

NETWORK OF MATERNAL-CHILD PUBLIC HEALTH SERVICES IN SOUTHERN BRAZIL

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Received: 12/27/2016; Accepted: 02/01/2017

ABSTRACT

This study sought to report and to discuss the technical, operational and structural strategies for configuring the health care network for pregnant women and children exposed to toxoplasmosis, in public health services located in northwestern Paraná state, southern Brazil. A qualitative case study was conducted focusing on the configuration of care in gestational and congenital toxoplasmosis towards the health care network model recommended by the Ministry of Health. The discussion was conducted focusing on the concept of network proposed by Rovere. The study revealed the strength of the establishment of interpersonal bonds in the configuration of network services, the importance of integrating them to ensure comprehensive care and the construction of ever more consistent networks. This work represents an innovative strategy with a high degree of reproducibility in health services and is applicable to planning, management policies and actions aimed at maternal and child health.

KEYWORDS: Continuous health care network, maternal-child health services, high risk pregnancy, congenital toxoplasmosis, prenatal care.

1. INTRODUCTION

The prenatal care design is based, among other factors, on risk identification and stratification, guiding towards proper clinical management in habitual and high risk situations. Among vertically transmitted infectious diseases, infection with *Toxoplasma gondii* placed high demands on the detection and monitoring of susceptible pregnant women, diagnosis of recent acute infection during the current pregnancy, as well as the adequate time for maternal,

fetal and post-neonatal therapeutic intervention¹.

Toxoplasma gondii is likely the most widespread protozoan among human and animal populations. One-third of all humans are chronically infected, and the majority of immunocompetent individuals are asymptomatic². It is estimated that the seroprevalence of this disease among the adult human population in Brazil stands between 50% and 83%³. Isolates of *T. gondii* from Brazil have been identified as biologically and genetically different from those observed in other regions of the world^{4,5}. Important epidemiological factors contribute to disseminate this parasitemia, such as the presence of cats, ingestion of uncooked vegetables or unfiltered water contaminated with *T. gondii* oocytes, eating raw or rare meat, drinking non-pasteurized milk, having direct contact with soil containing oocytes⁶. These factors were observed in the region of the present study¹. Therefore, seronegative expectant mothers may develop acute toxoplasmosis during pregnancy, with the possibility of vertical transmission. Programs to control toxoplasmosis are essential prevention measures⁷.

During routine prenatal serological triage, pregnant women with anti-*T. gondii* IgM and confirmed low IgG avidity, until the 17th week of pregnancy, are suspected of acute infection; investigation of amniotic fluid through PCR and bioassay is recommended¹. Combining techniques is important to achieve the diagnosis of acute infection and/or fetal transmission⁸, although it is not always possible to confirm vertical transmission. The child may be born symptom-free most times, or with classic syndrome (microcephaly, brain calcification, hearing deficit, chorioretinitis and blindness), with the possibility of progressive tissue injuries, especially in the eyeball^{9,10}. In Brazil, the strategy of combining techniques to diagnose acute gestational toxoplasmosis is seldom undertaken during prenatal care, which can result in false results and conducts¹¹. Studies carried out in northwestern Paraná

state^{6,12} found expectant mothers who were late receiving care at the high-risk pregnancy outpatient service of Maringá Regional University Hospital/State University of Maringá (HURM/UEM), and cases of congenital toxoplasmosis. The routine of the various different services involving in care and systematization of health care actions, outside the teaching hospital, hindered decision-making¹¹. Starting in 2010, acute gestational and congenital toxoplasmosis was included in the national list of diseases with mandatory reporting at sentinel units in Brazil¹³.

In 2011, Brazil's Ministry of Health¹⁴ implemented a new model of care comprising prenatal, labor and child-birth. This program contemplates funding for serological studies on the main vertically transmitted diseases and stipulates that states and municipalities must be responsible for infrastructure and financial programming, implementing surveillance and assistance actions. The effectiveness of actions to control the disease depends on a fine synchrony between technical knowledge on the illness and management measure that can broaden its control. This coordinated action and the sharing of information on the disease and its occurrence over a given territory leads us to reflect on the configuration of health care work in a solidary and shared network.

