



INAUGURAL **ONE HEALTH** CONFERENCE

1 - 3 November 2021

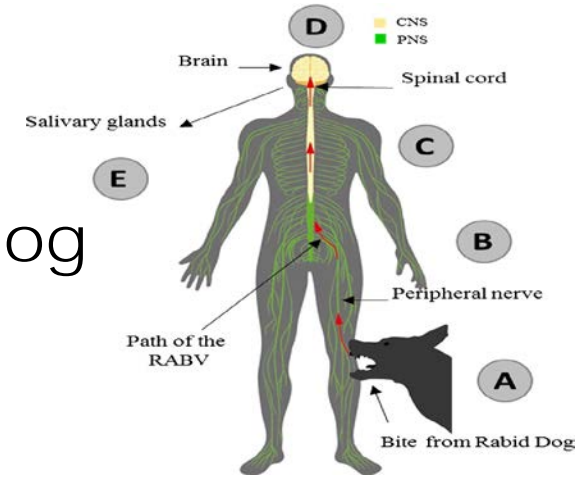
Integrated Bite Case Management (IBCM): The Best Way to Strengthen Collaboration between Health and Veterinary Sectors, Increase Rabies Case Detection and Save More Lives

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Introduction to rabies:

- Rabies is a zoonotic disease that infects all mammals
- Transmission is mainly from a bite of an infected domestic dog
- The disease is 100% fatal



Distribution

- Historically found worldwide, but now eliminated from high income countries
- ~ 99% of human deaths in Africa and Asia
- Estimated 59000 human deaths annually;
 - 24000 in Africa

Global goal 'Zero by 30' to eliminate human rabies deaths by 2030

Rabies prevention and control

- Mass dog vaccination
- Post-exposure prophylaxis (PEP) to animal bite victims

- Key measures to achieve 'Zero by 30':
 - Scale up dog vaccination (negligible in most countries)
 - Improve access to PEP (high cost & many shortages)

- Implementing dog vaccination should:
 - *reduce rabies incidence in dogs* and therefore also
 - reduce human *exposures, deaths* and demand for PEP

But surveillance to quantify these impacts is limited



Aim to enhance rabies surveillance in Tanzania

Lushasi et al. 2020:

www.frontiersin.org/articles/10.3389

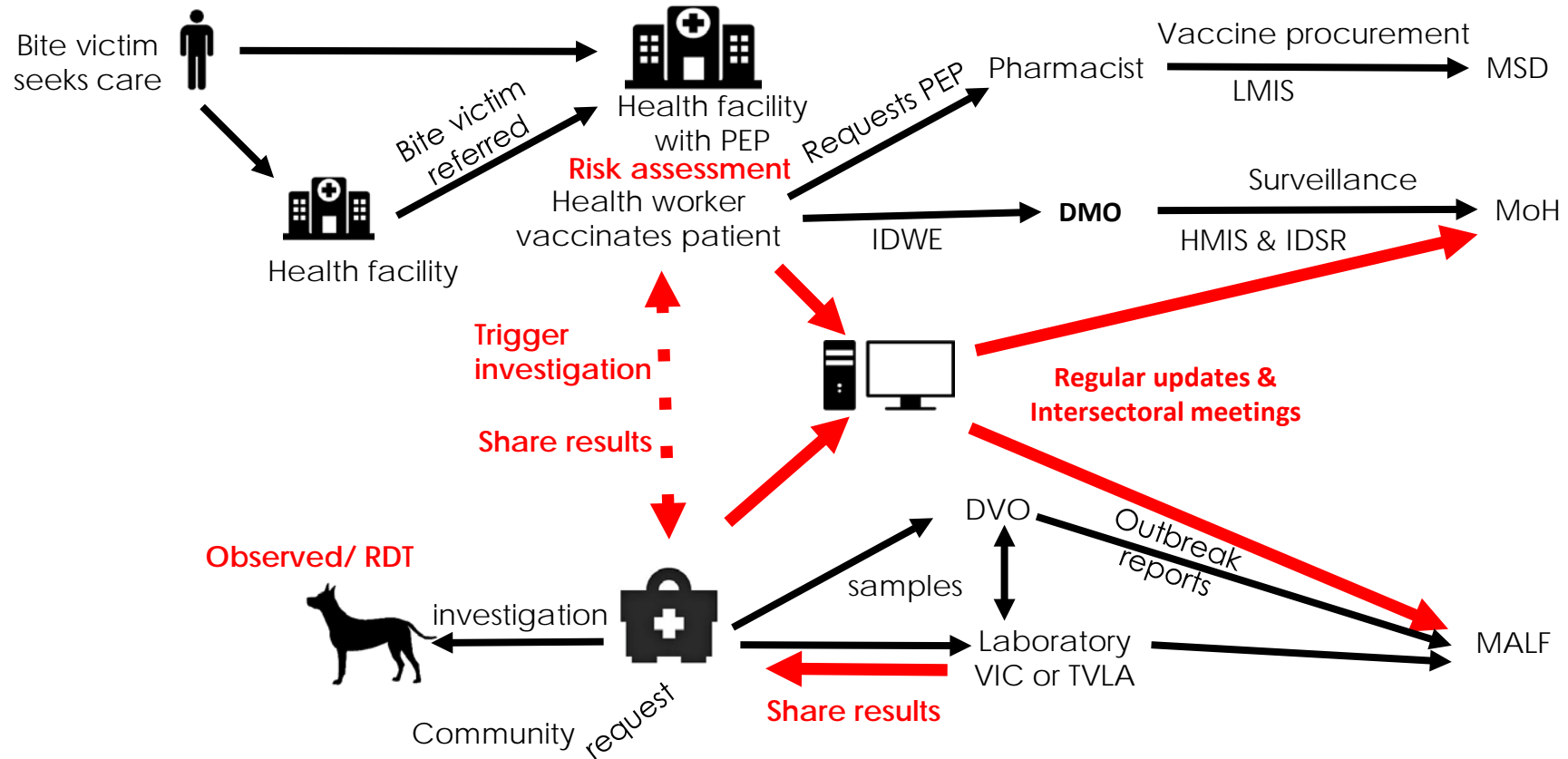
- By operationalizing **Integrated Bite Case Management (IBCM)**
 - One Health' approach to surveillance linking health and veterinary workers
 - IBCM should quantify:
 - Bite patients & PEP demand
 - Rabies exposures (i.e. high-risk bites from rabid vs healthy animals)
 - Human rabies deaths
 - Animal rabies cases

