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Original Article

ANÁLISE DE CAUSA RAIZ EM INTERNAÇÕES POR DROGAS DE ABUSO COMO EVENTOS SENTINELAS

ROOT CAUSE ANALYSIS IN HOSPITALIZATIONS DUE TO DRUGS AS SENTINEL SURVEILLANCE

ANÁLISIS DE CAUSA RAÍZ EM INTERNACIONES POR DROGAS DE ABUSO COMO EVENTOS CENTINELAS

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RESUMO
Objetivo: Analisar os fatores de iniciação e continuidade do uso de drogas, a partir do evento sentinela, internação hospitalar com diagnóstico de trauma associado à intoxicação por drogas de abuso. **Métodos**: Estudo exploratório e retrospectivo, com referencial de vigilância epidemiológica de 30 eventos sentinelas, a partir de revisão de documentos hospitalares e entrevista com familiar dos usuários de drogas. A matriz para avaliação foi a análise da causa raiz, estabelecida pela investigação e pelar e construção da trajetória do uso de drogas. **Resultados**: Houve predomínio de sexo masculino, baixa escolaridade e desemprego, com média de 40,1 anos. A droga mais utilizada foi o álcool, isolada ou associada a drogas ilícitas. Identificaram-se pontos críticos de vulnerabilidade social, permitindo uma discussão sobre o desempenho das políticas públicas. **Conclusão**: A maioria dos fatores subjacentes se relacionava à ausência ou à precariedade de políticas públicas, com pontos críticos na intersetorialidade.
Descritores: Vigilância de evento sentinela; Drogas ilícitas; Saúde mental; Vulnerabilidade social; Política pública.

ABSTRACT
Objective: to analyze the initiation and continuity factors for drug use from the hospitalization sentinel surveillance diagnosed with trauma associated with drug intoxication. **Methods**: this is an exploratory and retrospective study with the epidemiological surveillance framework of 30 sentinel events based on hospital documents review and interviews with family members of drug users. The matrix for the evaluation was the root cause analysis, established by the investigation and reconstruction of the drug use trajectory. **Results**: we found predominance of male gender, low education and unemployment, with average 40.1 years. The most consumed drug was alcohol, alone or associated with illicit drugs. Critical points of social vulnerability were identified, admitting the discussion of public policies performance. **Conclusions**: most of the underlying factors were related to the absence or precariousness of public policies, with critical points in intersectoriality.
Descriptors: Sentinel surveillance; Illicit drugs; Mental health; Social vulnerability; Public policy.

RESUMEN
Objetivo: analizar los factores de iniciación y continuidad para el consumo de drogas del evento centinela de hospitalización, diagnosticado con trauma asociado con la intoxicación por abuso de drogas. **Métodos**: estudio exploratorio y retrospectivo con el marco de vigilancia epidemiológica de 30 eventos centinela, basado en la revisión de documentos hospitalarios y entrevistas con familiares de usuarios de drogas. La matriz para la evaluación fue el análisis de la causa raíz, establecido por la investigación y reconstrucción de la trayectoria del consumo de drogas. **Resultados**: predominó el sexo masculino, baja educación y desempleo, con un promedio de 40,1 años. La droga más utilizada fue el alcohol, solo o asociado con drogas ilícitas. Se identificaron puntos críticos de vulnerabilidad social, lo que permite una discusión sobre el desempeño de las políticas públicas. **Conclusión**: la mayoría de los factores subyacentes estaban relacionados con la ausencia o precariedad de las políticas públicas, con puntos críticos en la intersectorialidad.
Descriptores: Vigilancia de guardia; Drogas ilícitas; Salud mental; Vulnerabilidad social; Política pública.

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INTRODUCTION

Public health is increasingly aiming at surveillance and monitoring of diseases and illnesses as guidance tools in the planning and evaluation of health programs and policies[1]. In Brazil, among the challenges of health surveillance, are the development of new information systems and new approaches to collect surveillance data, in real-time, mainly to reach vulnerable populations or that cannot be easily found, through standardized demographic variables. New systems are needed to track prescription drugs, besides expanding existing systems, for mental health surveillance and to include drug use[2].