Considering that integral care can only be achieved by organizing work into a network¹⁵, the creation of networks in the field of health requires a framework of interactions between those responsible for organizing the system, those responsible for organizing and producing the services and citizens¹⁶. Frequent interactions within a network make it possible to obtain sources of resources, information and support¹⁷. As such, the set of anonymous participants, bound by ideas and resources around shared values and interests, seek to put services into effect in the field of health¹⁸, aiming to work on different realities in a borderless structure, forming bonds that support, unite and assist one another¹⁸. To Franco¹⁹, health care is also produced through multiple connections and flows, which create lines of contact in the relationships between actors involved, who are source of care production. In that sense, Rovere²⁰, a social psychology researcher, reinforces that networks are formed by people who relate and bond to one another. The author considers the issue of the central bond in the formation of networks.

Acute gestational toxoplasmosis is an illness with specific complexity and characteristics, requiring systematized multi-professional care and structuring of the care network in which primary care has an essential role in the prevention, early diagnosis and referral to specialized reference services that concentrate expertise in that area. Once the acute phase is detected, interventions must be quick and resolute. The earlier it is diagnosed and treated, the higher the chances of preventing or reducing after-effects on the fetus²¹. For that reason, the occurrence of cases of congenital toxoplasmosis is a reducible outcome

which can be considered a sentinel event of prenatal care in the health services network. It is also noteworthy that this initiative was proposed as a response to combatting a vertically transmitted zoonosis at a time when the construction of health services networks had not yet been considered in the state of Paraná. The objective of this study was to present and discuss the technical, operational and structural strategies in configuring the care network for pregnant women and children exposed to toxoplasmosis in the public health care services in the northwestern region of Paraná state.

2. MATERIAL AND METHODS

Taking the concepts of social research as reference, it is a case study of a qualitative character²² focusing on the configuration of care for gestational and congenital toxoplasmosis towards the model of health care networks recommended by the Ministry of Health²³.

Located in the northwestern region of Paraná state, Brazil, the 15th Regional Division of the State Secretariat of Health (15^aRS/SESA) comprises 30 municipalities with a 2012 estimated population of 748,116. Maringá is the seat of the division and of the northwest macroregion, comprising five regional divisions and 115 municipalities, with a total population of 1,780,610 inhabitants²⁴. It is a reference in medium and high complexity procedures for the municipalities of that regional division and in high technological density for the macroregion, assisting the administration of municipal health departments, their local epidemiological surveillance and primary health care teams.

This regional division is served by the State University of Maringá (UEM), which has trained professionals in undergraduate and graduate programs geared, among other things, to researching infectious and parasitic diseases, maternal-child health, public health, pediatrics and gynecology. It has its own teaching and research laboratory and offers specialized assistance at the Specialty Outpatient Service of the Maringá Regional University Hospital. This service develops teaching, research and care activities through a multi-professional staff. It features 70 medical specialties, including pediatrics, clinical medicine, OB/GYN, ophthalmology, and is reference in caring for patients from the municipalities served by 15^aRS/SESA.

A descriptive exploratory study was carried out, with data collected from records in minute books, meetings and service protocols in the period between January and July 2014. The results were discussed focusing on the concept of network proposed by Rovere²⁰.

3. RESULTS

The network regional of assistance to pregnant women and children exposed to toxoplasmosis in public

health services of northwestern Paraná was organized progressively, by implementing technical and operational strategies that promoted an intervention in the assistance model for this risk of congenital infection.

The Paraná State Health Secretariat revised the Pregnancy and Childhood Manual with regard to High Risk, and expanded to this regional division the programmatic actions for Clinical, Laboratory and Therapeutic Guidelines of Congenital toxoplasmosis²⁵.

