening, most mammograms already come with a request for ultrasonography (E1).

[...]the chronic diseases that come back a lot: an 80-year-old patient with arthrosis gets an X-ray, does physical therapy, and if it doesn’t get better, we will order an MRI. So, she already comes with the idea that she is not going to get better and needs an MRI (FA1).

[...]I would even go deeper, few relate the exam with the discovery of the disease, many times, they hope that, with the exam, they will get better (E1).

[...]another factor experienced by the nutritionist is the control of dyslipidemia with medication by patients who are not aware of [indiscriminate use of medication] (E1).

External factors related to socioeconomic and family situations are also identified as determinants for the excess of interventions performed by the team, especially the high demand for exams to confirm diagnoses that generate absence from work (medical certificates). This, together with those who seem to find encouragement, and even force disease situations, comprise issues that generate concern in the health team.

[...]the search for certificates at the INSS [National Institute of Social Security] is also a demand that generates exams (FA1).

[...]we can do a study, but, certainly, 30 to 40% of the attendances revolve around these attendances [INSS] (E1).

[...]sometimes, I see that the attention they want at home they don’t have, so the illness factor, for them, is something good, especially the elderly [...] (FA1).

Perspectives for the development of P4 actions
Despite the challenges presented in the perceptions of the professionals about the theme and the relationships with users, the professionals mapped out some possibilities for the development of P4 practices in the service, which include comprehensive care based on active listening and a detailed anamnesis of the user, as well as shared teamwork.

[...]good anamnesis, a good conversation to understand what the patient is looking for, many times, the professional is already doing the procedure before he finishes saying what he wants, is already prescribing exams and the patient leaves. It starts with a good anamnesis (FA1).

[...]time for care, this is indispensable, since you don’t have time, all this is thrown away, time for a good anamnesis, look at the medical records, see if he needs this medication, if it is necessary to change medication, so, all this demands a lot of time [...] (M1).

[...]the reality is that my posture is to serve patients, there is no team posture [...] shared care (M1).

[...]the doctor, sometimes, can refer, first, to the physio [Physical Therapist] before doing some exam, I think it is a legal attempt (FA1).

The professionals also report changes in users’ attitudes, who already arrive at the Basic Health Unit (BHU) with specific demands and sometimes focused on the momentary resolution of problems or with medicalizing expectations and intentions. Thus, they recognize the need for epidemiological analysis studies of the territory, the implementation of health education for the involvement of the user in the production of health and to raise awareness in the development of P4 practices.

[...]in the long run, they don’t want to solve, they want a medication to relieve the momentary pain (FO1).

[...]this INSS problem is very big [...] for the patient that there is no need for what he is looking for, you see, in his eyes, a disappointment because he is understanding that he runs the risk of not passing and getting what he wants (M1).

[...]to speak with property about how our population really is in its real needs, we do not have this study [survey and analysis of epidemiological data of the territory] (E1).

[...]the patient already has his mind made up about what he wants, he thinks it will be a waste of time to participate in a lecture, a health education [action] (P2).

[...]the population ends up frustrated, they realize that they have to do, that they have to take action, that there is no magic powder (P1).

[...]if the professional takes what the patient wants, he passes for bad (D1).

Integrative and Complementary Practices (ICP) in health were highlighted as a care alternative, in counterpoint to medicalization,
considering the need for an “answer” to the problem presented by the user. These are configured as a potential element that contributes to the applicability of P4.

[...]I see that, from now on, things have to improve with the integrative practices in the Health Units. The patients, besides the consultation, sometimes come only for these practices and don’t even go back to the doctor [...] here, people do auriculotherapy, people who reported to the pharmacy, to me, that the pain is gone and they will continue with the auricle, they won’t need to take medicine anymore, it is a path that came to help the demedication and the excess of interventions [...] (F01).

However, despite recognizing the “physician-centered” and medicalizing conceptions on the part of the user, as well as the political attitudes of the managers, the health professionals believe that the movements for change must come from themselves.

[...]There is the desire of the population and the administration will always try to do what it can for the administration [political issues]. Many times, if it [administration] is not connected to the technical part of the professionals, this disorderly flow occurs, and nothing resolute. You will give 18 files every day, you will have a backlog of exams. There is a demand mapped for so long, it is always the same portion of the population, that is the question (E1).

[...]I think it has more to do with the professional issue than with the population [the professional to have a P4-oriented posture] (FA2).

The participants highlight that change demands time, knowledge, planning and, to some extent, motivation. The daily routine is full of routines and demands, and there is little time and incentive for technical and scientific updates related to health care practices and, especially, to P4.

[...]most people think that we are going to do a work here from today to tomorrow, it is a lot of discovery, it is a lot of discussion, [...]we are going to have from what ‘I think’ to what ‘we think’, this situation is the biggest challenge [...]motivation is everything [...] (E1).

