

# Estimating the Global Burden of *Taenia solium* Cysticercosis/Taeniosis



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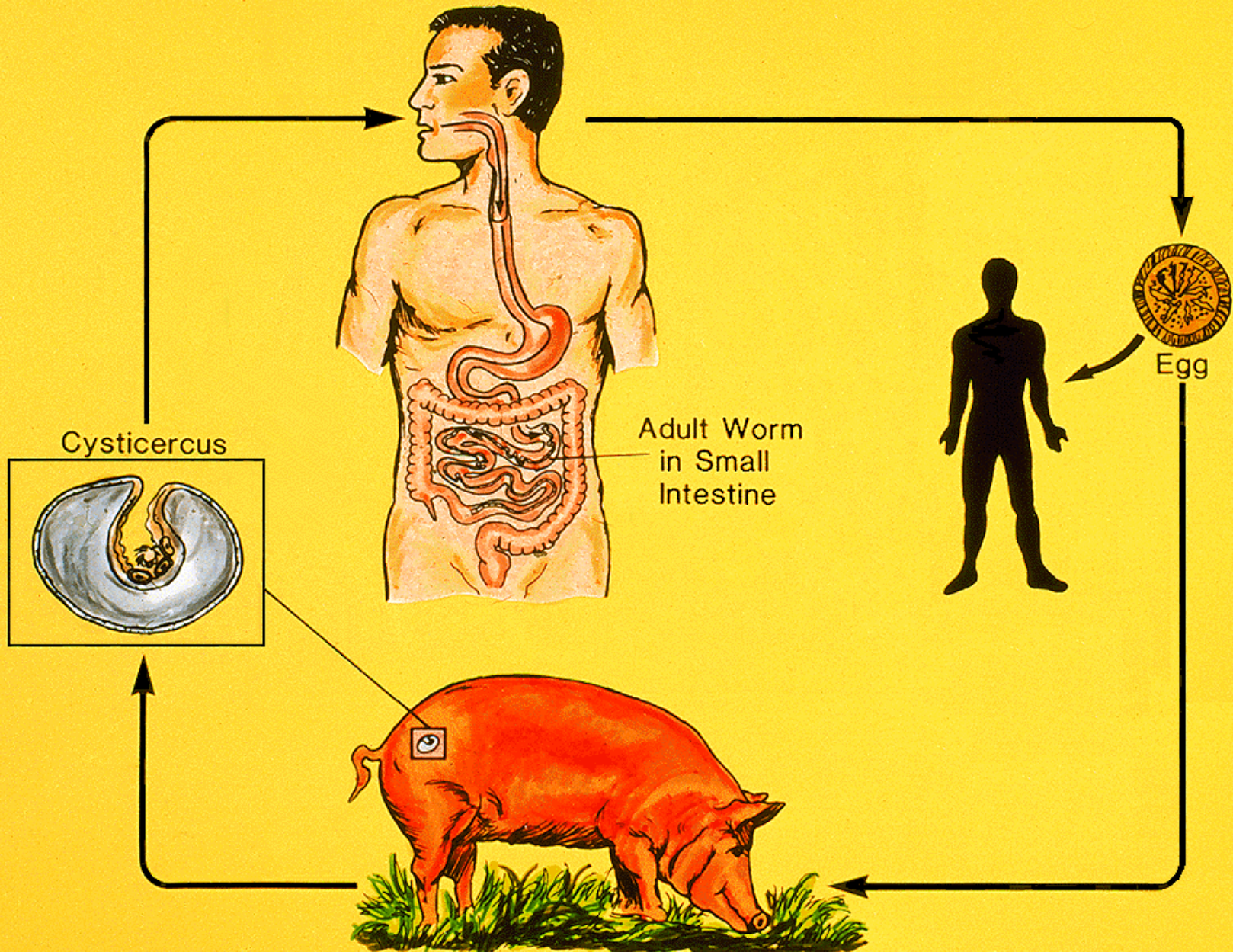
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# Distribution of *Taenia solium* cysticercosis

- Endemic in pig raising/pork consuming areas
- Associated with poverty
  - inadequate sanitation
  - lack of proper slaughtering facilities, meat inspection & control
  - poor pig husbandry practices
- Spread by people/pig movement
  - immigration
  - overseas domestic workers
  - international travel
  - marketing and transport of pigs