Drugs, as substances introduced into the body, that changes the way it works, modifying vital functions and behaviors, started to be considered a social problem, due to the great socio-economic changes and the losses resulting from their abuse. Drug use can take place as a way of obtaining pleasure; to relieve anxiety, stress and fears; and even to lessen physical pain[3-4].

Often, drug users are at risk, related to individual, socioeconomic, and cultural factors, requiring a more attentive and alert look at their complexity. Thinking of the care needs of vulnerable populations is a challenge for health professionals, in the search to offer not only technical care, but also assistance that shapes the real possibility of promoting changes in existing public policies[5-6].

Although it is recognized that drug use is an emerging social and public health problem, the use of epidemiology as a tool for detecting and assessing the use of these substances is recent. Knowing the pattern of drug use in each society is central for the implementation of programs to prevent consumption, as updated information provides parameters for public policies aimed at prevention and treatment[7-8].

However, there is no effective epidemiological surveillance process to measure the effect of drug abuse on the population's health. Data from sentinel units or sentinel areas or population-based surveys are used to guide prevention and care interventions, but they are not sufficient to guide actions at the local level, support intervention programs and serve as a counterpoint to the evaluation of other diseases associated and more susceptible to interventions[9-10].

Epidemiological surveillance is the continuous and systematic collection, analysis and interpretation of data on events that affect the population, developed from local health systems, to speed the process of identifying and controlling adverse health events or risk factors[11]. In epidemiological surveillance systems, data collection can be performed by passive and spontaneous reporting methods and by active methods, which require contact between health and information sources regularly, allowing better knowledge of the behavior of health problems in the community, in both quantitative and qualitative aspects[12].

One of the active methodologies for surveillance in epidemiology is the sentinel surveillance, which applies to the detection of preventable disease, disability or unexpected death, occurrences that serve as a warning sign that the quality of care must be questioned. These conditions could be improved by technologies and effective health actions, and constitute clearcuttings, that is, indexes of quality of health care for immediate use[13-14]. The arrangement of systems for sentinel surveillance aims to watch key indicators in the general population or special groups. The selection of a negative circumstance, with a serious adverse result, signals the immediate need for response and generates two challenges: understanding how and why the event occurred, and preventing the occurrence of the same or similar event[13-15].

As early as 1998, the Ministry of Health encouraged and supported the use of sentinel surveillance, aiming to gather information capable of meeting the main objective of epidemiological surveillance, which is the timely preventive actions[16]. Since 2007, a group of nursing researchers from Paraná, has considered, on an experimental basis, sentinel surveillance as a tool for the epidemiological surveillance of intoxications and the effects of drugs use on human health, with case/event definition, operationalization of epidemiological investigation and tests to assess the potential event, intending to institutionalize surveillance in a local health system[17-21].

Although unevenly in varied regions, the monitoring of the relationship between drugs, violence and trauma is carried out in our country, based on information from some Toxicological Information and Assistance Centers (CIAT), which are considered sentinel units for monitoring poisoning. However, the epidemiological

surveillance procedure, using sources or sentinel surveillance, aiming to establish the basic cause of the event (causal root) or preventable risks and to propose future preventive measures, is still little used in Brazil[12,22].

Generally, drug users access health services, especially the Emergency Care Network, when they have complications related to compulsive consumption, with clinical impairment, resulting from chronic use or in situations of violence and trauma. For the epidemiological surveillance of the effects associated with drugs of abuse on health, all cases of people hospitalized in emergency care units diagnosed with physical trauma associated with drug intoxication must be used as a sentinel event.

This study started, based on the premise that the complication of hospitalization due to trauma in emergency rooms was understood as preventable, configuring an indicator of the severity of the living conditions of drug users and their families, which may be related to possible failures of the health care or deficiencies of basic health services[13-14,20].

