

## Infectious diarrhea, as a current medical and public health problematic

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### Abstract

Acute diarrhea of infectious etiology, referred to gastroenteritis and is associated with clinical signs and symptoms including: nausea, vomiting, abdominal pain and cramps, bloating, flatulence, fever, passage of bloody stools, tenesmus, and fecal urgency disorders. Diarrheal illness is a problem worldwide, with substantial regional variation in the prevalence of specific pathogens. In fact, Infectious diarrheal diseases, are the second leading cause of morbidity and mortality worldwide and can cause real public health problems. Such diarrhea was studied as a medical disorder, in a 3 year period, 2017-2020, in Transylvania region from Romania. It was found 3577 number of cases, almost during July to August. The case incidence for the disease arrived at 65%, in the entire summer season. The data were transmitted by 12 district Sanitary Polices, to the Public Health Center. This all were mostly diagnosed by the territorial family doctors and more than 50%, have need some days of hospitalization, because of several disease disorders. For this disorders it was used a specific adequate fluid and electrolyte replacement as key of the treatment, to managing diarrheal illnesses. Even so, 3 children under 5 year's age died, because of severe complications. Organic failed was estimate to be the cause of their deaths. Clinical and epidemiological evaluation defined the severity and type of this illnesses. The detected infectious etiology for the acute diarrhea, where determined in authorized Microbiology laboratories, and there were identified: *Shigella spp*, *Salmonella spp*, *Campylobacter spp*, *Yersinia spp*, *Rotavirus*, *Giardia*. Most number of cases appeared in children in 63%, followed by elderly or adult people in 17% each, all data as quantified number of determined infectious diarrheas. Acute diarrheal illness had to be considered a major public health issue, against which control efforts are needed. Public health surveillance of infectious acute diarrhea, includes obligatory strategies of infection control.

**Keywords:** diarrhea symptoms, etiology, health survey

### Introduction

On every year, according to the World Health Organization (WHO) and UNICEF data, there are about 2 billion cases of diarrheal disease worldwide. 1.9 million Children younger than 5 years of age, mostly in developing countries, perish from diarrhea each year. In industrialized countries, relatively few patients die from diarrhea, but even so, the disease continues to be an important cause of morbidity associated with substantial health care costs. However in the world, the morbidity from diarrheal diseases has remained relatively constant during the past 2 decades [4].

Because of all this, it was studied in the Epidemiology Department, from the Public Health Institute, during 2017 – 2020, the morbidity caused by infectious diarrhea, appeared in Transylvania region from Romania. Despite the economic and societal burdens of diarrheal illnesses, there are still few clinical guidelines, which exist in correct use for the diagnosis and treatment of persons with such suspected or relevant infectious diarrheas. That for, considerable clinical practice have been observed for to demonstrate a clear need of a clinical diagnostic, improved by specific guidelines.

### Material and Method

An analytical descriptive epidemiological study, was used to analyze the 3577 cases of infectious diarrheas, in the population from Transylvania region. It was figured out all representative aspects of the pathology for: children, adults and elderly people. Data recruitment were ordered by the existing pathology in Ro by the National Public Health

Guidelines. Obtained data were transmitted by the territory sanitary police units and were analyzed in the Public Health Institute, on each year, almost during 5 months, from May to November, in all the studied years from 2017-2020. All data offered to realize an epidemiologic analyze and data-Interpretations during the entire mentioned time period.

### Results and Comments

Fig 1. Present the 3577 infectious diarrheas appeared during 2017 to 2020 in Transylvania region from Romania.

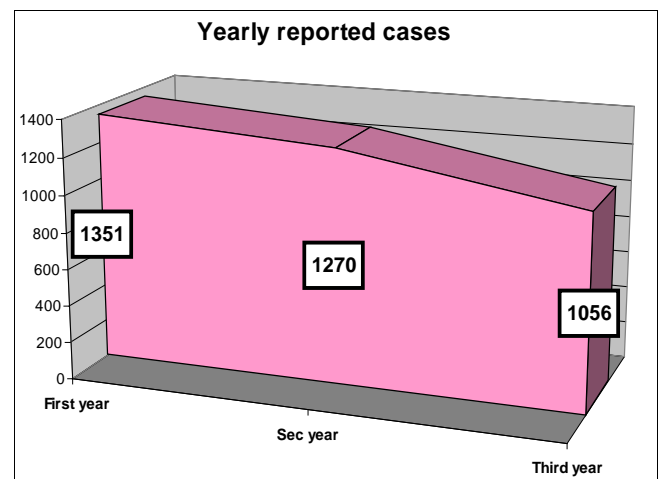


Fig 1: Number of Infectious diarrheas

Most of the disease were present in the first year of the study, in 37%. In the second year this were followed by 35.5 % and at least in the third study year, in 29.5%. In all this 3 years, the infectious pathology appeared in the summer season, almost during July and August. In the studied territory it was not a significant estimate difference. The case incidence was 65%, for the sum

Significant to be figured out is here, that infectious diarrhea, existed in the study, at each age decade. More significant it appeared to be in children, with 63%, as Fig. 2 present data.