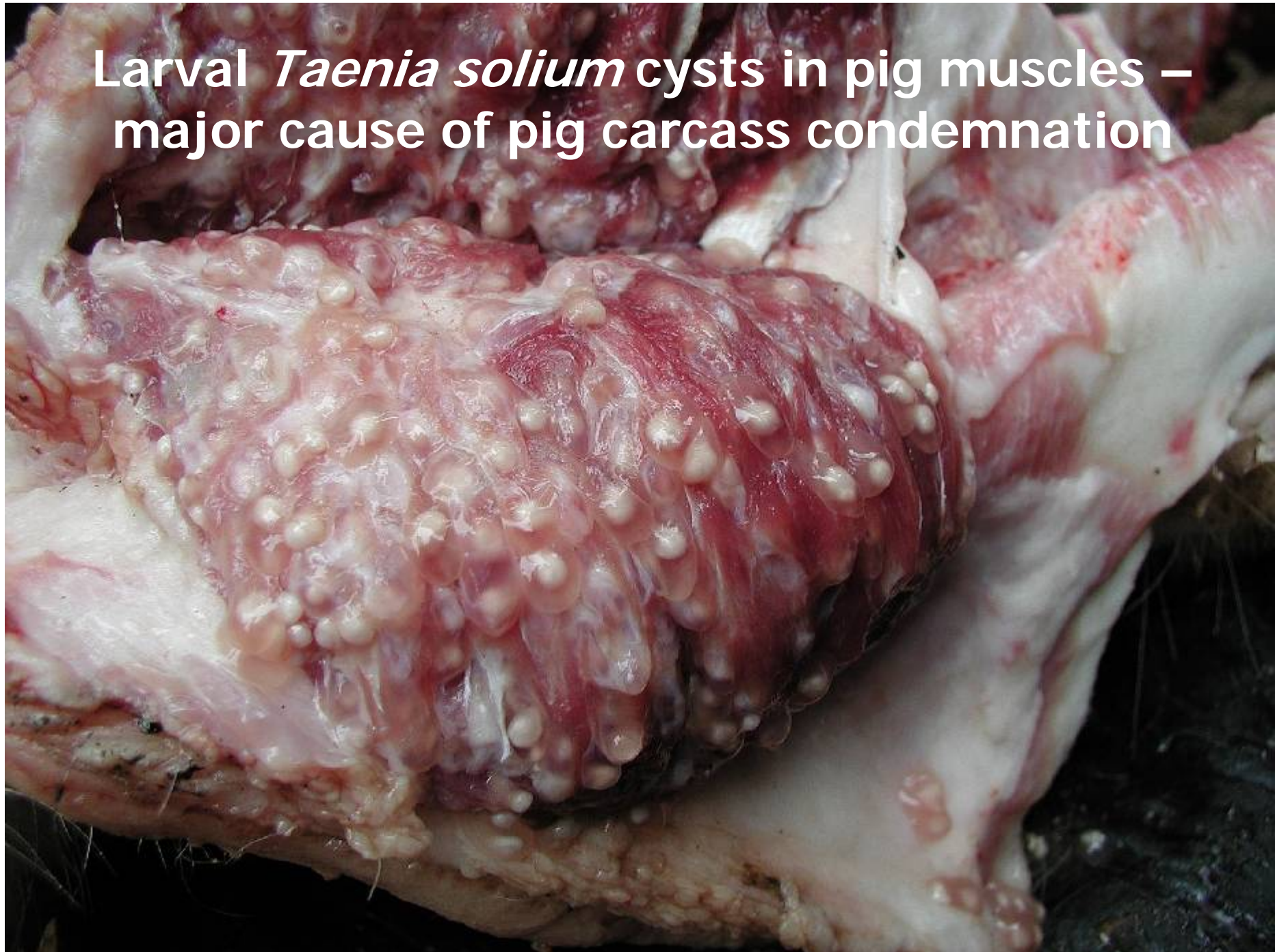


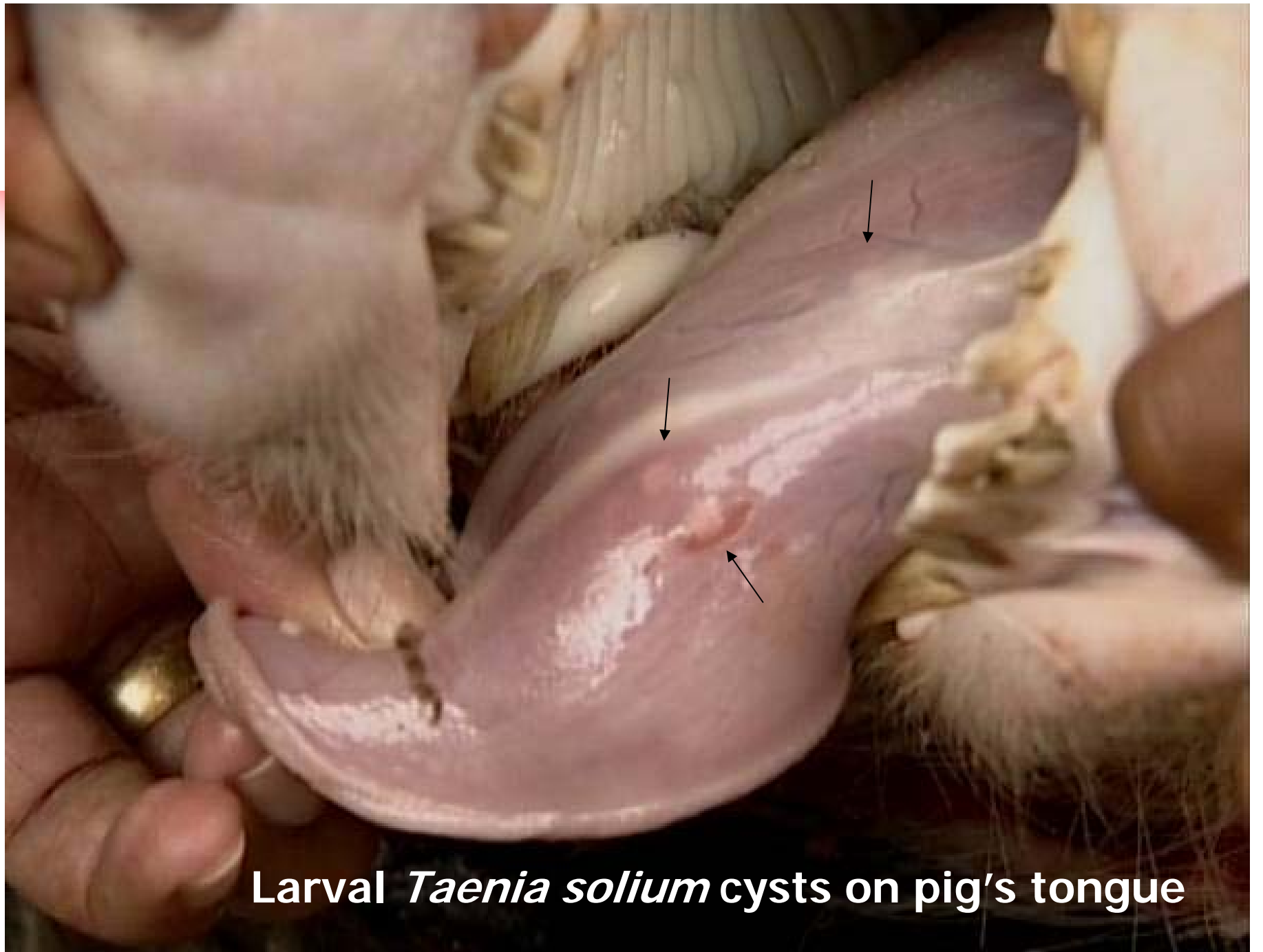


