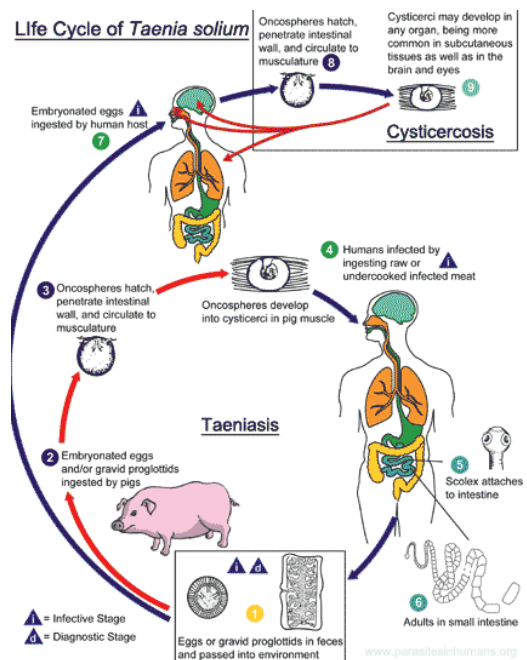




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Controlling the Zoonotic Disease Porcine Cysticercosis

Humans are the host for the pork tapeworm (*Taenia solium*), and affected people carry the tapeworm in their small intestine, often without symptoms. The disease in affected people is known as **taeniasis**. The tapeworm eggs are periodically shed in the faeces by the human reservoir, and typically pigs ingest the eggs from the contaminated environment, food or water. The pigs subsequently become infected with the larval stages of the tapeworm and develop cysticerci (a fluid-filled cavity or vesicle or blister) in their musculature. The larval stage of the tapeworm may also develop in humans in subcutaneous sites (manifesting as skin nodules), musculature and the nervous tissue, especially the brain and ocular tissue. The disease whereby the musculature, nervous tissue, etc. is affected in humans and pigs is referred to as **cysticercosis**.



Porcine cysticercosis is a zoonosis, which means it is a disease that can transmit to and affect people. Transmission between pigs and people is through consumption by people of infected raw or undercooked pork meat.

The disease occurs where pigs range freely, sanitation is poor, home slaughter is performed and meat inspection is absent or inadequate, and is thus strongly associated with poverty and smallholder farming.

Cysticercosis infections are a serious public health risk and an agricultural problem in many poorer countries of Africa, Asia and Latin America. Worldwide there are believed to be around five million human cases and 50,000 human cysticercosis associated deaths reported each year. Neurocysticercosis can cause severe headaches, epileptic seizures and sometimes death. Neurocysticercosis is considered to be the most common parasitic infection of the human nervous system and the most frequent preventable cause of epilepsy in the developing world. Millions of people fall ill and many die as a result of cysticercosis from eating unsafe food.

Cysticercosis also causes significant economic losses to pig farmers through carcass condemnation and lower weight slaughter pigs.

In July 2014, FAO and WHO ranked *Taenia solium* top of the list of 10 leading food-borne parasites “with the greatest global impact”.

Although theoretically easy to control and declared eradicable, cysticercosis remains neglected in most endemic countries due to lack of information and awareness about the extent of the problem, suitable diagnostics and management capacity, and **appropriate prevention and control strategies**.

Close collaboration with the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (OIE), the private sector, partners, NGOs and academia has been recommended to accelerate control of the disease and lower its burden among affected populations.

The control tools

GALVmed's work programme for porcine cysticercosis aims to evaluate new available tools for use in control strategies for porcine cysticercosis as a means to eradicate the disease. This currently constitutes a combination treatment approach of a vaccine that can prevent infection and an oral anthelmintic (drugs that expel parasitic worms (helminths) and other internal parasites from the body) that can eliminate existing infections in pigs, combined with increasing awareness about the disease and the risk factors

GALVmed is supporting ongoing work with the University of Melbourne, and India Immunologicals Ltd to support the final development and registration of the vaccine, TSOL 18,. In addition it is working with MCI to extend the registration of the anthelmintic oxfendazole (MCI, Paranthic 10%), currently registered in Morocco to four additional countries in Africa. GALVmed is in the process of submitting applications for regulatory approval to undertake clinical field trials evaluating the effectiveness of using the combination treatment TSOL18 and oxfendazole in pigs in some of the most affected regions of the world including: Uganda, Tanzania, South Africa and Nepal. Results from these studies may inform policy decisions and evidence-based practice by identifying risk factors for disease and targets for preventive healthcare and improved disease control.



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