



COFER – One Health:

Creating a framework for developing
effective nutrition and One Health
interventions

Jakob Zinsstag, Daniel Mäusezahl (Swiss TPH), Mohammed
Abdikadir (Jigjiga), Edith Maier (FHSG), Isabelle Herter (ETH)
Armando Valdes-Velasquez (UPCH)



Work Packages

WP-1: Capacity building to modernise **academic teaching**

WP-2: **Mobile tools** for conducting dietary assessment surveys

WP-3: **Mobile** community-based solutions for **syndromic surveillance** and response systems



WP-4: Behavioural economic approaches to make **interventions** more effective at household and environmental levels

1_1_Lovefeareatourcomplicatedrelationshipwithanimals.mp4 - VLC media player

Medien Wiedergabe Audio Video Untertitel Werkzeuge Ansicht Hilfe



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<https://www.futurelearn.com/courses/one-health>

Online course re-run October 2019

START



University of Basel

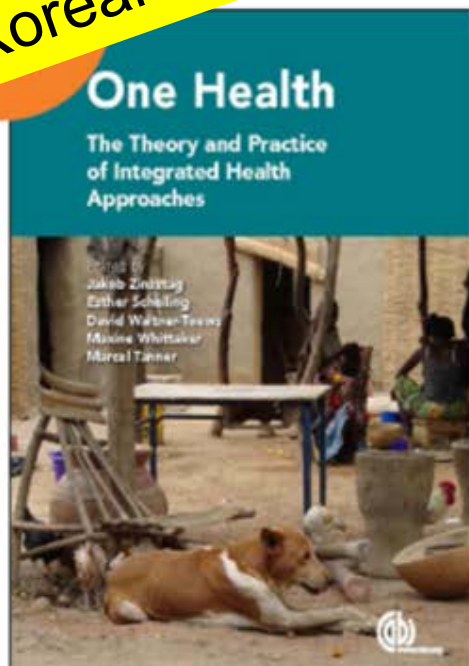
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2nd edition in preparation for 2020
French Translation 2019
Korean Translation 2019

CABI



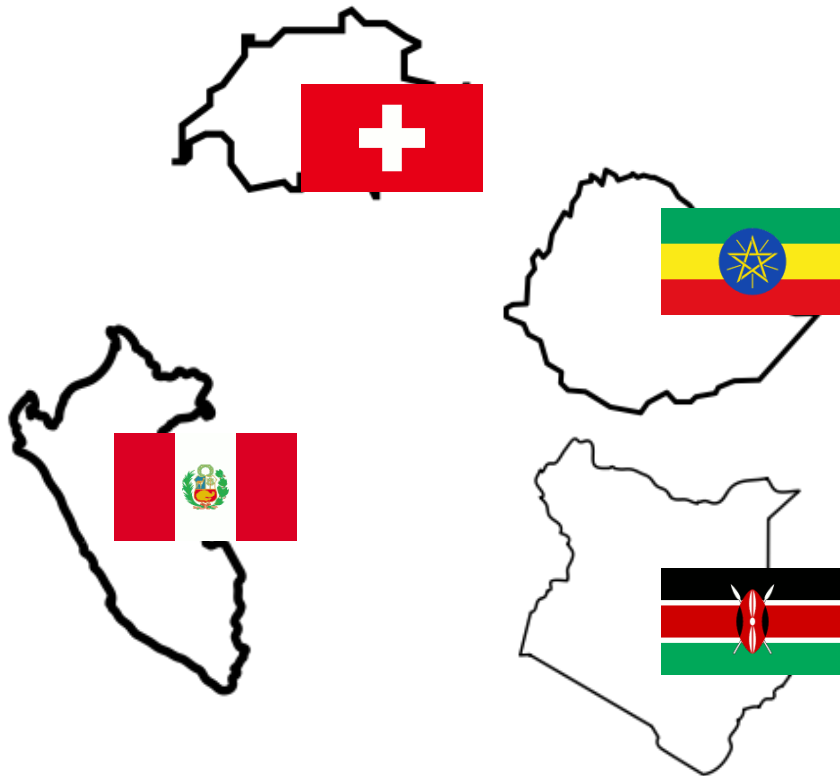
One Health The Theory and Practice of Integrated Health Approaches

Edited by **Jacob Zinsstag**, Swiss Tropical and Public Health Institute, Switzerland, **Esther Schelling**, Swiss Tropical and Public Health Institute, Switzerland, **Maxine Whittaker**, University of Queensland, Australia, **Marcel Tanner**, Swiss Tropical and Public Health Institute, Switzerland and **David Waltner-Toews**, University of Guelph, Canada

A practical book which examines the origins of One Health and discusses how to put policy into practice



Country Cases Online



- One Case Study from each country (partner):
- builds One Health competencies
 - shared among partners



Country Cases Online



Guidelines for building a Case Study

- How to select it?
- How to build it?
- How to use/present it?