The guiding question of the present investigation was the following: What, after all, is the triggering sentinel surveillance related drug use and abuse in individuals hospitalized for trauma associated with drug intoxication?

The objective was to analyze the factors for the onset and continuity of drug use, starting from the hospitalization sentinel surveillance with a diagnosis of trauma associated with drug intoxication.

METHODS

A descriptive and retrospective study, taking as a reference the epidemiological investigation of sentinel events[13-14] and, as a method of case evaluation, root cause analysis (RCA)[23].

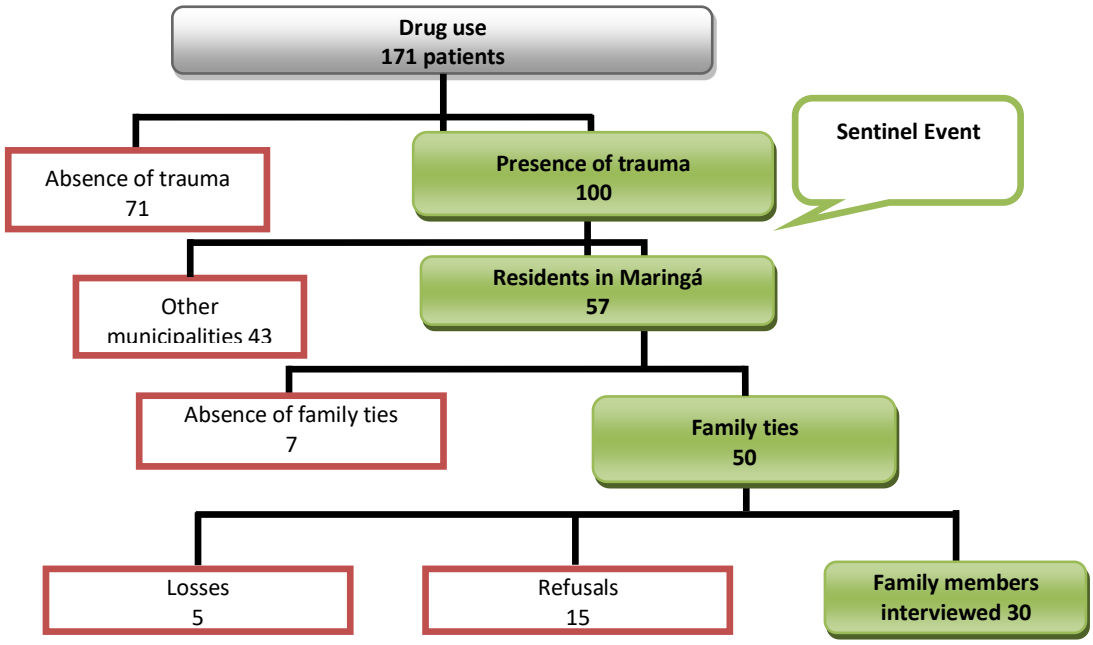
The epidemiological investigation of sentinel events presupposes the identification of severe events that could be avoided by effective public policies[13-14]. The RCA is the systematic process, carried out after the occurrence of sentinel events, in which the factors that contributed to the event are identified by the reconstitution of the sequence of events and the constant questioning of why, seeking to reduce or eliminate the risk of repetition[23-24]. The analysis goes deeper, asking “what” and “why” until all aspects of the processes are analyzed, and the factors that contributed to the event are considered[22,24]. The matrix for evaluating cases followed the adapted RCA model[22,24].

The study was carried out in the city of Maringá (PR) using the cases from the emergency care unit of a teaching hospital and reported as alcohol poisoning to a CIAT, called *Centro de Controle de Intoxicações* (Poison Control Center), from April to September 2014.