**TAENIA SOLIUM LIFE CYCLE**



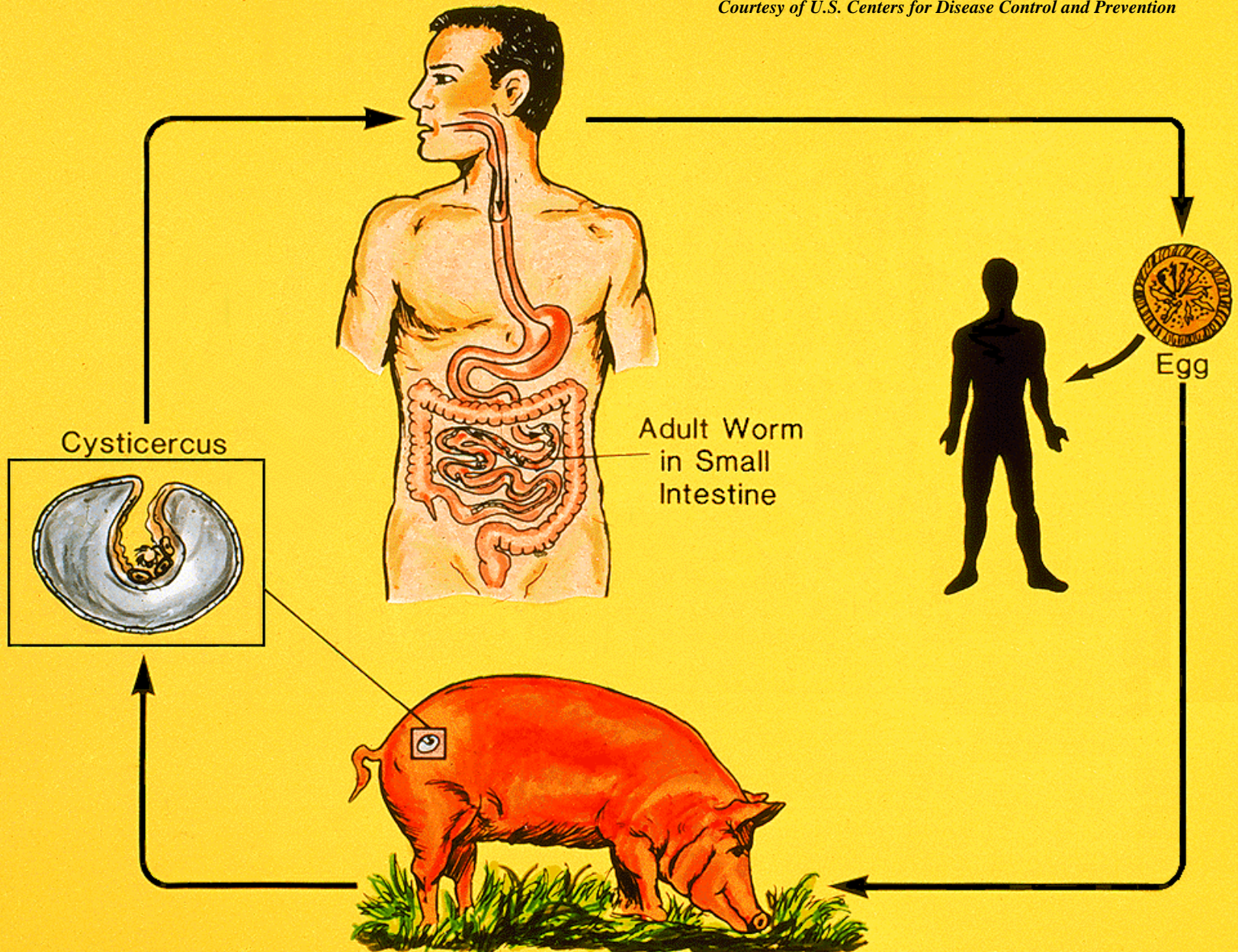
Larval *Taenia solium* cysts in pig muscles –  
major cause of pig carcass condemnation





