

Health risk assessment along the wastewater and faecal sludge chains in Kampala (Uganda) and Hanoi (Vietnam)

Submission date 21/10/2014	Recruitment status No longer recruiting	☐ Prospectively registered ☐ Protocol
Registration date 13/01/2015	Overall study status Completed	☐ Statistical analysis plan ☒ Results
Last Edited 08/02/2023	Condition category Infections and Infestations	☐ Individual participant data

Plain English summary of protocol

Background and study aims

Safe management and reuse of wastewater and faecal sludge for irrigating crops and as a fertilizer is of growing importance for people living in urban areas in Africa and Asia. In this study we focus on wastewater management and reuse schemes in Kampala, Uganda, and Hanoi, Vietnam. Kampala city, the capital city of Uganda, treats wastewater and faecal sludge for reuse around the Bugolobi Sewerage Treatment and Disposal Works. Hence, wastewater is reused for irrigation downstream of the plant within the Nakivubo swamp, where farmers grow crops. Hanoi, the capital city of Vietnam, is one of these Asian cities where large open storm water and drainage channels convey the wastewater out of the city. In the Than Tri district, a peri-urban area of Hanoi, wastewater is reused in agriculture and aquaculture, which creates important livelihood opportunities and is a valuable source of fresh vegetables and fish for the city. Although these recovered products are beneficial for agriculture, such practices might pose risks for both human and animal health. We want to obtain and compare the relevant health risks between selected people who are exposed to wastewater and/or faecal sludge (farmers reusing wastewater, communities living close to the wastewater channels and workers who operate wastewater facilities and collect faecal sludge) with people who are not exposed to wastewater and/or faecal sludge. The results will help the people living and working along wastewater systems to safely manage and reuse water and nutrients in the future.

Who can participate?

Adults that are wastewater treatment plant workers, faecal sludge collectors, urban farmers, people living close to wastewater channels, and people that do not come in contact with wastewater channels.

What does the study involve?

Participants are interviewed for about 30 minutes to obtain data on demographics, occupation, socio-economic status, levels of hygiene, their consumption of water and food, any symptoms of disease, their perception of risk from wastewater and faecal sludge and personal protective

equipment. After the interview we ask participants to provide a stool sample the next morning to check for parasitic infection. The results are announced as they become available and remain confidential. Participants that are infected with parasites are treated for free.

What are the benefits and risks of the study

The main benefit to participating in this study include free professional treatment for parasitic infection. Participants are also likely to support the sanitation planning of Kampala and Hanoi city, respectively, and help to protect people who are living and working along wastewater channels. To prevent any risk participants are told in detail about the study processes at each step.

Where is the study run from?

Nakivubo area of Kampala city (Uganda)

Than Tri district, Hanoi (Vietnam)

When is the study starting and how long is it expected to run for?

October 2013 to October 2015

Who is funding the study?

Swiss Agency for Development and Cooperation (SDC).

Who is the main contact?

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Contact information

Type(s)

Scientific

Contact name

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Additional identifiers

Study information

Scientific Title

Health risk assessment along the wastewater and faecal sludge chains: case study in Kampala and Hanoi

Acronym

N/A

Study objectives

The difference in odds ratio is 2.5 or higher between highly exposed groups (people working along the wastewater and faecal sludge chain) and the people without an exposure to the two waste chains (control groups).

On 09/07/2015 the trial record was updated to add Hanoi (Vietnam) as a study site.

Ethics approval required

Old ethics approval format

Ethics approval(s)

1. Ethics committee of Basel (Ethikkommission beider Basel); 07/08/2013; ref: 137/13
2. Makerere University School of Public Health: Higher Degrees Research and Ethics Committee; 10/07/2014; ref: IRBOOO1l353
3. Uganda National Council of Science and Technology (UNCST) in Kampala, Uganda and office of the president of the republic of Uganda; approved study period: 08/10/2013-08/10/2015; ref: HS1487
4. Hanoi School of Public Health (HSPH), 26/02/2014, ref : 010/2014/YTCC-HD3

Primary study design

Observational

Study design

Cross-sectional survey, epidemiological survey, environmental sampling, quantitative microbial risk assessment

Study type(s)

Other

Health condition(s) or problem(s) studied

Communicable diseases (soil-transmitted helminth, *Schistosoma mansoni* and intestinal protozoa infection)

Interventions

Administer a questionnaire interview for about 30 minutes to obtain data on demographics, occupation, socio-economic status, hygienic behavior, consumption of water and food, disease symptoms, health seeking, risk perception and personal protective equipment. The data is entered directly into a data entry mask of a tablet computer during the interview and will be synchronized with a secure server from Swiss Tropical and Public Health Institute in Switzerland every evening. The access to the database is restricted to the main investigators of the study. After the analysis we will make the results anonymous and share them with the stakeholders and participants.

After the interview we will invite participants to provide a stool sample the next morning for the detection of parasitic infection. Stool samples will be analysed by a laboratory technician the Ministry of Public Health. The results will be announced as they become available and will remain confidential. In case we detect any parasitic infection we will come back to the participant and provide treatment for free. All participants tested positive for soil-transmitted helminth or *Schistosoma mansoni* will be treated with a single dose of albendazole (400 mg) and praziquantel (40 mg/kg), respectively.

Intervention Type

Other

Primary outcome(s)

Differences in parasitic infection between exposure groups (worker, farmer, community members)

Key secondary outcome(s)

Prevalence of communicable diseases and related risk factor in an urban East-African and Southeast Asian setting

Completion date

08/10/2015

Eligibility**Key inclusion criteria**

1. Participants were enrolled in case they belong to following exposure groups: Wastewater treatment plant workers, faecal sludge workers, farmers and community members.
2. Willing to sign a written consent form, submit a stool sample and conduct a questionnaire interview

Participant type(s)

Other

Healthy volunteers allowed

No

Age group

Adult

Sex

All

Key exclusion criteria

1. Too sick to attend school or participate in the study (e.g. severe diarrhoea, severe anaemia, high fever, etc.)
2. Absence of written informed consent
3. Person is younger than 18 years of age

Date of first enrolment

08/10/2013

Date of final enrolment

08/10/2015

Locations

Countries of recruitment

Switzerland

Uganda

Viet Nam

Study participating centre

Swiss Tropical and Public Health Institute

Basel

Switzerland

4002

Sponsor information

Organisation

Swiss Tropical and Public Health Institute

ROR

<https://ror.org/03adhka07>

Organisation

World Health Organization (WHO)

Funder(s)

Funder type

Research organisation

Funder Name

Direktion für Entwicklung und Zusammenarbeit

Alternative Name(s)

Swiss Agency for Development and Cooperation, Direction du Développement et de la Coopération, Agencia Suiza para el Desarrollo y la Cooperación, Direzione dello Sviluppo e della Cooperazione, DEZA, SDC, DDC, COSUDE, DSC

Funding Body Type

Government organisation

Funding Body Subtype

National government

Location

Switzerland

Results and Publications

Individual participant data (IPD) sharing plan

Not provided at time of registration

IPD sharing plan summary

Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/11/2014		Yes	No
Results article	results	01/07/2015		Yes	No
Results article		10/10/2016	08/02/2023	Yes	No
Results article		03/03/2016	08/02/2023	Yes	No