[...]we need to have a moment to discuss: “On such and such day there will be a meeting to do this...a schedule” (M1).

[...]this motivation, many times, we go abroad to seek knowledge [...] sometimes, we have to pay out of our own pocket and there will still be resistance from the administration that you will have to be absent for a period, and it is not perceptible in the eyes of many that this will bring benefits to the population [...] (D1).

[...]we don’t feel embraced by everyone [staff and management], it’s all very individual (P2).

### DISCUSSIONS

Considering the importance of the issue for comprehensive health, the P4 needs to be carried out in a fractionated manner before the other levels of prevention (primary, secondary, and tertiary)4 in the structural, particular, and singular areas of the organization and functioning of health services. This contributes to avoid unnecessary damage to the user’s health and requires the use of an idea that goes beyond the biomedical model and individualizes prevention through ethical and less corporatist professional positions.

The call for prevention and health promotion generally resorts to biomedical knowledge that, in its essence, leads to specialized self-care practices, whose potential for promoting autonomy and de-medicalization is limited, since users are dependent on the knowledge of others and referred to adherence to what is scientifically recommended, based on statistics of population groups, but that sometimes turns healthy people into patients.

It is necessary to rethink the organization of health services, review the professional attitude, but also the practices of communication with users in such a way that the doctor-user relationship expands to a professional-user relationship, whether the latter is a doctor or another. The initial findings of this research show that professionals tend to blame other segments for the (absence of) P4 practices, such as, for example, the media, the users themselves, and the health manager. However, throughout the dialogues, they recognize that the great transformation of care practices and the insertion of P4 actions can be implemented and strengthened from the understanding and initiative of the health team itself. This is important, because when different disciplines and professional competencies are brought together in the same objective, such as public/collective health and the focus on PHC, there are points of intersection between them, indicating a field of knowledge and practice that is common and that demands professional skills and competencies for teamwork, contributing to the quality of health care. Thus, operating in an inter-professional manner implies interacting with areas/professionals of diverse backgrounds and whose practices involve a “common knowledge”, which transits between specific areas, in a complementary and collaborative way, aiming at the production of health.

The perceptions of the participants, regarding the contribution of users as a hindrance to the development of actions aimed at P4, can be understood and analyzed in relation to the accountability given to the health system in the face of social inequities, cultural and economic influences, including the search for health at any cost and, preferably, without sacrifice or involvement, which, subjectively, leads to various health problems. It is important to emphasize that this inversion of values sometimes hinders the access of those who need it and expands the interventions to common aspects of life, making the service reductionist, fragmented and vicious, dispensing resources and attention to healthy people to the detriment of those who really need care.

When considering the role of marketing applied to health situations, such as the excessive emphasis on curative and also “preventive” aspects, which emerge from the great demand
for health services, there is a risk of transforming vital events into pathological ones and, in this sense, some changes may contribute, such as: understanding that health is not marketing, it is not merchandise and that all the social, political and professional conditioning and determinants must be analyzed for the best care provided.

In this line, the pressure exerted by industries, markets and health marketing, with biologist approaches, is highly disseminated in the media and in society. Some of these challenges were identified by the participants for the effectiveness of P4. The disease has always been seen as lucrative, but currently, more than ever, the not sick are the target of this market, which significantly interferes in the posture and practice of health care professionals. Notoriously, actions such as social medicalization interfere in the competence of individuals to manage health adversities, making it difficult for them to understand situations related to illness, emotional suffering, death and other situations inherent to human life.

Therefore, it is necessary to consolidate the concept and implement P4 practices in the relationship that is established between professionals and the population, using social networks, communication media, community leaders and health education moments in schools and other places in the community, aiming at the empowerment of individuals regarding health. In this direction, public policies, by guiding the P4 as one of the guiding principles for the qualification of FHS as a PHC tool, may contribute to minimize unnecessary pharmacological treatments, complementary exams and screenings, avoiding harm to users, with a view to clinical and health care.

The recognition, by some professionals participating in the research, of their professional responsibility in P4 goes along with the ethical premise of first “not doing”. Concomitant to this, one can think of practices that involve and guide users, strengthening bonds of trust, exchange and satisfaction in which both can be aware of the risks and benefits of excessive interventions, enabling a relationship of co-responsibility and not guilt, as is feared by professionals. At this juncture, practices that reduce medicalization and iatrogenic care must be configured as inducers of new subjectivities and health practices.

Besides the factors already reported, the professionals highlighted the demands, which, in excess, reduce the time allotted to each user and, as a consequence, increase clinical interventions and medicalization, hindering the professional-user relationship, favoring interventions, such as screening, which, when not organized, are potentially harmful to the individual’s health. Under this premise, it is the professional’s obligation to guarantee integral care, to value qualified listening and technical knowledge uncompromised of influences from the health industries.