This was an intentional sample, composed by patients who fitted the scope of the proposed sentinel surveillance, that is, with a compatible clinical condition or laboratory tests confirming intoxication by drugs associated with physical trauma; admitted to a teaching hospital; accessed from notification to a CIAT, regardless of sex and age, with family ties and permanent housing, living in the municipality of Maringá (due to the locoregional dimension of the epidemiological surveillance system). The cases were called sentinel surveillance, and a family member was considered a key informant for the epidemiological investigation.

In the study period, 171 patients were found with a record of the effects of drug use. Of these, 100 had a medical diagnosis of trauma associated with drug use and were considered as sentinel surveillance, 50 of which were residents of Maringá. After applying the inclusion and exclusion criteria, losses, and refusals, 30 sentinel surveillance were eligible for the study (Figure 1).

Figure 1 – Research flowchart. Maringá (PR), Brazil, April to September, 2014.



Hospital documents and telephone contact supported the confirmation of the inclusion criteria. Family members were invited to participate in the survey by telephone. Cases of absent family ties were excluded.

The Epidemiological Record of Toxicological File of Alcohol Intoxication and/or other Drugs (OT/IA file), nationally standardized and filed with CIAT, and the patient's hospital record were used for the diagnostic confirmation and evaluation of hospitalization and clinical management.

The data collection instrument was the semi-structured sentinel investigation script, composed of four thematic blocks, which addressed the socioeconomic and demographic information of the drug user; sentinel surveillance and clinical evaluation; home and family research; and assessment and conclusion of the case.

The data collection followed the sentinel surveillance investigation methodology, detailed by the clinical evaluation of the cases. The primary data were collected in a single meeting with each family member, through individual home interviews lasting approximately 50 minutes.

For documentary analysis, the characterization of the sentinel surveillance, the history of intoxication, pre-hospital care (location, type of occurrence and drug), data on hospitalization and the clinical classification of the case were listed for study. In the interview with the relative, the following points were addressed: sociodemographic conditions of the family and the data of the drug user informed by the relative; individual's behavior in the family context, at work and in social life; onset and motivation for drug use; the time between the patient started drug use and the time the family knew about it; drug use time; the history of treatment for addiction; abstinence/relapse cycle; and access to public policies. Still in the home interview with the relative, following the technique recommended for studies of sentinel surveillance[13-14], the reconstitution of the individual trajectory of each case was carried out, with data on the toxicological occurrence, the contextualization of care and hospitalization, the addictive family history and family access to psychosocial policies.

Through the systematic analysis of the history of each case, after searching the hospital records and OT/IA files, and interviewing the family member, the possible factors that influenced drug use and, consequently, hospitalization, were investigated. To retrieve this information, three questions were asked: Why did the individual start drug use? Why did he/she continue drug use? Where did problems start?

After evaluating each case, the item concluding the case was filled out in the sentinel surveillance investigation script, with the analysis of the basic reason for the use of drugs and risk/vulnerability factors, such as background and risk factors, risk at home, at work, at school, at the

health service; the existence of support from social networks and public services; and the possibility of the event being avoided and through what social, educational, health care and other measures.

The ethical procedures of the present study are represented by the approval of the Committee for Ethics in Research with Human Beings (COPEP), of the State University of Maringá (UEM), opinion n. 458.185/2013, CAAE: 06218713.0.0000.0104, and by the signing of the Informed Consent of the participants who agreed to participate.

RESULTS AND DISCUSSION

The profile of the 30 sentinel surveillance showed a predominance of males, ages between 13 and 65 years and a mean age of 40.1 years, besides low education, and unemployment. The most used drug was alcohol, isolated or associated with other drugs, and half of them used the drugs daily. Most of the events took place outside the residence (73.4%), being mainly traffic accidents, falls and physical aggression. (Table 1)

Table 1 – Sociodemographic and economic variables of sentinel surveillance. Maringá (PR), Brazil, April to September, 2014.

Variables	Results
Male sex	96.7
Race/white color (self-declared)	66.7
Catholic (non-practicing)	46.7
Single	76.7
>4 years of schooling	33.3
Unemployed	50.0

Resultados expresso por %.

