

Novel insights into the burden and transmission dynamics of *Taenia solium* in Nepal

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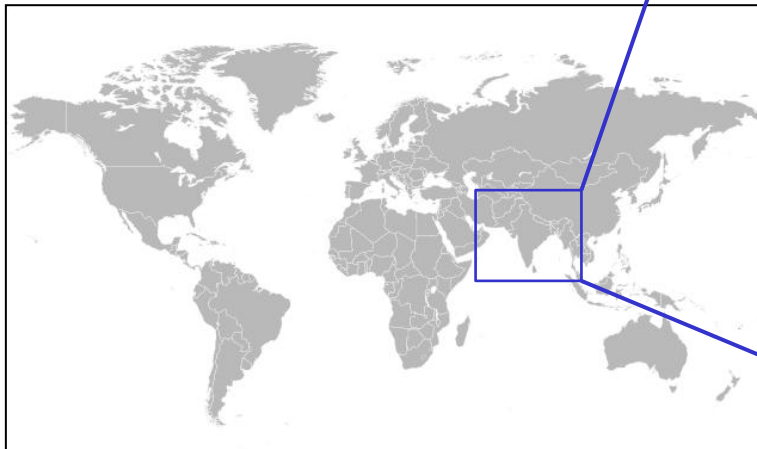
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Nepal

South Asia

147,000 km²

± 29 million inhabitants



Nepal

Country of great diversity: **Geography** = Himalayas > Hills > Terai



Nepal

Country of great diversity: **Population** = Complex mix of castes and indigenous nationalities



***Taenia solium* transmission dynamics**

—What is known ?

- Taeniosis first described in 1965
- Porcine cysticercosis first described in 1972
- Neurocysticercosis first described in 1990
- Taeniosis prevalence:
 - 0.0%–42.8% (Q₅₀ 1.4%)
- Porcine cysticercosis prevalence:
 - 0.99%–32.5% (tongue palpation)
 - 6.7%–20.5% (meat inspection)
 - 23.9% (EITB)
 - 18.2%–22.5% (Ag-ELISA)

***Taenia solium* transmission dynamics** **—Novel insights**

Community-based study southeast Nepal

- Significant differences in transmission risk factors among different caste and ethnic groups
- “Dum”: taeniosis prevalence 13.5% (71/524)

Taenia solium transmission dynamics —Novel insights

Dum

- Dalit (untouchable)
- “Hurra” pig
- High risk group:
 - Open defecation
 - Free-range pig husbandry
 - Frequent pork consumption
- Other such high risk groups??



***Taenia solium* transmission dynamics** **—Novel insights**

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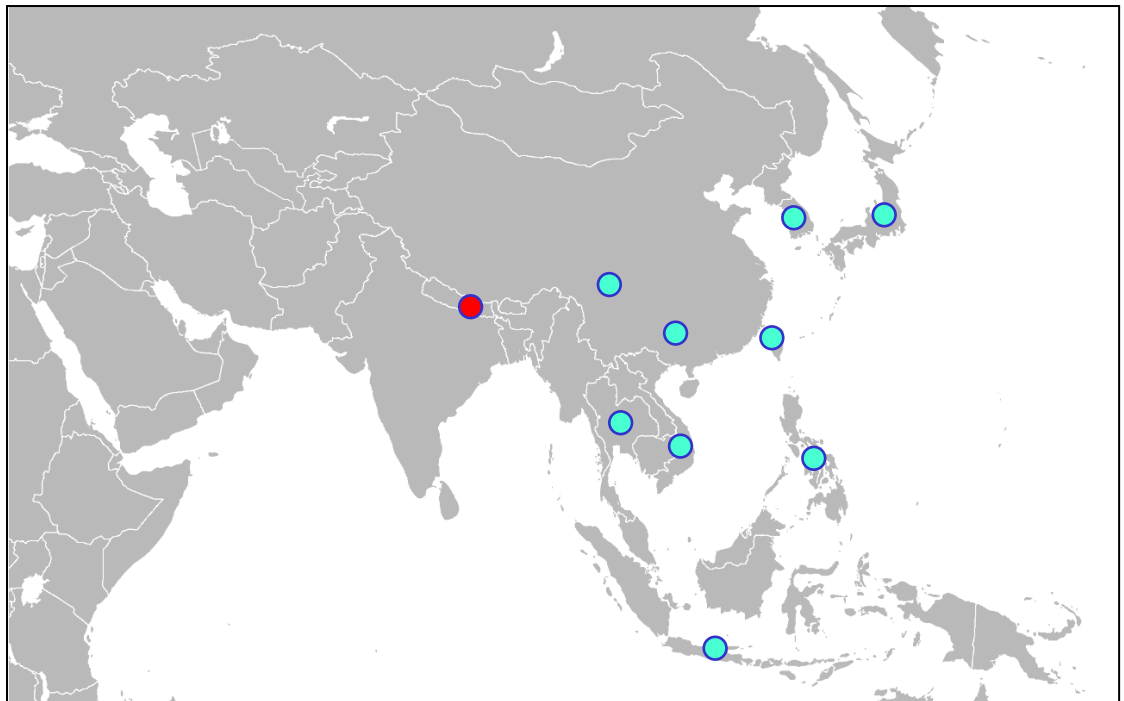
- Significant differences in transmission risk factors among different caste and ethnic groups
- “Dum”: taeniosis prevalence 13.5% (71/524)
- Molecular (PCR-RFLP) species identification: *Taenia asiatica*

Taenia solium transmission dynamics —Novel insights

■ based on Li et al., 2006; Eom et al., 2009

T. asiatica distribution

- China—Guangxi
- China—Sichuan
- Indonesia
- Japan
- Korea
- Philippines
- Taiwan
- Thailand
- Vietnam
- **Nepal**



NCC Disease Burden

- Epilepsy prevalence: 7.3/1000 (34/4636)
- NCC-association: 13.4%–43.7%
- Epilepsy CFR: 0.81%–2.26%

Disability-Adjusted Life Years (cf Praet et al., 2009)

- DALY[0;0] /1000 person-years: 1.0 [0.4–1.9]
- DALY[3;1] /1000 person-years: **0.8 [0.3–1.4]**

Compare to other studies (DALY[3;1])

- Cameroon (Praet et al., 2009): 9.0 [2.8–20.4]
- Mexico (Bhattarai et al., 2012): 0.3 [0.1–0.5] (90% due to epilepsy)

What needs to be known ?

Burden

- Proportion NCC-associated epilepsy
- Community-based studies !

Transmission dynamics

- Impact of *T. asiatica* on epidemiology of *T. solium*
- Impact of high risk groups on overall epidemiology of *T. solium*
- Identification of other high risk groups
→ Targeted control programs !

Thank you for your kind attention !

Acknowledgments