IBCM protocol

1. Health worker completes risk assessment of bite patients presenting to health facility
2. If a high-risk bite is identified, notifies the veterinary sector (livestock field officer) to do **investigation**
3. Livestock field officer conducts **investigation** to assess biting animal & reports results back (to health sector)

Previous surveillance and reporting systems

Additional IBCM steps

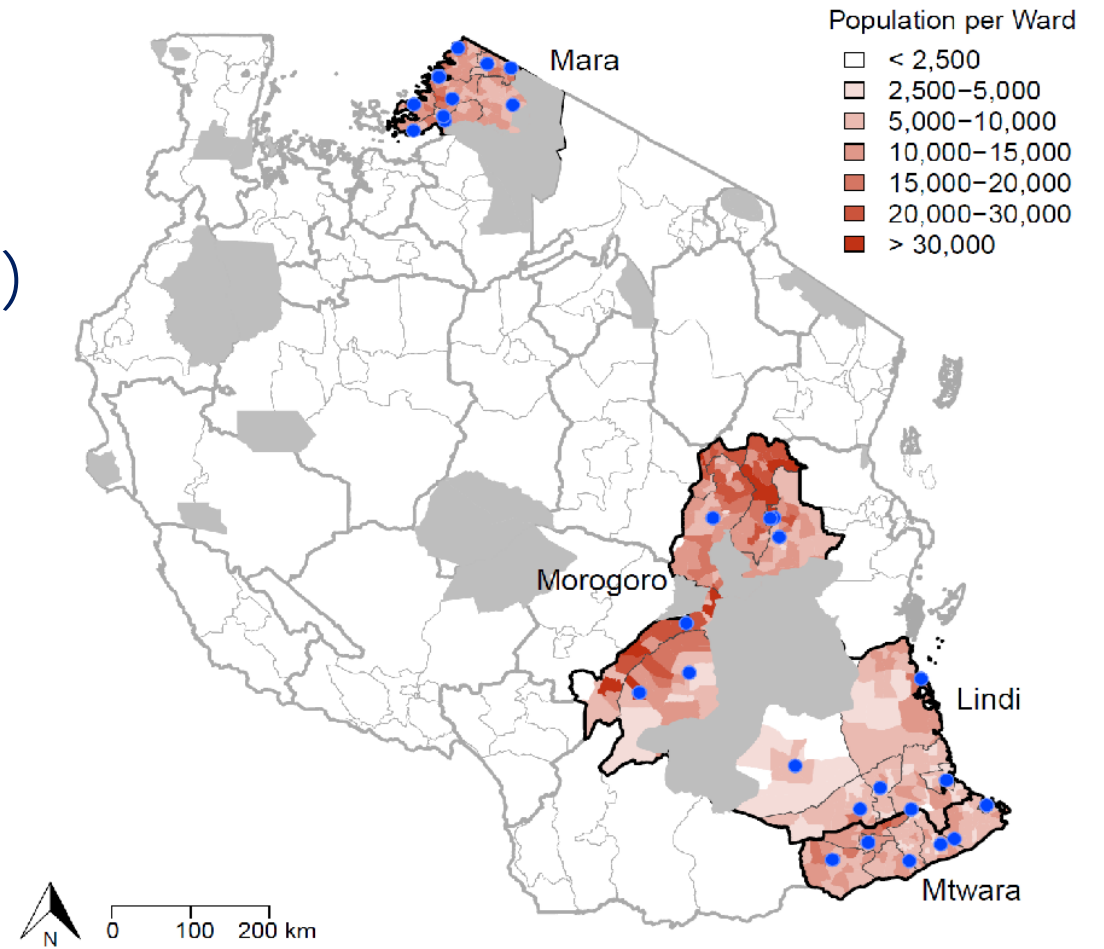


Field sample collection and testing using RDTs