Given the similarity in prevalence and vulnerability, gestational and congenital toxoplasmosis was added to programs for control of vertical transmission of HIV/AIDS and Syphilis.

In 2012 the Paraná Mother Network²⁶ was implemented statewide, comprising actions aiming to organize maternal-child care in prenatal and puerperal actions and monitor child growth and development, based on selected criteria that classify them into habitual, intermediate or high risk. It involves primary, secondary and tertiary health care. The state makes this structuring possible through inter-administrator pacts by establishing the flow of assistance between providers. As such, prenatal care of a habitual risk is performed by Family Health teams and high-risk pregnancy is concentrated at two hospitals - HURM/UEM and Hospital Santa Casa de Maringá.

Until 2005, expectant mother suspected of acute toxoplasmosis were assisted at basic health units and referred to one of the five high-risk pregnancy outpatient services of HURM/UEM. Between 2005 and 2007, increased demand and the combined initiative of one of the physicians of the high-risk pregnancy outpatient service and the social worker at the specialty outpatient service stimulated the organization of assistance by an interdisciplinary team and at an outpatient service specific for that zoonosis. In 2009, HURM/UEM proposed a deal with the Maringá Municipal Health Department and 15^a RS/SESA, becoming a regional reference in high-risk care for these pregnant women.

The experience developed by the regional reference service for gestational and congenital toxoplasmosis between 2007 and 2015 was developed as a partnership between UEM, Maringá Municipal Health Department and 15^a RS/SESA, and the epidemiology teams, which are essential to incorporate primary health care actions.

Telephone appointment scheduling is done by the nurse at the specialties outpatient service at HURM/UEM. In the first consultation, the expectant mother is counseled by the nurse on the objectives of the assistance and receives guidance on gestational and congenital toxoplasmosis. The physician conducts the anamnesis and the obstetric exam, and seeks to define the diagnosis by compiling laboratory, epidemiological and clinical evidence, founded on the guidelines of the state of Paraná²⁵. When indicated, amniocentesis is performed after signing the Informed Consent Form. Nursing care includes collection

of lab exams, assisting in amniocentesis, scheduling follow-ups, answering questions, referral to social service and the expectant mother's unit of origin. Medications are requested through 15^aRS/SESA and provided by the Paraná State Medication Central. Detected demands are forwarded to social service.

In a partnership with the regional coordination for mother and child health care, the important of carrying out exams on expectant mothers at all municipalities was reinforced, as well as making clinical reports available up the first quarter of gestation. Case monitoring and discussion are performed along with hospital and municipal epidemiology. The inter-relationship with epidemiological surveillance represents an important strategy for case monitoring and active search of pregnant women who did not have access to outpatient monitoring.

Family members and expectant mothers are instructed to phone the nurse of the outpatient service to communicate the childbirth and the conditions of the child's birth. At that time, the follow-up puerperal appointment with a gynecologist is scheduled, as well as appointments for the child with a retinologist, pediatrician, ENT and speech therapist at the HUM in order to monitor the child during the first year and confirm or discard congenital infection. In case the family member does not communicate the birth within up to two weeks for the likely date, the nurse actively makes phone contact.

To close the investigation, the case is discussed as a team with the hospital epidemiological surveillance nucleus.

It should be mentioned that these advances were possible through integrated actions in teaching, research and continuing education in health.

In 2010 a research group was created, registered in the Lattes directory, consisting of professionals (15^aRS/SESA, HURM/UEM and Laboratory of Parasitology) as well as medical and nursing students. They are part of the Brazilian Network of Research in Toxoplasmosis and are a matrix reference for issues related to this zoonosis.

Supporting the process of continuing education in health, the matrix team of HURM/UEM promoted the systematization of monthly/bimonthly meetings to conceptually align this illness and its management. The scientific support provided by the Graduate Health Sciences Program at UEM contributes to support these inter-institution actions.