The sentinel surveillance investigated are outside the age pattern observed in population-based and nationwide surveys conducted in Brazilian capitals. This pattern is possibly related to the time of drug use, which varied from 1 to 54 years and the mean of 20.8 years, also different from the national one, which is 13 years [19-20.25].

The age profile of the study population is not similar to that of cross-sectional surveys and indicates that sentinel surveillance and their families, possibly, have a trajectory of relapses and illness, with drug users and families approaching the “bottom of the well” and correlated to social vulnerability. This profile of prolonged use, permeated by abstinences and relapses, and voluntary and compulsory hospitalizations, seem to determine the emotional and marital life, education and the inclusion in the job market of sentinel surveillance, since most were not married, had low education and were unemployed or worked in low-skilled economic sector [10,20].

The age of the 30 family members interviewed ranged from 19 to 78 years, with a mean of 51.9 years. Most were women (86.7%), mothers of alcohol and other drug users (46.7%), and seven were the head of the family. Half of the interviewees were married, with chronic comorbidities, and the predominantly school level was elementary school. There was a mean number of 4.1 residents per household, with a mean of 1.8 children and 1.4 elderly people. Regarding the characteristics of the household, most families owned their homes, with an average of six rooms, and five families (16.7%) lived at home with up to four rooms, however there was no uniform spatial distribution of the cases investigated in regions of the municipality (Table 2).

Table 2– Sociodemographic and economic variables associated with sentinel families. Maringá (PR), Brazil, April to September, 2014.

Variables	Results
Families	30
Children and adolescents (0 to 17 years)	20
Elderly	23
Per capita income	689±652.06
Home owner	80.0
Masonry house	70.0
Wooden house	30.0
Access to health services exclusively from SUS	33.3

Results expressed as n, mean ± standard deviation or%.
SUS: Unified Health System.

Of the 30 families interviewed, 66.7% reported that they had no difficulty getting assistance in the health service, on the day of the event, five families reported that the greatest

difficulty was the delay to receive assistance, and one reported neglect by the professionals, because his relative was under the influence of drugs of abuse. After hospital discharge, half of the cases were referred to other health services or to continue outpatient treatment. Only one user was referred to as a psychosocial assistance service for treatment and social rehabilitation.

In the evaluation of hospital service and quality of care, 76.7% of families reported that the health service and the assistance provided to their family members were excellent and/or good; in four cases (13.3%), it was regular, related to the complaint of the delay in care, the lack of information about the evolution of the patient's clinical condition and prolonged fasting; and, in one case (3.3%), the family member reported that the service was terrible, because there were communication failures about the assistance.

Of the cases, 60% reported that they had already sought help to treat their family members' addiction. Only five (27.7%) stated that they seek the Psychosocial Care Center for Alcohol and Drugs (CAPSad). The search for treatment and professional support took place in periods that varied, immediately after the onset of drug use up to 32 years later, with an average of 11.5 years. The long period was reported by a family member due to the user's non-acceptance of the treatment, for the shame and the difficulty in accepting the problem. One family said that they believed that "the use was a phase in [the person's] life and that it would not be harmful".

The use of CAPSad, considered an innovative device for the strategies of deinstitutionalization and humanization of the Psychosocial Care Network, was mentioned by a few families, in the case of trauma due to effects associated with the alcohol and other drugs, attended in a general hospital; none of the users were being treated at CAPSad, when the trauma occurred - different from the national rate, according to which 50% of families know the CAPSad and sought care for their family members at these health services[25]. It can be inferred, then, that the families of the sentinel surveillance, although in need of professional support to assist the sick family member, were unaware of the services available in the municipality, reinforcing the need to implement an articulated network to insert them in the health care services aimed at drug users.

