Epidemiology of Private Drinking Water Supplies in Scotland

Sughayshinie Samba Sibam, Norval Strachan, Lisa Avery, Alison Smith-Palmer, Francisco Perez-Reche, Ken Forbes School of Biological Sciences, The University of Aberdeen, AB24 3UU Email: shugi.sambasibam@abdn.ac.uk www.hydronationscholars.scot



Hydro Nation Scholars Programme

Introduction

Microbial pathogens such as Campylobacter, Escherichia coli, Salmonella and Cryptosporidium are important precursors of human gastrointestinal illness (GI). Private Water Supplies (PWS) have been identified as one risk factor for GI in Scotland.

PWS serve approximately 200,000 people in Scotland. The regions with the highest density of properties relying on PWS are in Grampian and Highlands.



Supplies (PWS's)(Properties /km2) across Scotland [1]

Gastrointestinal pathogens cause illness in humans through a number of transmission routes (foodborne, environmental and waterborne). It is unclear the number of cases associated with PWS.



The primary aim of this project is to have a better understanding on the relationship of water contamination by microbial pathogens in PWS, with the incidence of gastrointestinal diseases.

Methodology

Epidemiological data

- General GI outbreaks Incident Management Team
- Reports
- Gastroenteritis questionnaires from study areas
- Position & type of PWS Prevalence & concentration of

Characteristics of PWS

- pathogens Livestock digital terrain maps
- - and land use Protection methods for PWS
 - Water turbidity



Impact

Data

Generate knowledge to inform policy and reduce risk of waterborne disease

Actors and Stakeholders

(DWQR)

(CREW)

- Consultant in Public Health
- Medicine (CPHM) Health Protection Scotland (HPS)
- Users and owners of PWS
- Local Authorities (LA) Water Industry
- Researchers • Environmental Health Officers (EHO) Centre of Expertise for Waters

Drinking Water Quality Regulator

Next Steps

- Review of literature on risk factors associated with private water supply failures
- Preparation of study protocol, relevant ethics and privacy panel applications for submission
- Collection of data to inform classification of PWS according to key risk factors

References

[1] Strachan N.J.C. et al. (in preparation) Factors affecting variations in Campylobacter disease rates in Scotland. Food Standards Scotland: Reference FS101106

[2] Rotariu O. et al. (2012). Combining risk assessment and epidemiological risk factors to elucidate the sources of human E. coli O157 infection. Epidemiology and Infection, 140(8), 1414-1429. UNIVERSITY OF ABERDEEN

Acknowledgements: This research is funded by the Scottish Government's Hydro Nation Scholars Programme

BBCNEWS

More water bug cases revealed



Outbreak of cryptosporidiosis in the Grampian region

BBCNEWS

E. coli site water blamed



E.coli O157 outbreak in Rothiemurchus Caravan Park in Aviemore