Knowledge was spread through lectures, meetings with municipal leaders, regional health divisions, and basic health units. Health professionals are being trained at the undergraduate, graduate and scientific initiation levels, geared towards studies of gestational toxoplasmosis and its concepts.

4. DISCUSSION

The establishment of a network with bonds between people in the different care services for expectant mothers and the adoption of a standardized and consensual conduct in northwestern Paraná was important to consolidate control over gestational toxoplasmosis. The set of strategies adopted revealed the strength of the interaction in the configuration of the services into a network, of the importance of integration geared towards care, to the development of research and the accomplishment of permanent health education. The strengthening of the management of municipal health surveillance services was essential in this work, as well as assuring proper conditions for support and reference hospitals, making epidemiology and primary care services viable. Continuous actions for continuously monitoring stratified and referenced risk were contemplated.

Primary health care was the starting point of the assistance network, complemented by hospitals, emergency services, laboratories, drugstores and other health services, in order to find the expectant mothers. The communication system was strengthened between all points in the network¹⁹, represented by primary health care teams, epidemiological surveillance, reference outpatient services, hospital social service, hospital epidemiology nucleus, and the regional instance. The HUM/UEM referral team was also requested by the private/associated network, by obstetricians, infectologists and pediatricians. The health network is to support the activities of the teams, allow easy and fluid communication between professionals and different services which, for their part, should support and sustain patients in their therapeutic trajectories, establishing communicative relations with users, families, and social support networks²⁷. Although institutions and projects are involved in the process of network configuration, it is always people who articulate, relate and build bonds¹⁶.

When analyzing the relationships between the professionals of the local and regional health networks that comprise assistance at different health institutions, it can be affirmed that bond established between these actors, starting from the partnership established and continuing education actions, reached the level of cooperation and, partially, of association, passing through the levels of acknowledgment, knowledge and collaboration²⁰. The level of acknowledgment was reached at the moment in which administrators from HUM/UEM, 15th Regional Health Division of Maringá, State Health Secretariat and Municipal Health Secretariat agreed to take part in joint actions in partnership to organize the care network for gestational and congenital toxoplasmosis proposed by the specialized unit. For its part, the level of knowledge occurred by establishing the flow of assistance and the role of HUM as a regional reference in the care of gestational and congenital toxoplasmosis, in continuing health education, in

which professionals took part in training meetings and gatherings to discuss cases to find the potential of the local networks in promoting integral care. Also, it took place when members of the multi-professional team – nurses, gynecologists, pediatrician, ophthalmologist, ENT, neurologist, infectologist, undergraduate nursing and medical students – joined the research group and created the assistance protocol for gestational and congenital toxoplasmosis and established strategies to monitor this illness in conjunction epidemiological surveillance nucleus of HUM. According to Rovere²⁰, there are different depth levels of bonding to organize and monitor the degrees of consistency of a network, namely: acknowledgment; knowledge; collaboration; cooperation; association. The deeper the bond established between the actors involved, the more consistent is the network formed. The first level is acknowledgment, which implies accepting the other as a peer; the second refers to knowledge, in which the other is regarded as a valid interlocutor and it worth knowing who this other is and how he sees the world; the third level is collaboration, from which bonds of reciprocity and collaboration are built; the fourth is considered the level of cooperation or combined operation, which consists of a more complex process, in which each pursues his own objectives, but shares activities and/or resources, that is, at the same time it requires solidarity, it generates it as well; the fifth and last one deals with association, in which common established objectives or projects that neither part could develop on its own.

