Does Microbial Drinking Water Quality affect the Incidence of Diarrhoeal Disease in Khorezm, Uzbekistan?

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Background

area: 4,550 sqkm
irrigated area: 2,600 sqkm
saline soils: 80% population: 1.4 Mio
urban: 33% rural: 67%
% population having access to: tap: 47% open well: 14%
hand pump: 37% sanitation: 23%

Numbers in brackets refer to the sample Source: Ministry of Agriculture and Water Resources, 2000

Introduction

Methods

Sampling: a three-stage random sampling was made. Within three pre-selected Rayons (counties) a representative number of communities (Mahallas) was randomly selected. Out of these, 200 households were randomly retained.

Participatory Methods: diarrhoea cases were registered for 16 weeks (12 in summer, 4 in winter) using self-reporting sheets. Reporting sheets were collected and few additional questions were asked every week.

Standardised Interviews: were carried out once water source/storage/treatment, household health related behaviour, diet, illnesses, personal hygiene, sanitation (socio-economic situation, education).

Spot Checks: latrine/toilet and drinking water storage of every household were examined for hygienic conditions twice during the 12-week summer survey.

A socio-hygienic map was elaborated for every household.

Epidemiological Results

Spatial distribution of diarrhoea episodes

Microbiological methods and results

In 40 out of the 200 households surveyed drinking water from different sources (public supply network, open wells, hand pumps, drinking water storage receptacles) was monitored for faecal coliforms, faecal streptococci and Heterotrophic Plate Count (HPC).

Preliminary conclusions

Faecal contamination between the different sampling points differs substantially.

Data show a seasonality in occurrence of diarrhoea disease and a very high incidence, no matter the season.

Children two years and younger face the highest burden of diarrhoea disease, with a one-day longer duration of the episode in winter.

No association could be found between the occurrence of diarrhoea and the drinking water source, the food hygiene, and the sanitation status of the households surveyed.

As the consumption of water implies a higher rate of waterborne diseases, it is surprising to observe a considerable decline in the incidence of hepatitis A and all acute infectious infections in Khorezm between 1991 and 2002.

Source: field study 2003

Source: OBL STAT, Urgench 2003