Implementation sites

- 20 districts of 4 regions of Tanzania
 - Human population: 7,100,000
 - Variable population density (red shade)
 - Wildlife protected areas (grey)
 - Average human:dog ratio ~30:1
- 35 health facilities with IBCM & PEP



Results

Bite patients pre & post-IBCM introduction

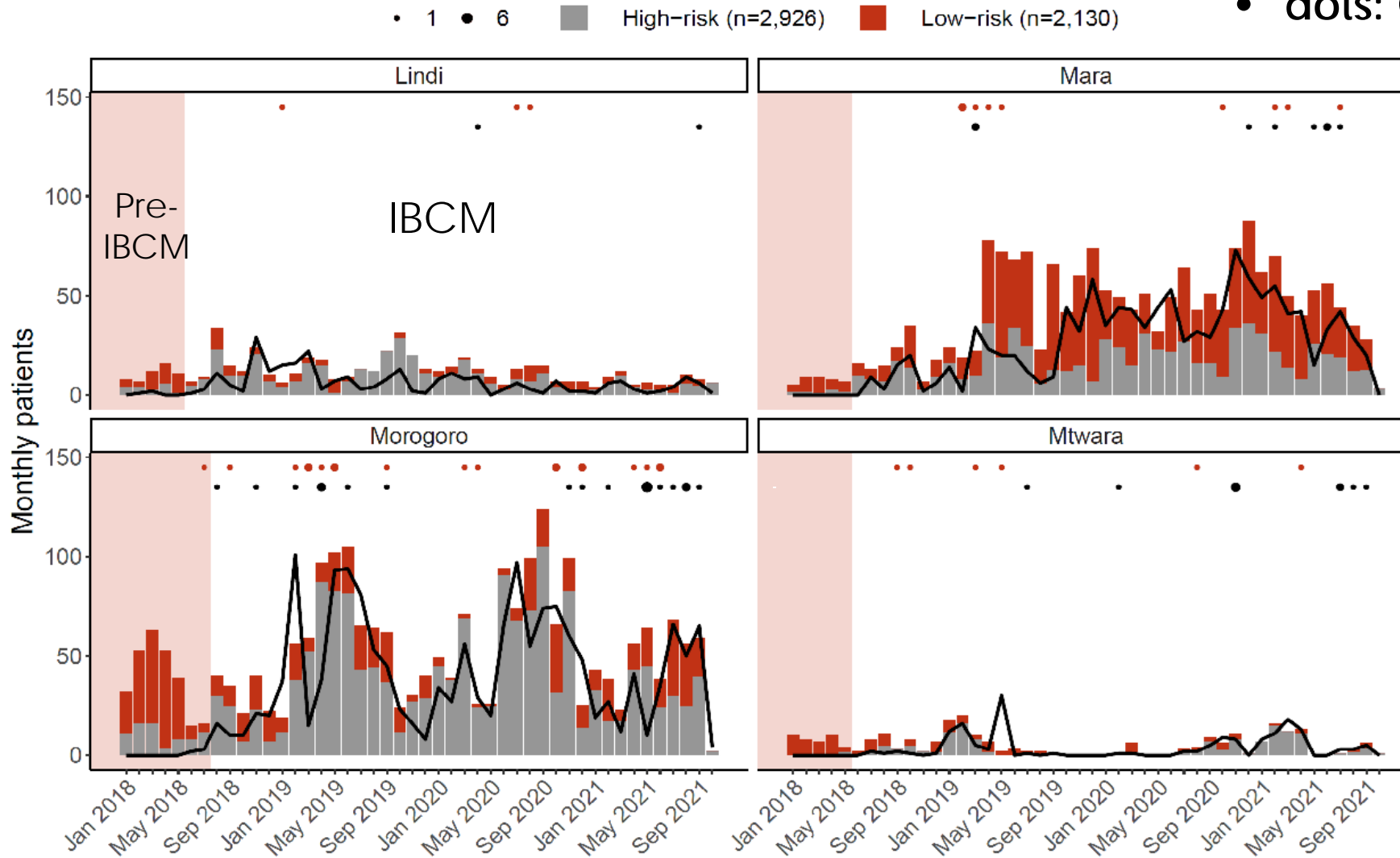
- Pre: avg 57.6 (range: 15-91) new patients/ month, 26.3% high-risk
- Post: avg 114.2 (range: 15-202) new patients/ month, **60.1% high-risk**