Through the analysis of the root cause of drug use by the operation of a sentinel surveillance (a less pragmatic and more qualitative methodology of surveillance and epidemiological investigation), it was considered that locoregional public policies, such as user embracement in Primary Care and CAPSad services, they were deficient in approaching patients and their families.

The treatment before the traumatic event in 56.7% of the cases was hospitalization, 52.9% in a psychiatric hospital. Five families (29.5%) reported that the treatment was paid directly to the treatment institution; two reported that this situation affected the finances of the family, who needed a bank loan and had help from the church. The number of hospitalizations ranged from one to 20, with an average of 3.3 hospitalizations per user. Of the cases with a history of hospitalization, the last one lasted from 2 to 24 months, with an average of 6.8 months.

One family reported that they sought outpatient treatment in a psychology service, however, the family member attended only six meetings and abandoned treatment. Mutual assistance services were reported by nine families (30%), mainly of the religious kind, and Alcoholic Anonymous and *Amor Exigente* groups. The other families did not mention the use of support and rehabilitation services.

The similarities and differences of sentinel surveillance were related to the context of user's life and family, as there were reports of violence in childhood, the history of previous traumas, illicit maneuvers for buying the drug, changes in behavior at home and addictive behavior of families (42%). In 20% of families, drug use happened inside the household. The reason for the onset of drug use reported by the relative in 18 cases (60%) was the influence of friends and, in 17 of them (56.8%), the family knew about the use immediately due to changes in the user's behavior in the household context.

The approximation of the causes of the event was summarized in three moments: first, approximation or risk factors for the onset of drug use; second, approximation or contributory factors for the continuity of drug abuse; and third, poor or failed Health Care and Social Protection Network.

In this study, it was possible to observe that the perception of families about the onset of drug use can often be associated with a single factor or even go unnoticed. Exposure to certain combined factors, which could contribute to drug abuse, is not recognized by families. The families of the

investigated users pointed to several risk factors, alone, for the onset of drug use, related to the family context, peer groups (friends), the school, social discrimination, and the lack of specific health services.

Again, for most families, there were no objective justifications. The families under study could not face the problem and did not have enough knowledge about drugs and their implications, to deal satisfactorily with the problem and understand the need for their participation in the therapeutic process.

