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Impact On Public Health Due To The Coverage Gaps In Basic Sanitation In Colombia (South America), An unresolved Problem

Juan Pablo Rodríguez Miranda Profesor Titular. Facultad del Medio Ambiente y Recursos Naturales. Universidad Distrital Francisco José de Caldas

Ana Patricia Espinosa Romero Directora Programa de Ingeniería Ambiental. Facultad de Ingeniería. Universidad de La Guajira

Carlos Zafra Mejia Profesor Titular. Facultad del Medio Ambiente y Recursos Naturales. Universidad Distrital Francisco José de Caldas

ABSTRACT

In Latin America and the Caribbean (LAC), they have low coverage of basic aqueduct, sewerage and cleaning services. Additionally, they present problems due to emerging pollutants. The improvement of the hygienic conditions of the houses and an adequate sanitary education to the population, are elements that generate a favorable reduction in the hydric diseases.

Key words: Sanitation, Public Health, Epidemics

INTRODUCTION

As part of the Agenda 2030 and the sustainable development goals (SDGs) and especially the target No. 6 (clean water and sanitation), found in the context of the planet (7 billion inhabitant s in the year 2021), approximately 28% of the population does not have access to drinking water, 60 % of the population lacks basic sanitation and 80% of the population discharges wastewater without some type of treatment, this is a high risk scenario for the alteration of the ecosystems water and substantially in public and health issues mainly in relation to waterborne diseases character. [1]

In Latin America and the Caribbean (LAC) approximately are 680 million people in the year 2021, which the Interamerican Development Bank (BID) and the Development

Bank of Latin America (CAF) for the year 2018, the Coverage gaps was 9% for drinking water, 18 % for basic sanitation, 72% for wastewater treatment, 60% counted water, and average drinking water consumption was 159 L inhabitants per day in the region, figures are significantly worrying due to the high investment (USD $ 108 billion for water supply and USD $ 165 billion to basic sanitation) economic countries in the region, which would achieve universal coverage in the subject before mentioned and of course the high incidence in the alteration of the quality of life in terms of public health of the population of the region. [2]

DEVELOPMENT

The coverage gaps explicitly lead to high epidemiological risks in the population, related to a direct correlation with the water intake altered by conventional and emerging pollutants, and of course the hygienic conditions and the pathogenic microorganisms present in the contaminatedwater generating epidemics of hydric origin such as: typhoid and paratyphoid fever, bacillary dysentery, cholera, acute gastroenteritis and diarrhea, hepatitis A and E, poliomyelitis, amoebic dysentery; these generated by various agents and/or microorganisms, such as Salmonella typhi and paratyphi A and B, Shigella sp, Vibrio cholerae, enterotoxogenic Escherichia coli, Campylobacter, Yersinia enterocoliti ca, hepatitis A and B Virus, Poliovirus, Rotavirus, Enterovitus, Adenovirus, Entamoeba histolytica, Norwak virus, Giardias lamblia, Crystosporidium a mong others. [3. 4]

Without neglecting some pollutants of emerging concern, which present greater bacterial resistance present in waters, such as pharmaceuticals and personal care products, endocrine disruptors, among them, nanoparticles and nanoplastics that affect the composition, diversity and functionality of the aquatic life, in the environment of human health, affectation of the neurological, endocrine and immunological pathways, that is to say a nanotoxicology. In addition to the above, the presence of viruses such as SARS - CoV - 2 in water, derived from the excreta of people diagnosed with Coronavirus, is an unconventional element, which highly influences the risk of diseases in the population. [5, 6]

In LAC, due to the Covid 19 pandemic , there are 40 thousand beds for intensive care according to the Medical Union (2020) and the approximate cost in this type of beds ranges from USD $ 900 to USD $ 1500 per patient per day according to data from the WHO (2020), that means that 32 million liters per day of drinking water are required and 26 million liters per day of highly contaminated wastewater with this type of pathogen are discharged, not to mention that the waters are contaminated underground with cadaverines and putrescine, in relation to a rate of 380 thousand liters.

In Colombia (South America), the coverage gaps declared by the Housing, City and Territory Ministry in 2018 were 2.6% for access to drinking water (26.8% for rural areas) for urban areas, 7.6% for sanitation in urban areas (30% for rural areas), the risk index for the quality of drinking water is between medium and unviable sanitary for 40% of the municipalities or localities of the country, which establishes a context of investments and monitoring of water, somewhat scarce, and with difficulties in monitoring and monitoring water quality, with significantly high risks for the population that consumes and has contact with contaminated water, and this leads to high mortality rates from water-related diseases. [7, 8]

The historical gaps in drinking water and basic sanitation coverage are understandable, because state policies, in some cases, are not aimed at prevention but at correction through immediate investments in infrastructure, which are frequently more expensive and in some cases, technical, administrative, environmental, financial and economic difficulties, causing a delay in reaching universal coverage and therefore the direct and adverse impact on public health especially the vulnerable population. Thus, the diseases derived from these are due to pathogenic agents and/or microorganisms present in the water (water-borne diseases, such as hepatitis A, acute diarrheal disease EDA, food-borne diseases ETA and typhoid and paratyphoid fever) , in the form of particles (suspension or agglomerates in suspended matter), according to the immunological level of the individual in the intake, according to the concentration of the pollutant, type and form of the pollutant (conventional or emerging) and the dose-effect relationship. As a complement to the above, it can be mentioned that, in the improvement of the hygienic conditions of the houses and an adequate sanitary education to the population, are elements that generate a favorable reduction in the diseases of a water nature. [9]

In Colombia, due to the Covid 19 pandemic, there are 11,319 beds for intensive care according to the National Institute of Health (2021), that means that 9 million liters per day of drinking water are required and 7.2 million are discharged liters per day of wastewater highly contaminated with this type of pathogen, not to mention that groundwater is contaminated with cadaverines and putrescine generated from the decomposition of corpses at a rate of 18 thousand liters.

CONCLUSIONS

Investments in drinking water and sanitation at a global level indicate that for every dollar invested, 1.5 dollars are returned and in Latin America and the Caribbean, for every dollar invested, 5.5 dollars are returned, creating a favorable environment to improve universal coverage of drinking water and sanitation. In this sense, the investments of economic and immediate resources in access to drinking water and sanitation services generate recurring benefits in the public health of the

countries, which reduce the costs of care and significantly improve the health of the adjacent population, especially in the mortality rates, reducing the overpressure of health services and of course reducing exposure to vulnerability to infectious diseases (especially those caused by pandemics), derived from conventional pollutants and of emerging concern.

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