Tuberculosis - What makes it an ideal disease for the interface?

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M. tuberculosis complex

- M. tuberculosis $\rightarrow$ humans
- M. bovis $\rightarrow$ cattle & wildlife
- M. africanum
- M. microti
- M. canettii
- M. caprae sp. nov.
- M. pinnipedii sp. nov. (seal bacillus)
Tuberculosis: *Zoonosis and Anthropozoonosis*

- *M. tb*
- *M. bovis*

Imported by European settlers
- Low prevalence on national level
- 1928: First wildlife tb in greater kudu and common duiker in the Eastern Cape
- 1986: Buffalo in the Hluhluwe-Umfolozi Park (KZN)
- 1991: Buffalo in the KNP
- 1994: Buffalo in parks bordering KNP
- 1998: Greater kudu in Spioenkop (KZN)
- 2000: M. tuberculosis in free-ranging suricates
Cattle-to-wildlife transmission of *M. bovis*
Molecular Evidence

- *M. bovis* isolates from KNP buffalo and in-contact cattle herd are identical
- TB epidemics in KNP and HUP are unrelated

What about wildlife-to-cattle transmission?
Implications of Wildlife TB

- **Internal**
  - Environmental contamination
  - Unrestricted spillover (spatial, temporal, inter species)
  - Population dynamics
  - New (multiple) maintenance hosts

- **External**
  - restrictions in the trade of game (nationally & internationally)
  - conservation island
  - public health implication (zoonosis)
Zoonotic Tuberculosis - a risk to rural African communities?

- Consumption of unpasteurised milk
- Close contact with cattle
- Unknown BTB status
- High HIV prevalence
- Limited awareness

Conclusions

- In developing countries both M. tuberculosis and M. bovis cross the species barrier easier and more often than generally anticipated
- Tuberculosis caused by M. bovis is an alien disease with varying effects on African wildlife populations
- M. bovis poses a risk on human health in developing countries with a high HIV/AIDS prevalence
- Data regarding zoonotic TB and BTB prevalence in cattle in the wildlife-livestock-huma interface are urgently needed
Fortunately, some interfaces are less worrying than others. Thank you!