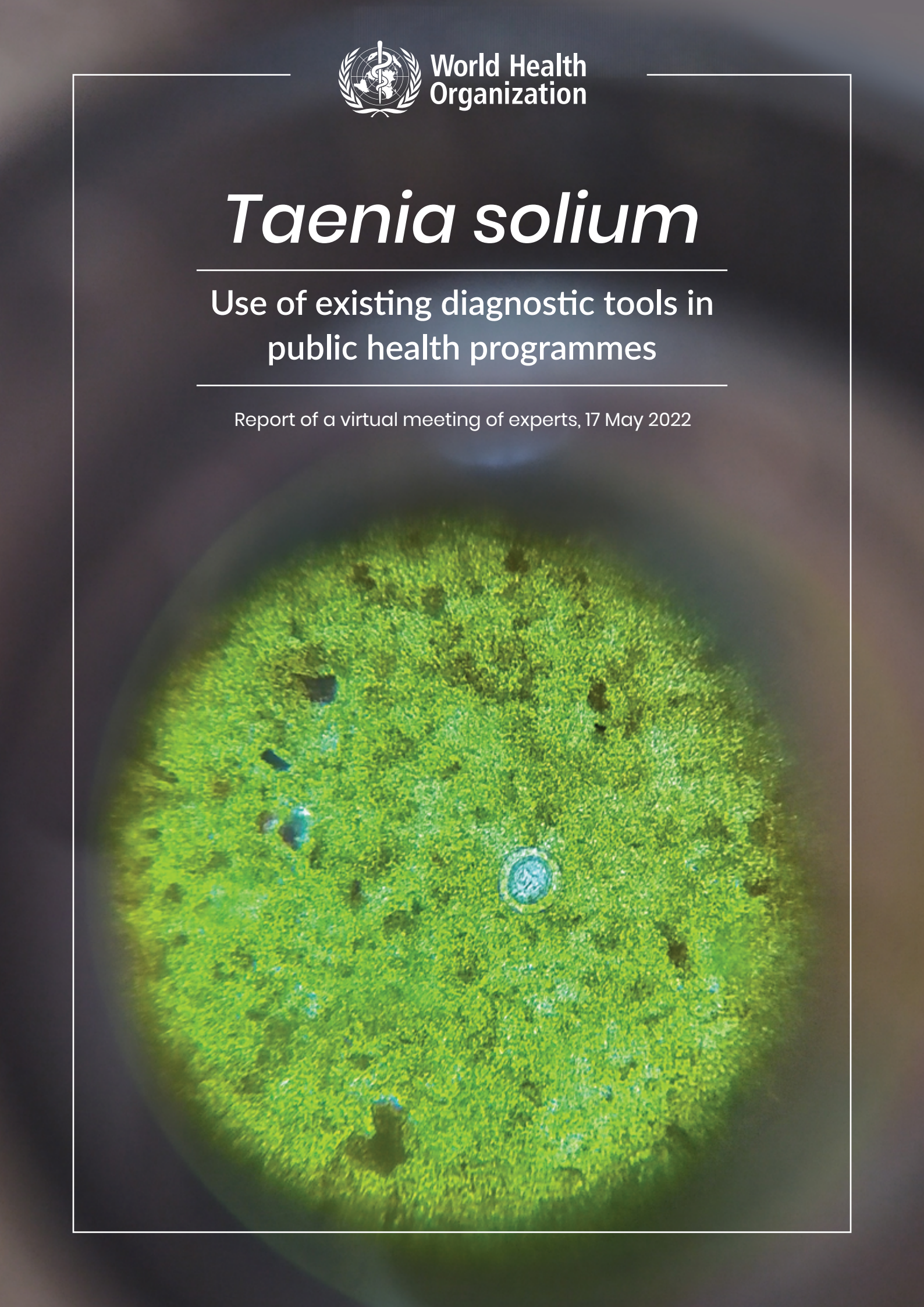
World Health Organization

Taenia solium

Use of existing diagnostic tools in public health programmes

Report of a virtual meeting of experts, 17 May 2022



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ISBN 978-92-4-006072-2 (electronic version)

ISBN 978-92-4-006073-9 (print version)

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1. Meeting objectives

The World Health Organization (WHO) convened a virtual meeting of experts on 17 May 2022 to review existing diagnostic tools for *Taenia solium*, which can be used to provide evidence to support the decision to implement public health programmes to control diseases caused by *T. solium*. The participants are listed in the Annex. All invited experts and observers completed the WHO conflict of interest and confidentiality forms. No conflicts were identified. The outcome of this review will inform the development of a *T. solium* monitoring and evaluation framework.