**Larval *Taenia solium* cysts on pig's tongue**





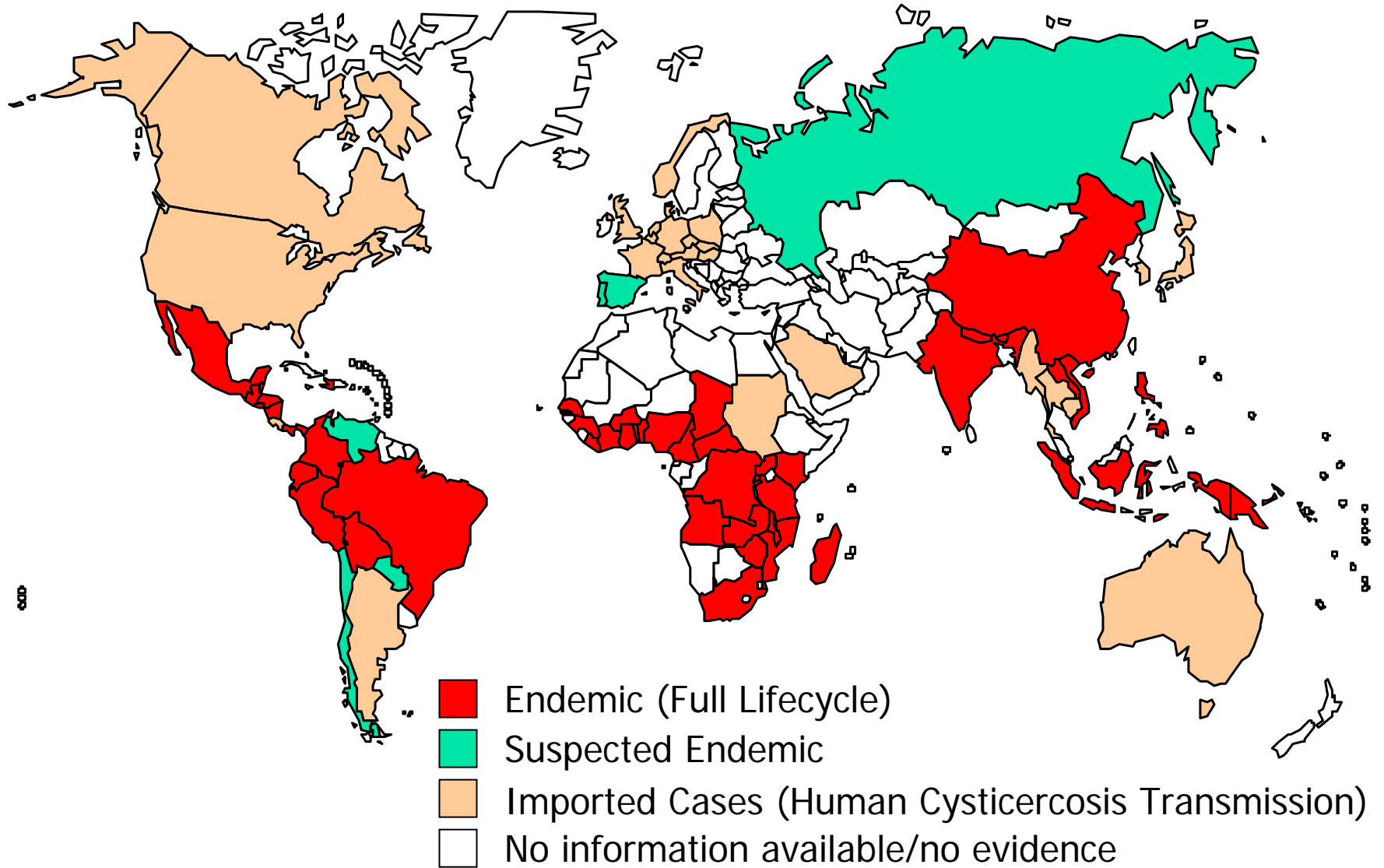
# TAENIA SOLIUM LIFE CYCLE





**Neurocysticercosis - the most common preventable cause of epilepsy!**

# Global distribution of *Taenia solium* cysticercosis/taeniosis







# WHO initiative on Assessing the Global Burden of Cysticercosis

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## Objectives:

- To estimate comprehensively the **societal cost** in selected developing/developed countries
- To construct country-specific **decision analysis** “trees”
  - reflect the **variation in the prevalence**
  - **Reflect the variation in the probability of diagnosis and treatment**
- To describe the **international variability** in the monetary burden of cysticercosis



# Gathering and organising information for the assessment

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- Literature review
  - Published/unpublished/grey literature
  - Identify a range of possible values for the epidemiological and economical parameters
- Submission of data from local collaborators
  - Epidemiological data
  - Agricultural data
  - Economical data
- Decision tree analyses
  - Organise the information in a “tree” for easier understanding of the process