Case Study Package (model)

- Core Document (Info / Resources)
- Presentation
- Exercise / Evaluation Matrix
- Solution to Exercise



Country Cases Online



Neurocysticercosis Case Study (Peru)

- Core Document (Info / Resources)

Core Document
Neurocysticercosis Case Study

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CAYETANO HEREDIA

Main objective of the case study
The objective of the case study is for students/trainee to understand the One Health approach via the integration of the core competencies. Consequently, it is not to provide an in-depth account of the case, but to bring sufficient information to illustrate the One Health approach and naturally bring the students to the assimilation of the core competencies.

Presentation of the case: Neurocysticercosis
The disease chosen for this case study is **Neurocysticercosis (NCC)**. The case will go back and forth between the global relevance of neurocysticercosis and its particular relevance for Peru, in order to uncover the gaps and areas of opportunity for One Health the control and eradication of Neurocysticercosis in Peru.

Aetiology and Clinical Aspects of Neurocysticercosis
Taeniasis and Cysticercosis - Distinction
Taeniasis is an intestinal infection caused by **adult tapeworms**. In humans, it can be caused by *Taenia saginata* and *Taenia asiatica*. *Taenia saginata* can be caused by the ingestion of inadequately cooked infected pig liver tissues (*T. asiatica*) or *Taenia saginata*. Nonetheless, *Taenia Solium* is our focus as not only does it cause the major problems, it is also the cause of Cysticercosis. [1]

Taenia Solium (Pork Tapeworm) can induce various types of infections in humans and its biological development cycle, there are two main stages:

- **Taeniasis** occurs with the infection of *T. solium* adult tapeworms and symptoms. Consequently, pork are the **intermediate hosts** (Porcine).
- **Human Cysticercosis** is the infection of tissues by the *T. solium* larval stages and is much more severe as the infection can result in devastating neurological problems with the development of larvae in muscles, skin, eyes, central nervous system, etc. Consequently, humans are the **definitive hosts** (Human).
- **Porcine Cysticercosis** is the infection of tissues by the *T. solium* larval stages. The larvae mostly remain in the muscle and the life-cycle for humans are infected with the adult tapeworms eating the raw meat (c.f. taeniasis).

Transmission

As previously mentioned, *T. solium* has a complex **two-host life cycle**; humans are the only definitive host for the adult tapeworm (taeniasis), whereas both people and pigs can act as intermediate hosts for the infection with the *T. solium* adult tapeworm can occur when humans eat raw or undercooked infected pork meat, which causes **Taeniasis**. The infection with *T. solium* eggs, which then develops into larval cysts (cysticerc) occurs through the infection of *T. solium* eggs generally via faecal-oral transmission through contaminated food or water, poor hygiene (humans) or the ingestion of contaminated human faeces (pork).

Taenia solium

Cysticercosis

Taeniasis

Life cycle of Taenia solium cysticercosis (source: CDC - DPDx). Cysticercosis is an infection of both humans and pigs with the larval stages of the parasitic cestode, *Taenia solium*. This infection is caused by ingestion of eggs shed in the faeces of a human tapeworm carrier [1]. Pigs and humans become infected by ingesting eggs or gravid proglottids [2], [7]. Humans are infected either by ingestion of food contaminated with faeces, or by autoinfection. In the latter



Dietary Assessment System

Manage nutrition facts and assessment surveys

You are logged in as user "admin".