The specific meeting objectives were:

1. To evaluate the key characteristics (sensitivity, specificity, commercial availability and affordability) of the existing diagnostic tools for *T. solium* in both humans and pigs that could be used to determine whether infection prevalence exceeds a defined threshold in population-based surveys;

2. To describe the usefulness of the tools for mapping and monitoring, with consideration for survey setting, age group and sample size; and

3. To identify immediate priorities for *T. solium* test development for public health programmes.

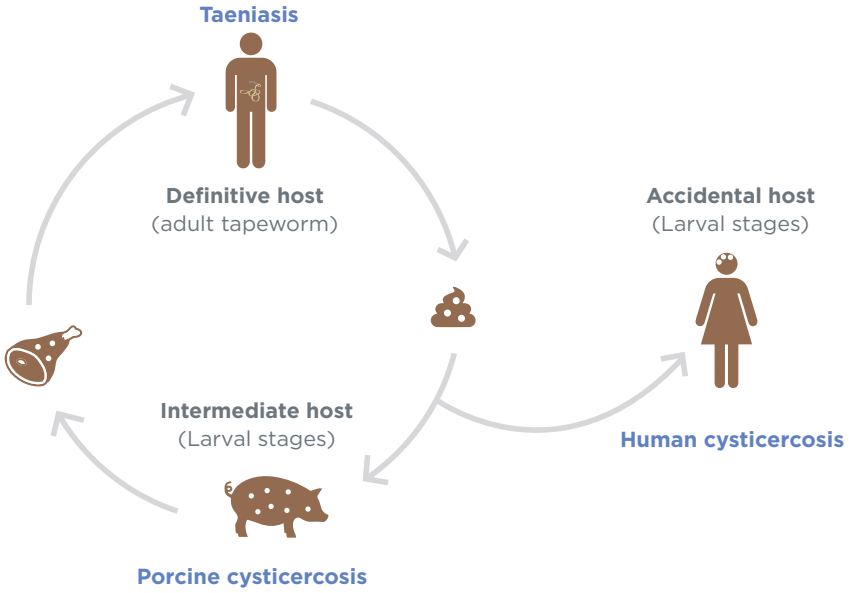
2. Background

Taeniasis and cysticercosis caused by the parasite *T. solium* affect vulnerable populations, mainly in Latin America, sub-Saharan Africa and Asia, where pigs (the intermediate host) roam free and poor sanitation allows pigs access to human faeces.

Human taeniasis is usually asymptomatic, but cysticercosis can lead to neurocysticercosis, which manifests as seizures and epilepsy, and can be fatal (Fig. 1). Pigs usually do not show any clinical signs of infection, but heavily infected pigs can harbour larval cysts in their tongues.

Taeniasis and cysticercosis were added to WHO's list of neglected tropical diseases in 2010. Since then, progress in controlling the diseases has been slow, mainly due to a lack of adequate diagnostics, control tools and knowledge. Recently, however, new tools and guidance have become available including the Bayer donation of taenicidal medicines (praziquantel and niclosamide), the Pan American Health Organization/*WHO Guidelines for preventive chemotherapy to for the control* of T. solium *taeniasis* (1), the WHO *Guidelines on management of* T. solium *neurocysticercosis* (2), the commercial availability of the TSOL18 vaccine (and its inclusion in the World Organisation for Animal Health Terrestrial Manual (3)) and the use of the vaccine in conjunction with oxfendazole in pigs, as well as results from an increasing number of field studies evaluating control interventions.

Figure 1. *T. solium* transmission cycle



Several countries are ready to begin implementation of public health programmes for the control of *T. solium* and are requesting WHO to provide specific guidance on which diagnostic tools should be used and overall guidance on monitoring and evaluation. Currently, there is inadequate evidence available to support the development of formal WHO guidelines; however, there is an urgent need to provide interim guidance to countries. Therefore, the conclusions outlined below are meant to fill this urgent need and serve as the basis for generating evidence that can be used to support more formal WHO recommendations.

3. Methodology

Technical experts in *T. solium* were requested to provide information and supporting evidence related to the performance and feasibility of existing *T. solium* diagnostic tests in humans or pigs. The aim was to understand the potential use of these tests to support mapping and programme monitoring. A literature review, peer-reviewed publications, and unpublished data were assembled by the experts as background to the meeting. Experts were requested to provide inputs on ease of use, commercial availability and affordability in low- and middle-income countries. The responses were compiled by the secretariat, summarized and circulated before the meeting on 17 May 2022. During the virtual meeting, the compiled evidence and information were reviewed by the experts. This report provides conclusions, next steps and future considerations for the use of identified diagnostic tests to support public health programmes.