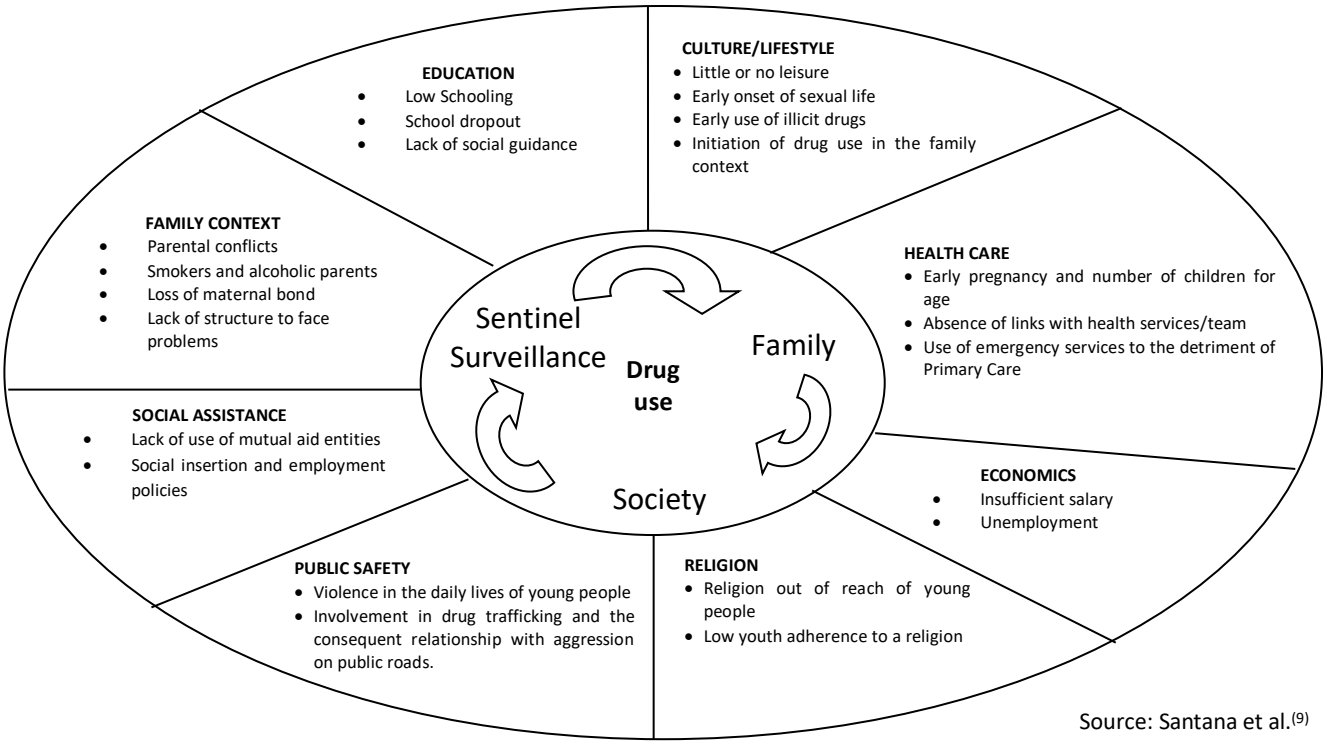
Another situation observed was the lack of appropriate assistance and social communication to supply a need considered special. Families are unaware of the Unified Health System (SUS) assistance network in this area. There is a lack of access to these services, in which drug users and their families would receive alternative treatment and social reintegration, such as the possibility of attending outpatient clinics, therapeutic communities and a day hospital.

Bad companies, often mentioned by families, contributed to the involvement with drug trafficking, causing the user's "drug debt" and leading the crime alternative to paying for it. Most of the investigated families, although with limited family income, had relatively good financial resources, considering they were homeowners, had their children in school and had regular basic food. However, the drug of abuse and the cycle established by the parameters involved in the trafficking-violence-prison triad were relevant social determinants for the vulnerable situation in which these families found themselves.

For the synthesis of the history and risk factors, the conclusion item of the investigation for sentinel surveillance was used, which points to evidence of deviations from the norms of prevention in the home or family context at work, at school and in health services, resulting in the failures and missed opportunities for access and user embracement and their families, so that the process was interrupted, that is, there was an interruption in the continued drug abuse that led young people to the "bottom of the well".

Given this characterization, a synthesis model of the underlying causes was elaborated, categorized in the family context, culture/lifestyle, education, religion, health care, social assistance, economics, and public safety with the respective causal factors. (Figure 2)

Figure 2– Categories of causal factors of sentinel surveillance. Maringá (PR), Brazil, April to September, 2014.



Source: Santana et al.[9]

The use of the sentinel surveillance, as it is an epidemiological investigation method that differs from traditional standards, allowed to obtain a great amount of information, from a small number of cases, making it possible to contribute to the recognition of risk factors in several areas and also for the definition of priorities in

preventive actions for the drug users, involving responses from different public policies.

In all cases, at least three structural aspects of the users' lives were found: associated use of drug combination, for a long period; school dropout and unemployment; and constant "escapes" from the home, with at least one episode of homelessness. Also, involvement in crimes and violent acts, more than twice.

Common and divergent elements were found regarding the relationship between individual/drug of abuse and its consequences: family arrangement, socio-economic conditions, health care modality, family and social relationships, living with drug abuse in the family and influence of drugs on family routine. In all families, it was possible to observe a history of risk and protective factors for drug use, in all areas of life and at any social and environmental level, which seems to indicate that the perception of the problem within the family context or individual characteristics of users is not sufficient.

