
Plan Overview

A Data Management Plan created using DMPonline

Title: Automated Digital Microscope for Detection of Schistosomiasis and Soil Transmitted Helminth Infection.

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Project abstract:

For many parasitic diseases, the microscopic examination of clinical samples such as urine and stool still serves as the diagnostic reference standard, primarily because microscopes are accessible and cost-effective. However, conventional microscopy is laborious, requires highly skilled personnel, and is highly subjective. Requirements for skilled operators, coupled with the cost and maintenance needs of the microscopes, which is hardly done in endemic countries, presents grossly limited access to the diagnosis of parasitic diseases in resource-limited settings. The urgent requirement for the management of tropical diseases such as schistosomiasis and soil-transmitted helminth infection, which is now focused on elimination, has underscored the critical need for the creation of access to easy-to-use diagnosis for case detection, community mapping, and surveillance. The aim of this research is to develop, validate, and assess a low-cost, locally manufacturable digital microscope that integrates AI-based detection algorithms, and advanced autofocusing and scanning techniques for the accurate detection and quantification of *Schistosoma haematobium* and intestinal helminth infections in resource-limited settings, evaluating its field applicability, usability, and diagnostic performance against conventional methods using both fresh and banked samples

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Automated Digital Microscope for Detection of Schistosomiasis and Soil Transmitted Helminth Infection.

General Information

Name applicant and project number

Prof. Dr. Jan Carel Diehl
Grant number: W07.30318.009

Name of data management support staff consulted during the preparation of this plan and date of consultation.

Question not answered.

1. What data will be collected or produced, and what existing data will be re-used?

1.1 Will you re-use existing data for this research?

If yes: explain which existing data you will re-use and under which terms of use.

- Yes

Re-use existing Image data from [AI4NTD KK2.0 P1.5 STH & SCHm Dataset](#) which contains 7,780 field-of-view images containing 16990 annotated helminth eggs (Ascaris: 8,600; Trichuris: 4,083, hookworm: 3,623; schistosoma mansoni: 681) collected in field settings.

1.2 If new data will be produced: describe the data you expect your research will generate and the format and volumes to be collected or produced.

- Schistosoma haematobium eggs image dataset will be created by annotating the eggs in field-of-view images of urine sample collected in a rural area in central Nigeria and prepared using urine filtration technique. Images of size 1520 × 2028 pixels will be captured using an automated digital microscope, Schistoscope 5.0.
- Intestinal helminth eggs image dataset will be created by annotating the eggs in field-of-view images of stool sample collected in a rural area in central Nigeria and prepared using Kato-Katz technique. Images of size 1520 × 2028 pixels will be captured using an automated digital microscope, Schistoscope 5.0.

1.3. How much data storage will your project require in total?

- 100 - 1000 GB

2. What metadata and documentation will accompany the data?

2.1 Indicate what documentation will accompany the data.

- Context
- Data Summary
- Ethics Statement
- Acknowledgement
- Citation

2.2 Indicate which metadata will be provided to help others identify and discover the data.

- Title
- Description
- Keywords
- Authors

3. How will data and metadata be stored and backed up during the research?

3.1 Describe where the data and metadata will be stored and backed up during the project.

- Other (please specify)

Project storage drive

3.2 How will data security and protection of sensitive data be taken care of during the research?

- Not applicable (no sensitive data)

4. How will you handle issues regarding the processing of personal information and intellectual property rights and ownership?

4.1 Will you process and/or store personal data during your project?

If yes, how will compliance with legislation and (institutional) regulation on personal data be ensured?

- No

4.2 How will ownership of the data and intellectual property rights to the data be managed?

Question not answered.

5. How and when will data be shared and preserved for the long term?

5.1 How will data be selected for long-term preservation?

- All data resulting from the project will be preserved for at least 10 years

5.2 Are there any (legal, IP, privacy related, security related) reasons to restrict access to the data once made publicly available, to limit which data will be made publicly available, or to not make part of the data publicly available?

If yes, please explain.

- No

5.3 What data will be made available for re-use?

- All data resulting from the project will be made available

5.4 When will the data be available for re-use, and for how long will the data be available?

Question not answered.

5.5 In which repository will the data be archived and made available for re-use, and under which license?

The data will be archived in Zenodo repository and made available under the Creative Commons Attribution 4.0 International licence

5.6 Describe your strategy for publishing the analysis software that will be generated in this project.

The analysis software that will be generated in this project will be published in a Github repository

6. Data management costs

6.1 What resources (for example financial and time) will be dedicated to data management and ensuring that data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?

- Financial resource for storage, software, and publication fees over the project lifecycle.
- PhD researcher's effort over the project duration for data management tasks.