However, it is consensual that the excess of user demands in PHC causes anguish and frustration in health professionals, either because of the difficulty in understanding or helping the individual in his needs, or because of socioeconomic or infrastructure issues, or even health conditions in which nothing can be done to minimize pain and suffering. In some cases, they seek to offer comfort through medicalization and unnecessary interventions as a way to quickly resolve the condition presented. It is worth mentioning that the inappropriate staffing, very common in FHS, favors the increase of demand and, consequently, of medicalization and interventions.

When considering the excessive demand for care that sometimes hinders the performance and, consequently, the quality of the anamnesis, this is presented by the participants as fundamental for the realization of the P4 and should be complete, prioritized not only in medical consultations, but also in nursing consultations in order to reduce interventions and medicalization. In this scenario, it is necessary to expand the moments of qualified listening as a tool that has the potential to contribute to the identification of the user’s needs and, consequently, assist in the anamnesis and interpretation of the problems presented, enabling the construction of the individualized care plan.

The participants point out, as a perspective, the shared health care, which can be an alternative to the excess demand and guarantee of access, as well as a reduction of unnecessary interventions. They will be able to benefit from the Single Therapeutic Project and other tools that enable the practice of the articulated and interdisciplinary work process. It is noteworthy that more professionals will be involved and will know the health situation of that user, which will enable comprehensive and timely care, which must be present in the PHC.

For the research participants, clinical activity needs to be based on epidemiological aspects that allow the identification and action according to the reality of the population being cared for. Professionals must be careful not to reduce care to protocols and interventions based on guidelines that do not value qualified listening and the particularities of individuals or families.

The offer of ICPS, as a resource for the management of medicalization, carries the vagueness of being able to mean stimulus to specialized self-care, but also to self-referred care. Its employability has a positive demedicalizing potential, which can become a harm reduction strategy. Therefore, ICP may represent a justifiable alternative in situations where biomedical interventions mean additional risks and little potential benefit.

The participants pointed out the positioning of managers, sometimes political, with exclusive interests of pleasing the population without knowing the technical and scientific aspects that subsidize the health actions aimed at the P4, in addition to the turnover of managers and the lack of knowledge about the topic under consideration, anchored by the lack of incentive for continuing education actions, and the ignorance of the National Policy of Continuing Education in Health (NPCEH), important to expand the knowledge of professionals and the possibility of transforming the reality. We emphasize the lack of guidelines that systematize and evaluate these educational moments, recognizing their possibility of institutional change, not only for the effectiveness of the P4, but also for other actions of health production, in a comprehensive perspective.
CONCLUSION AND IMPLICATIONS FOR PRACTICE

The P4 represents, in PHC, a potentiality in the sense of reversing a hegemonic model of understanding of users, and even of some professionals, in relation to the forms of care and assistance to individuals and families. By turning to a more comprehensive care, one bets on reducing over-medicalization, over-diagnosis and overtreatment, which can cause damage to the health of individuals and the population.

The participants present some challenges for this practice to become effective, such as the lack of moments of continuing education, the review of professional health practices, and especially the need for a (re)positioning of the industry, commerce, marketing, and the media about the meaning of health. All this can also contribute to a change in the user’s perspective.

Regarding the implications for practice, the research contributes to the revision of the views on the ethics of health professions and care providers, regarding screening, diagnosis or treatment, as well as the responsibility of all actors involved in the health-disease process (including the user). It highlights the importance of the individual becoming a co-participant in this process without becoming a victim of a lucrative and indiscriminate system.

When identifying possibilities and challenges present in the team’s daily life for the development of the P4, it became evident the emerging problems that originate with social medicalization and the little tradition with other therapies in PHC. This requires inter-professional conduct, based on cultural competence, horizontal and communication skills, especially between professionals and users. Thus, it is necessary that health team professionals, in addition to physicians, incorporate the P4 in their practices. This can begin even during professional training, in order to value and invest in inter-professional education, allied to continuing education processes, as well as in the evaluation of health care practices and models. It is considered important to invest in the technical, ethical-philosophical, and political elements that permeate the P4, advancing to the professionals’ relationships and the possibilities of collaborative and harmonious actions in defense of an ethical and integral care.

The limitations of this study are related to the research design in the strategy that adopted a single service as a scenario, which does not allow generalizations of its findings, despite its intensity and completeness. One must also consider the need to carry out new investigations that allow understanding the P4 and its implications over time and in the daily lives of the teams.

FINANCIAL SUPPORT

This study was supported by the Universidade Federal da Fronteira Sul (UFFS), the da Fundação de Amparo à Pesquisa e Inovação do Estado de Santa Catarina (FAPESC) and the Universidade do Estado de Santa Catarina (UDESC).

AUTHORS’ CONTRIBUTIONS

Study design. Carine Vendruscolo.
Data collection or production. Karina Schopf.

SCIENTIFIC EDITOR

Gerson Luiz Marinho

ASSOCIATE EDITOR:

Ivone Evangelista Cabral

REFERENCES