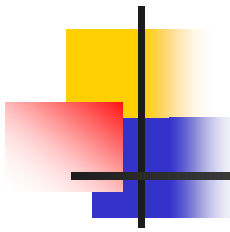




# Decision Analyses

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- Systematic, quantitative approach for assessing relative value of one or more decision options
- Framework for health economics analyses
- Useful for complex and/or uncertain clinical situations or policies (*e.g.* zoonoses)
  - Detection, treatment and hospitalization costs
  - Agricultural and economic costs
    - loss of productivity



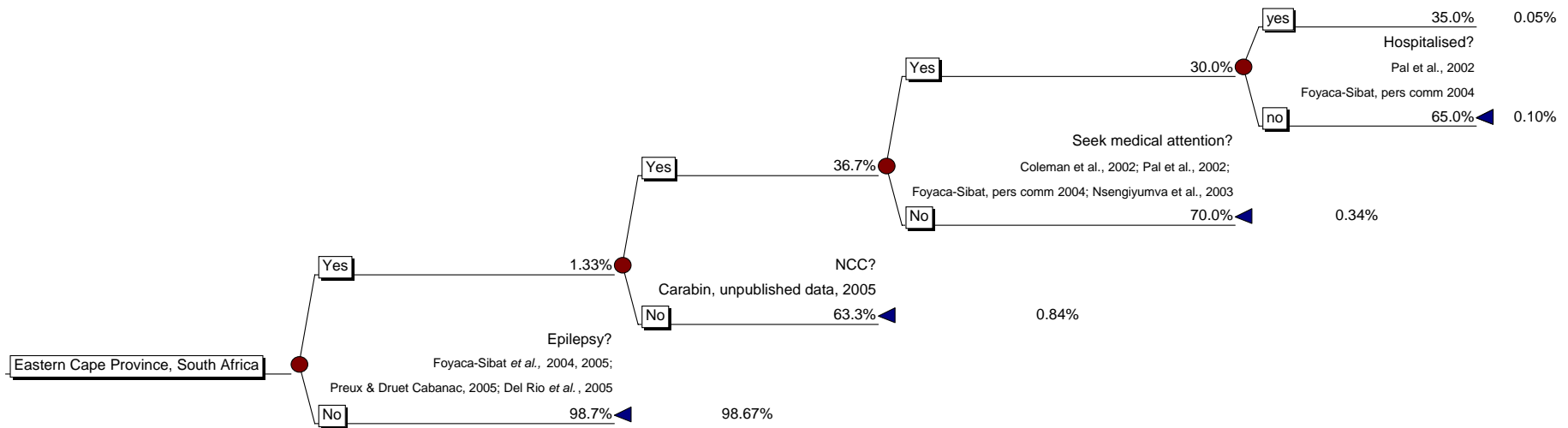
# Cysticercosis → consequences

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- Stigmatisation
- Incapacitation
- Decreased work productivity
- Reduction in farmers' household income
- Removal of an important protein source
- Reduction in trade
- Public health costs
  - diagnose, treat, monitor epilepsy cases
  - associated accidents (burns, drownings, etc)