Region	Pre-IBCM		Post-IBCM	
	Presentations / 100,000 /year	% high-risk	Presentations / 100,000 /year	% high-risk
Lindi	15.3	32.7	17.0	76.5 **
Mara	5.2	26.3	30.8	39.6
Morogoro	29.3	28.0	28.2	74.8**
Mtwara	7.4	7.7	4.7	67.8**

* $p < 0.05$, ** $p < 0.001$, by chi-square

Regional reporting of:

- **dots:** Human deaths (36)
- **dots:** Confirmed cases



High-risk bites per ward reported via health facilities (red)
 Probable animal cases investigated (blue circles).

Protected areas in grey

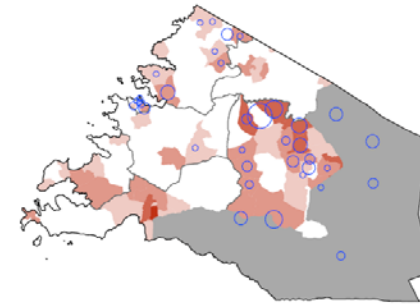
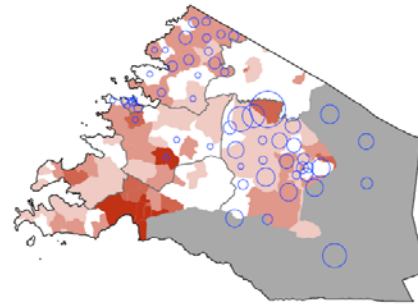
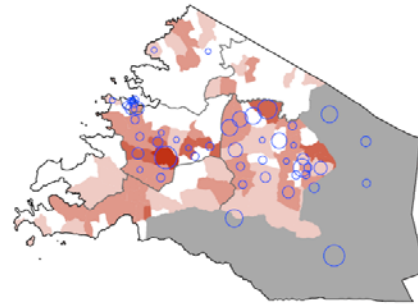
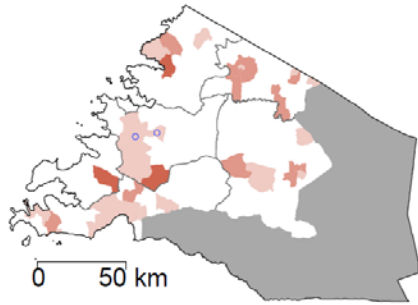
2018

