

Introduction

Background

There is an increasing interest for monitoring the occurrence of antimicrobial resistance in non-clinical reservoirs. It is virtually impossible to obtain samples from healthy humans and there can be ethical problems with sensitivity of data collected from individuals. Thus, sewage has been suggested as an alternative to obtain population-wide samples.

Purpose

To collect representative sewage samples from cities around the world and analyze these for the occurrence of pathogens, antimicrobial resistance genes and other hazards, using, amongst others, metagenomic analysis. The study will be set up as both a point prevalence and a longitudinal study.

Timeline

The current Global Sewage Surveillance project is a six year-project, running in the years 2017-2022. During these six years, sampling for point prevalence studies will be set-up four times in the early phase of the project period. The expected sampling months are: June 2017, November 2017, June 2018, and November 2018.

Approach

Sampling: From each city, a representative sewage sample of 2 Liters should be collected from the city's main sewage pipe prior to inlet to the treatment plant.

Storage of samples: The samples must be stored at -80 degrees Celsius and sent to DTU Food, Denmark, for analysis after agreement with DTU Food.

Point prevalence study: For this purpose, one representative sewage sample of 2 Liters is collected and sent to DTU Food, Denmark, for analysis.

Longitudinal study: For this purpose, representative sewage samples of 2 Liters each are collected from the same sampling site each week or month as agreed, and are sent to DTU Food, Denmark, for analysis.

Potential additions to the project (not funded by DTU Food)

Purification of DNA from the sewage sample at the participant institution: A possible addition to the project could be if you – in parallel to sending the sewage samples to DTU Food for analysis – are able to purify the DNA of the sample and also send the purified DNA to DTU Food for analysis.

Sewage metagenomics sequencing at the participant institution: A possible addition to the project could be if you – in parallel to sending the sewage samples to DTU Food for analysis – are able to perform metagenomic sequencing on your sewage sample and also make the sequences available to DTU Food for analysis.

Funding possibilities related to sample collection

As organizers of this sampling we offer to provide sample containers and packaging material.

Additional funding is not available related to the sample collection or potential additional analysis at the participant institute.

Contact

For further details, please contact Senior Scientist Rene S. Hendriksen (rshe@food.dtu.dk)

Note

An asterisk (*) indicates a question that requires an answer.

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General Information

The following is general information needed to follow-up on the survey responses.

* 1. Please complete the following general information.

Contact name:	<input type="text"/>
Institute name:	<input type="text"/>
Address:	<input type="text"/>
City/Town:	<input type="text"/>
ZIP/Postal Code:	<input type="text"/>
Country:	<input type="text"/>
Email Address:	<input type="text"/>
Phone Number:	<input type="text"/>

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We seek potential collaborators

* 2. What country and city could potentially be sampled (indicate at least one country/city)

Country

City 1

City 2

City 3

City 4

City 5

* 3. Would you be interested in taking part in the study and in that case, would it be possible that you participate

- by taking one representative sewage sample of 2 Liters as part of a point prevalence study in June 2017?
- by taking one representative sewage sample of 2 Liters as part of a point prevalence study in November 2017 (intended participation)?
- by taking one representative sewage sample of 2 Liters as part of a point prevalence study in June 2018 (intended participation)?
- by taking one representative sewage sample of 2 Liters as part of a point prevalence study in November 2018 (intended participation)?
- by taking sewage samples over a period of time as part of a longitudinal study (for example every week or every month)?
If so, please indicate further information in the question below.

4. If you are interested in taking part in the longitudinal study, please indicate the possible frequency and duration of the sampling

- every week over a period of one year
- every two week over a period of one year
- every month over a period of one year
- every week over a period of two years
- every two week over a period of two years
- every month over a period of two years

* 5. In addition to sending the sewage sample(s) to DTU Food for analysis, would you be interested in purifying the DNA of the sample yourselves also, in parallel to sending the sewage sample to DTU?

- Yes, for a point prevalence study (one representative sewage sample)
- Yes, for a longitudinal study (representative sewage samples)
- No, it is not possible

* 6. In addition to sending the sewage sample(s) to DTU Food for analysis, would you be able to conduct your own sewage metagenomics sequencing and be willing to share the obtained sequence data?

- Yes, for a point prevalence study (one representative sewage sample)
- Yes, for a longitudinal study (representative sewage samples)
- No, it is not possible

* 7. Would you need that we (DTU Food) send you sample containers and packaging material for shipment (Note, shipments containing less than 5L are not IATA restricted as per SP A197, packagings must however be strong and of good quality)?

- Yes, please send us sample containers and packaging material.
- No, we provide the relevant sample containers and packing material.

* 8. Will it be possible to record the GPS position of the sampling site

	Yes	No
GPS position	<input type="radio"/>	<input type="radio"/>

* 9. Will it be possible to provide a digital image of the sampling site

	Yes	No
Digital image	<input type="radio"/>	<input type="radio"/>

* 10. Will it be possible to provide a pH of the sewage sample?

	Yes	No
pH	<input type="radio"/>	<input type="radio"/>

* 11. Will it be possible to measure the temperature of the sewage sample?

	Yes	No
Temperature	<input type="radio"/>	<input type="radio"/>

* 12. To share sample material and/or sequences for DTU Food, would you need to obtain permission (e.g. a material transfer agreement (MTA) or another type of permit from the authorities)?

Please note that this project continues for six years. We therefore ask you to consider obtaining a permit covering the entire project period of six years. Should this prolong the processing time to obtain the permit, please apply for one shipment or one year, only.

- No permission is required.
- Yes, we need to obtain a permission, it will require about one week to get the permission.
- Yes, we need to obtain a permission, it will require about one month to get the permission.
- Yes, we need to obtain a permission, it will require about two months to get the permission.
- Yes, we need to obtain a permission, it will require about three months to get the permission.
- Yes, we need to obtain a permission, it will require about half a year to get the permission.

* 13. Did you participate in the sewage collection in 2016 organized by DTU Food by sending a sample?

	Yes	No
Sample sent in 2016	<input type="radio"/>	<input type="radio"/>

14. Please insert any additional comments