It is noteworthy that in the first years of the network, the flow of service was slow – expectant mothers suspected of acute gestational toxoplasmosis often had to wait for weeks or months to be referred to specialized service, in addition to the structural problem for laboratorial diagnosis¹¹. Currently, exams are conducted starting in the first blood sample given by the pregnant woman, with results available within ten days. Clinical conduct was the other fitted variable. Even though 74% expectant mothers started prenatal care in the first quarter of the pregnancy, the physician was often unaware of the actions taken by the gynecologist or infectologist at HUM/UEM. Without a clear diagnosis and consensual conduct, there would be delays in intervention, which was gradually reduced as the reference service was strengthened, as was the communication between the services and their workers. The strengthening of the care network gave children suspected of congenital toxoplasmosis access to multi-professional assistance. The level of collaboration was reached at two moments. Initially, when the State guaranteed the performance of serological tests in a timely fashion and treatment for suspected cases of gestational toxoplasmosis, and when city's epidemiological surveillance began to actively search for suspected cases of gestational and congenital toxoplasmosis.

The level of cooperation was reached about one year

ago. Some municipalities developed local strategies to train their teams, early diagnosis, active case search, building therapeutic in conjunction with the reference staff at HUM, as well as monitoring and follow-up in primary health care. This is in order to meet the recommendations of the Ministry of Health¹⁴, which guides that the line of care presupposes that the point of communication in the assistance network should be basic health care, responsible for early enrollment of expectant mothers, assistance for habitual risk prenatal care, identification and stratification of gestational risk. Communication between all points of care in the network is gradually improving in the sense of preserving collegiate, inter-institutional governance and the assumption of health care networks²⁸. It should always be figured as a goal to be pursued by articulation among the parties, both in regard to assistance, surveillance and training techniques, as well as in management for creation, enabling of services or celebrating partnerships.

Arguably, the most impacting strategy refers to the organization of the flow assistance to pregnant women suspected of acute disease. The strategy allowed for referral of the expectant mother directly to the high-risk pregnancy outpatient service at HUM/UEM. This service has fulfilled the role of specialized care and evaluator, which confers support to the team local that undertakes prenatal care and in which the expectant mother remains in a bond until childbirth. In coming years, the objective is to gradually reach – with training and structuring of care into a network – the last level (association), in which care for this congenital infection can be decentralized onto other points in the network, keeping a team of second- or third-reference specialists, geared towards the specificities of this illness. The line of care for toxoplasmosis is expected to expand, interconnecting intermediate risk pregnancy and pediatric outpatient services, making medication available to treat exposed children and monitoring the therapeutic care plan in the actual clinical administration of the case.

The transition between the old and recently adopted assistance model required the sustainability of the advances achieved and the continuity of programmatic actions. In addition to decentralizing resources and promoting training, it is necessary to maintain governance and central organization of a nucleus of matrix support to assist and answer specific questions that make it possible to interrupt the chain of vertical transmission of the illness. Considering the nuances involved in accurately diagnosing acute toxoplasmosis during pregnancy, the main obstacle has been the high turnover in professional and administrative staff. In vertically transmitted diseases, delay or failures result in a concept exposed to a parasitic and infectious risk, affected severely and irreversibly²⁹.

The structuring of the regional reference service at HUM and the care network represents a strategy that aims

to support the guarantee of access and early diagnosis, integral and resolute care to women suspected of acute gestational toxoplasmosis, as well as prevention from congenital toxoplasmosis and newborn illnesses. The organization of services into a network and the flexibility required in this task depend on harmonic action by the professional team at all levels. The integration of multi-professional team at HUM/UEM and the network of assistance, from basic services to the most complex, with epidemiological surveillance services of the city and 15^a RS/SESA are advances achieved by the creative action being implemented in northwestern Paraná. There must be solid investment in the strategies of primary prevention for gestational toxoplasmosis and congenital toxoplasmosis, including combined control and monitoring of seronegative pregnant women for *T. gondii*. In cases of seroconversion, quick action is required in order to reduce the extent of damage to exposed children.

5. CONCLUSION

The complexity of this illness illustrates the high degree of structuring for network responses and represents an innovative strategy with a high degree of reproducibility in health services, can be applied in processes of planning, policy administration and health action geared towards maternal-child health.

ACKNOWLEDGMENTS

Our thanks to Araucária Foundation-Paraná for financial support.

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