Create New Assessment

Start Date

mm/dd/yyyy --:--

Child

Gender

Enumerator

Participant

Interviewer Type

Day 1 Day 2 Day 3 + Add a New Assessment Day

Meals

Preparation Date	Consumption Time	Meal Preparation Place
Nov 15, 2018, 5:01:08 PM	Nov 15, 2018, 5:01:10 PM	At home-leftovers
Nov 15, 2018, 5:00:21 PM	Nov 15, 2018, 5:00:23 PM	At home
Nov 15, 2018, 5:01:25 PM	Nov 15, 2018, 5:01:26 PM	Outside home

Food items (ingredients or dishes)

Weight (g)	Food Item	Preparation Method
512	Tosti Mayai (Egg Toast)	Baked or roasted
400	White Chapati	Baked or roasted

Add new or edit a Meal

ID

1

Assessment Day

Day 1(Assessment: #1)

Preparation Date

15.11.2018 17:01:08

Consumption Time

15.11.2018 17:01:10

Meal Preparation Place

At home-leftovers

Meal Type

Breakfast

Cancel Save



Developing a prototype of mobile tool for dietary assessment surveys

Initial **prototype** variants :

- Responsive web application with mobile device support
- PDF forms as an alternative and fall-back option
- Smartphone application with backend (DB) for IOS and Android

Have's & Outlook

- Testing at Jomo Kenyatta University ongoing
- Main implementation of application including responsive front-end as well as server back-end with services and relational database



Developing a prototype for mobile syndromic surveillance

System for capturing critical incidents (incl. human and animal syndromes as well as human and livestock demographics)

- Implemented with React for iPhone (iOS) and Android
- System design similar to Swiss REGA application
- Server back-end with administration web front-end, services and database generated with Jhipster

Have's & Outlook

- Currently, prototype with responsive web front-end for mobile devices deployed on hosted server for testing purposes
- Testing is to take place mainly within the framework of **JOHI**



Jigjiga One Health Initiative (JOHI)



JOHI: is a research and development partnership between the Jigjiga University, Armauer Hansen Research institute (AHRI), Swiss Tropical and Public Health Institute (Swiss TPH) and associated partners funded by Swiss Agency for Development and Cooperation (SDC)

GOAL: To improve the health and well-being of pastoral communities in Somali region of Ethiopia



Long SD: <https://www.dropbox.com/s/n4p8xmbaowyd2ju/Long%20Version-SD%20480p.mov?dl=0>

President Sommaruga to pay official working visit to Ethiopia

Bern, 23.10.2015 - Ethiopia and Switzerland want to further intensify and strengthen good bilateral relations. It is with this aim that a Swiss delegation led by President Simonetta Sommaruga will be traveling to Addis Ababa this weekend.

- JJU capacity building (MSc & PhD)
- Establishment of OH diagnostic centre
- OH graduate program in the curricula

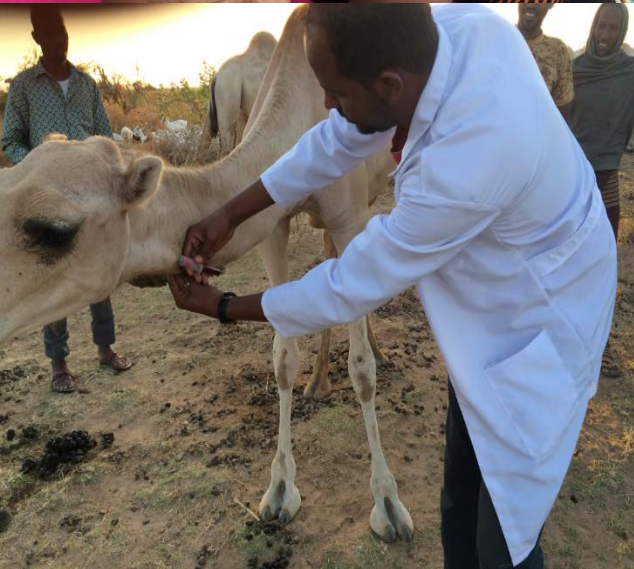


On Sunday, the Swiss delegation will launch a new health project in eastern Ethiopia. This project - carried out by Jijiga University and the Swiss Tropical and Public Health Institute in Basel - is supported by the Swiss Agency for Development and Cooperation (SDC).



Team composition

- Health professional
- Veterinarian
- Nutritionist
- Ecologist





Capacity building to date: «3 students and 5 degrees»

- 2 MSc and 3 PhD students (Seid, Kadra and Yahya)

Applications

- Syndromic & environmental surveillance (Yahya and Seid)
- Nutrition assessment (Kadra)



Work Packages

- WP-1: -First experience of One Health MOOC in Ethiopia, Kenya and Peru
-Country case studies implemented in student body and discussed on online collaboration platform
- WP-2: (Semi-) automated analysis of dietary survey data
- WP-3: Accelerate detection of emerging zoonoses based on mobile community-based solutions for syndromic surveillance
- WP-4: Design interventions based on behavioural economic insights and test them in real-life settings