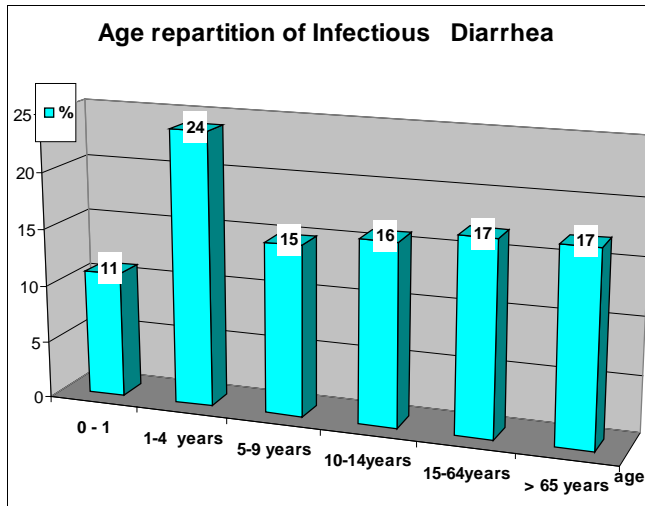


Fig 2: Age of infectious diarrheas

Data made relevant that the disease was present at children, on 0-14 age. In adults infectious diarrhea was remarked in 17%, as well in elderly people this pathology was represented in same order of cases - in 17%. 27% of children and adults have need short hospitalization days, because of dehydration. For such disorders, it was used a specific adequate fluid and electrolyte replacement, as key of the treatment and managing diarrheal illnesses. 3 children under 5 year's age died, even after this specific therapy, because of other severe organic complications and organic fails caused their deaths.

International data, present a growing awareness of the potentially impact, of long-term disability, caused by repeated early childhood enteric infections. Worldwide, there are 3.1 million deaths due to diarrhea per year (18400 per day), mostly at young children in developing areas [1]. Annual deaths due to diarrhea globally occur mainly in young children, and the number of deaths is 1000-fold higher than in the United States, where most of those who die of diarrheal illness, are elderly people [2].

Always, clinical and epidemiological evaluation must define the severity and type of this illnesses. A collaborative activity and work between clinicians and public health practitioners can make to get less severe evolution of the infectious diarrheas cases. That for clinicians, can early put the diagnosis of an acute episode of diarrhea and can lead to interventions that alleviate symptoms and prevent secondary possible other disease transmissions. For public health practitioners, prompt notification of pathogen-specific diagnoses and bacterial isolates through public health surveillance, can low the rates of transmission and lead to timely detection and control of any disease outbreaks. Because both clinicians and public health practitioners share overlapping responsibilities for such diagnosis,

management, and prevention of infectious diarrheal diseases, must contain specific recommendations and specific guidelines for both groups of specialists [5].

Diarrheal illness is a problem worldwide, with substantial regional variation in the prevalence of specific pathogens. Testing of stool specimens is always indicated for each patient with enteric disorders. This had to be ordinate up to an existing national guideline, for to can identify all microbiological specimens. That for, it was figured out, the etiological aspects concerning all detected cases of infectious diarrheas. Data were received from several territory laboratories, where it was realized pertinent microbiological investigations. All this data were identified, in order to present the microorganisms and their aspects. With, it was possible to make an overview, concerning the heterogenic microorganisms, who made the appearance of the infectious diarrhea diseases, present in the Transylvania population study. The incidence of this aspects, is presented in Fig 3, in which it is shown out all identified germs.