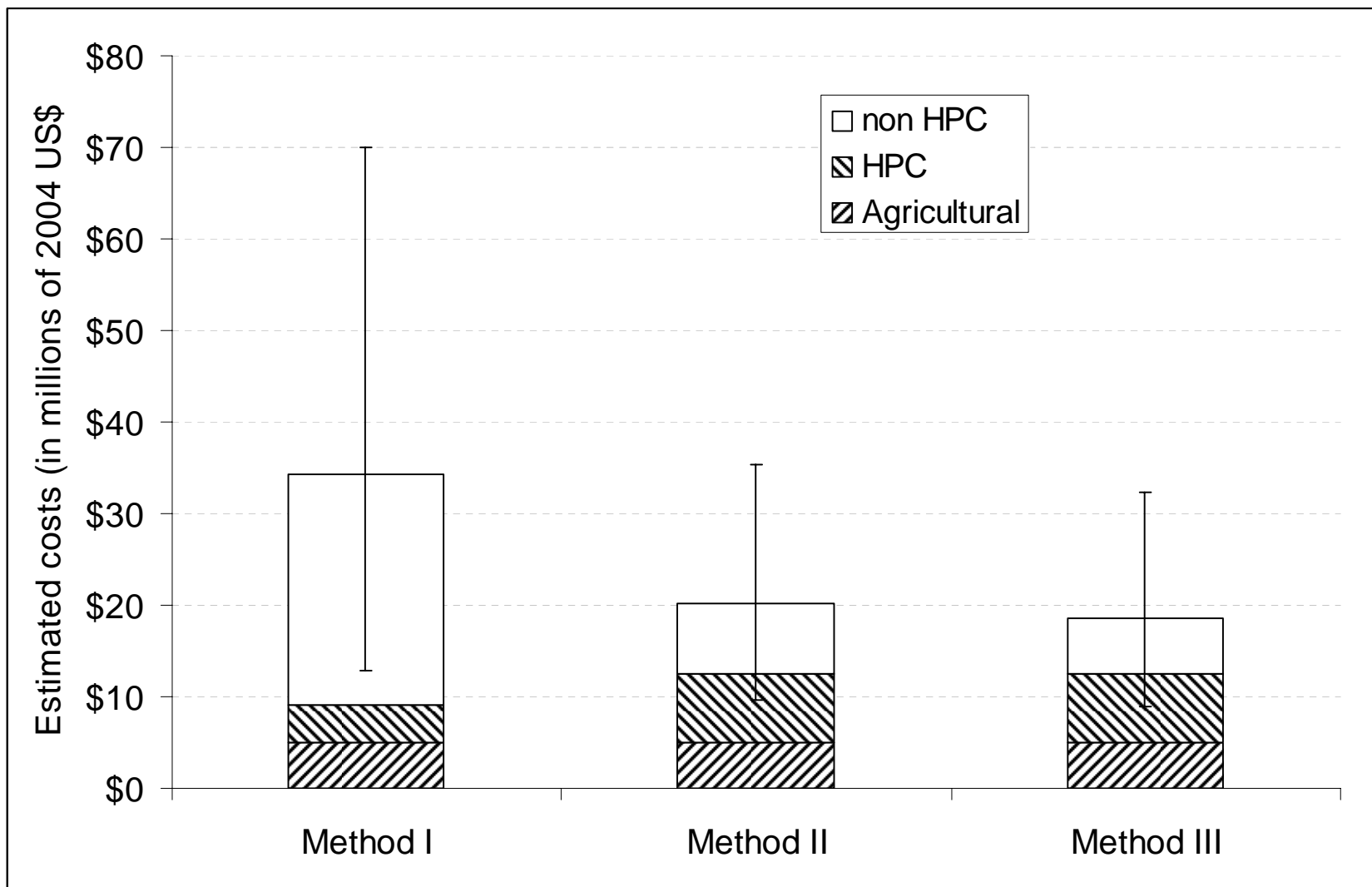


# Decision tree for estimating the monetary burden of NCC in Eastern Cape Province, South Africa



Legend:

- circle indicates a chance node
- triangle indicates an end node
- number at the end of each branch indicates the probability of that event to occur



**Estimated monetary burden (in 2004 US\$) for the agricultural sector, the health sector and society as a whole and 95% credible intervals of *Taenia solium* cysticercosis in Eastern Cape Province, South Africa using three methods to account for working time lost.**





# Major Findings from ECP, South Africa

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- Factors with largest influence because of epilepsy having the largest impacts
  - Prevalence of epilepsy
  - Proportion of patients with epilepsy seeking care
  - Proportion of work time lost
- Agricultural costs relatively low
  - Most people report pigs for home consumption
  - 76% reported seeing cysts in the meat
  - 80% did not know what these cysts were



**Participants in Bellagio Conference "Implementing a Global Programme for Combating Cysticercosis" 19-21 September, 2006**



# Regional projections of total demand and consumption of pork

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## PORK Consumption<sup>1</sup>

	<u>1993</u>	<u>2020</u>
<b>Developed Region</b>	<b>38</b>	<b>41</b>
<b>Developing Region</b>	<b>39</b>	<b>81</b>

<sup>1</sup> million tonnes