Although the housing conditions of most families were satisfactory, most of the households were in vulnerable communities, confirming that, socially, drug use does not occur in a uniform way[5,10]. The socio-economic conditions of the families can determine the care trajectory in the Health Care Network and identify the access and use of services[10,21]. About one-third of the families of the sentinel surveillance used the public network and the philanthropic social support institutions, for drug treatment, surpassing the rate of 14% found in nationally-based studies[25].

For analysis of the sentinel surveillance and establishment of the root cause, categories of causal factors were established to discuss avoidable criteria with factors: of community and patient (cases in which there was a refusal to seek assistance or to follow the recommendations of health professionals, for cultural and religious reasons, or for not recognizing the problem); professionals (lack of training or inadequate training; in these cases, the guidelines in the technical guide books should be taken as a reference); institutional (political-administrative problems, such as lack of early capture and active search of cases, lack of beds for treatment and lack of a formalized referral and counter-referral system); social (unfavorable socio-economic conditions, such as unemployment, low family income and low level of education of the user and family); and intersectoral (lack of social and legal equipment)[2,5,10].

As an indirect measure of quality, the analysis of the trend of sentinel surveillance brings health services closer to the local inadequacies, especially regarding failures[13,18]. The grievances chosen as sentinel surveillance can be avoided at three different levels: by social organization, with adequate access to essential goods and services for the entire population; measures aimed at eliminating or reducing specific risk factors; and for the access and proper use of good quality health care.

The interface between education policies, public safety, social assistance, economics, and health seems to determine drug abuse in the cases investigated. The absence of social support to improve the living conditions of the user and their families - social support, here understood as employment, the stability of the family nucleus and availability of an adequate treatment network - and the deficiency in access and link to health services, poorly accessible to those who need it most, aggravate this situation. To minimize this situation, the prevention-surveillance-assistance partnership is recommended for all cases.

The concept of the occurrence under study as a sentinel surveillance requires a more qualitative and in-depth investigation of each occurrence, considered as avoidable at the individual or collective level, proposing relevant measures. Its application to the harmful drug use cannot be restricted individually since the interventions are organized on a population basis and are caused by economic and political factors. It must be implied that the service network expands its coverage in the areas of greatest incidence and, if the socio-economic conditioning of health problems is real, it is also the responsibility of health systems to be more accessible, when the risks are higher.

The recognition of risk factors and the early awareness of problems resulting from drug use reinforce the need for the intervention chain, which can prevent its worsening. Multidisciplinary monitoring and family support represent important actions in the prevention of relapses.

In this study, limitations are presented, for investigating data from a CIAT, which corresponds to a specific reality, however, the RCA method allowed a deeper analysis, identifying several contributing factors and recommendations to avoid its recurrence, which overcomes this weakness. To achieve this goal, the information

collected through documents, outpatient records, hospital admissions and home visits were carefully explored and analyzed with ethical rigor and depth.

Epidemiological research contributes to the construction of the knowledge of nursing professionals related to the needs of the user and of families who live with occurrences related to drugs of abuse, violence and traumas - grievances related to social, health and public safety problems.

Finally, the study highlights the importance of nurses as promoters of care, and they must work with users, family members and the community, identifying possible problems associated with drug abuse, family conflicts and vulnerabilities, implementing planning actions, and acting based on existing public policies with a focus on prevention and harm reduction.

FINAL CONSIDERATIONS

The present sentinel surveillance reached severe cases of drug abuse and allowed to infer that most patients only access health services when they have complications related to compulsive consumption, with clinical impairment, due to chronic use or to situations of violence and trauma. It was possible to identify that the early psychosocial approach did not occur in these cases, allowing them to be categorized as preventable.

The investigation aimed at the trajectory of the event's occurrence, the identification of critical points in the health care process and social vulnerability, and the possibility of providing visibility of the process allow criticism about the performance of public policies. The interface between inadequate and insufficient education, public safety, social assistance, economics, and health policies seems to determine the root cause of drug abuse in the cases investigated.

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