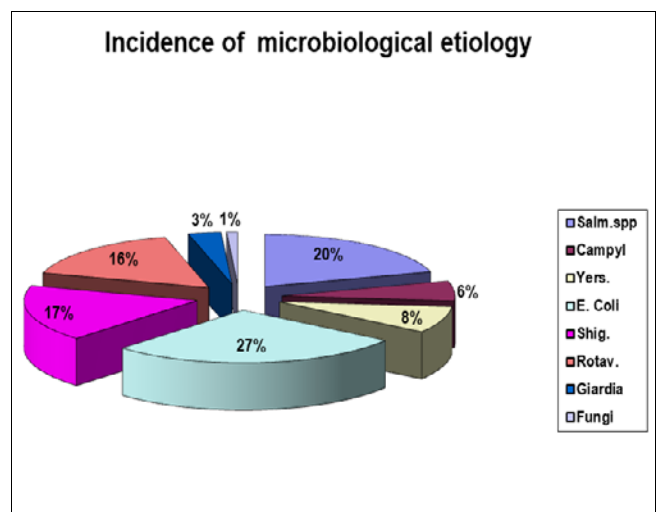


Fig 3: Detected microbiological aspects

Most of germs species belonged to the *Enterobacteriaceae* Family, represented by *E coli* in 27 %, *Salmonella spp.* in 20 %; *Shigella spp.*, in 17%. Important is to be figured out is, that the death of the 3 children under 5 age were caused by invasive *E. coli*, present in their stool samples. It is also important to be remarked the presence of *Yersinia spp.* in 8 % and of *Campylobacter spp.* in 6 %, in other patients samples. The presence of the many different bacterial species were different identified: *E.Coli* in children faces and all other germs were present in adults, or in the elderly people samples. The observation mention the presence, in 17 % of *Rotavirus*, which mostly were present in the infectious diarrhea of the children. 3 % of children have had even *Giardia* in their samples and 1% of elderly people have had *Fungi* in their preserved tools. Many of these organisms can easily be transmitted through infected food or water, or from person to person, as the epidemiological study figured out in the Transylvania territory infectious diarrhea cases.

There are various interpretations of what is considered medically indicated for evaluating persons with infectious diarrhea today. Stool cultures are often viewed as important tests, with a high result significances [3]. With the rapid globalization and industrialization of our food supply, more recognized pathogens can appear or can be figured out

worldwide. More with a multiplicity of recognized pathogens, new Laboratory diagnostic of tool samples can be done and so can even change the known before aspects. The challenges of determining optimal, cost-effective means for such appropriate diagnosis, clinical management, and public health control of diarrheal illnesses knowledge [6]. This will continue to evolve as improved understanding of pathogenesis and development and can bring in use more rapid tests, who will improve the diagnosis and management of infectious diarrheal illness. It had to be accepted that this diseases are one of the most common clinical syndromes in our society. That's why the lack of a specific diagnosis today, can hinder appropriate management and treatment of many such infections. Observation of patients is a recommendation, for to provide always to clinicians and public health practitioners, consensus-based correct document. These will aid in the management of acute diarrheas, by addressing data, which patients to be tested, what tests to order, what medical treatments to be used, and what steps to take to ensure, that appropriate public health actions, are always implemented, well enough.

### Conclusions

The 3 years study demonstrate that infectious diarrhea appear during the summer months, almost from July to August.

Significant incidence was at Children, of 0-14 age group, but each patient should be observed about potential epidemiological risk factors, for any diarrheal diseases, or for possible spread infection in the territory.

For evaluating of all persons with any enteric infections, all bacterial, viral, and parasitic pathogens had to be identified.

To reduce the morbidity and possible mortality in infectious diarrheas, it is need a serious clinical and public health study, that require specific control measures in clinics and health care activity group, to identify optimal diagnostic, treatment, and prevention methods.

### References

1. Adkins HJ, Escamilla J, Santiago LT *et al*. Two-year survey of etiologic agents of diarrheal disease at San Lazaro Hospital, Manila Republic of the Philippines. *J Clin Microbiol*, 1987;25:1143-1147.
2. Matthew R, Riley R, Dorsey Bass. In *Pediatric Gastroenterology*, 2008.
3. Guerrant RL, Van Gilder T, Steiner TS *et al*. Infectious Diseases Society of America. Practice guidelines for the management of infectious diarrhea. *Clin Infect Dis*, 2001;32(3):331-351.
4. Snyder JD, Merson MH. The magnitude of the global problem of acute diarrheal disease: a review of active surveillance, data. *Bull, WHO*, 1982;60:605-613.
5. WHO Program for the Control of Diarrheal Diseases. CD update on persistent diarrhea. No. 4, March, 1989.
6. WHO. The management and prevention of acute diarrhoea: practical guidelines. Geneva: World Health Organization, (3).