Qualitative risk assessment in the use of water stored in cisterns by rural communities in the Brazilian semiarid region.

ALBA LEMOS[*1], EDGAR BRAGA[2]

[1]*National Health Foundation,* [2]

Through the program One Million Cisterns, the Federal Government of Brazil delivered cisterns for the storage of rainwater for families in extreme poverty, in rural communities in the Brazilian semiarid region, which do not have a public water supply. This initiative aimed to guarantee access to water in a dry period, providing in an alternative way to SDG 6 and indirectly contributing to SDGs 1, 2, 3 and 4. This study aimed to analyze the qualitative risks of using cisterns to store drinking water in the Brazilian semi-arid region, to serve as a basis for decision-making by municipal public health authorities. Interviews were conducted with the families served, to identify the sources of water used to fill the cisterns and to learn how the families manage this water. Physical-chemical and bacteriological analyzes of water samples were also carried out. The work was carried out in four municipalities in the semi-arid region of Pernambuco. It was identified that the cisterns are supplied mainly by rain water mixed with water transported by water trucks. Families do not know what the water sources in the water trucks. Most respondents do not avoid the first rainwater and do not disinfect the water before drinking. It was found that 45%, 55%, 65% and 75% of the samples from Taquaritinga do Norte, Chã Grande, Passira and Gravatá, respectively, were contaminated by Escherichia coli. The type of source that showed the least bacteriological contamination was rainwater. The color intensity, the manganese and the pH presented averages of values ??above the potability standard and the content of free residual chlorine was absent in almost all samples. These results indicate in the short, medium and long terms, these families are exposed to high risks due to the presence of Escherichia coli, the lack of free residual chlorine and the high levels of color and manganese. This Program, in addition to the delivery of the cistern, requires an educational action, on a continuous basis, aiming to ensure the quality of the water consumed.

Keywords : cistern; droughts; water supply; water trucks; qualitative risk assessment.