2019

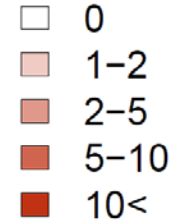
2020

2021

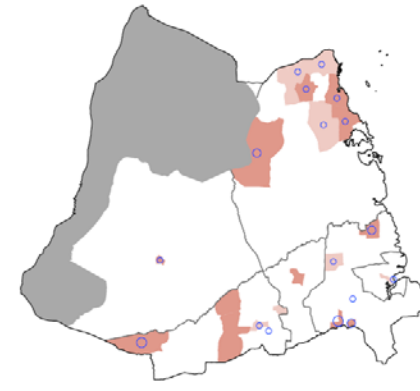
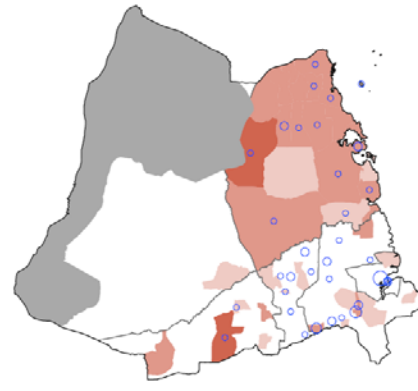
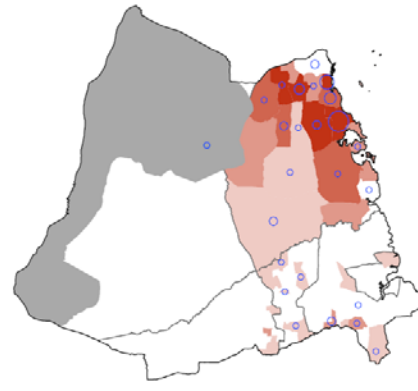
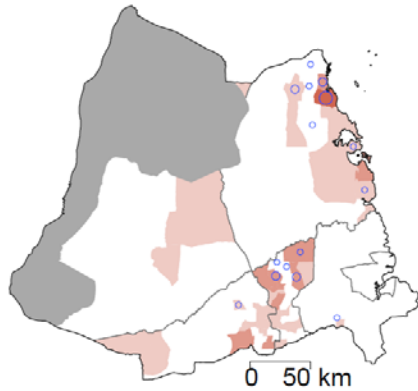
Mara



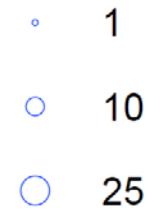
Reported high-risk bites



Lindi



Probable rabies cases



High-risk bites per ward reported via health facilities (red)
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Protected areas in grey

Morogoro

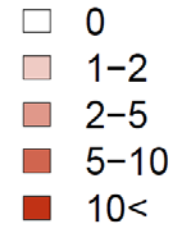
2018

2019

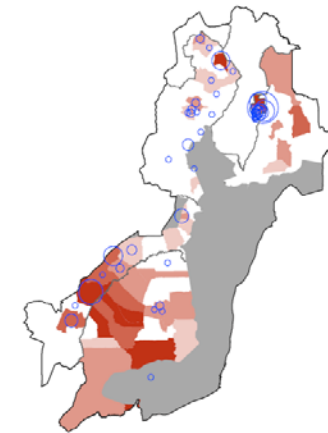
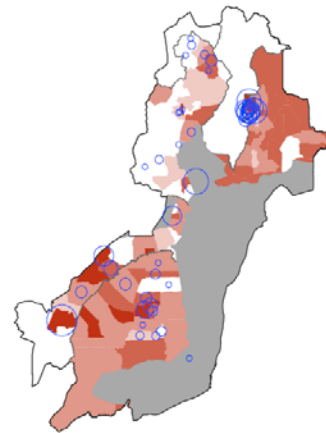
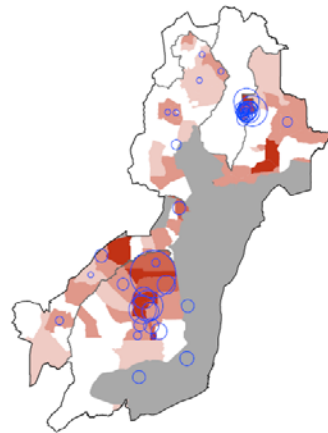
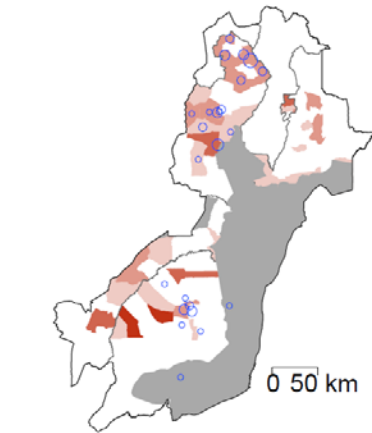
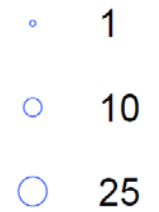
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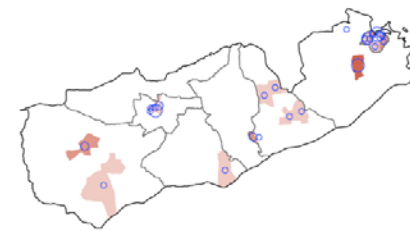
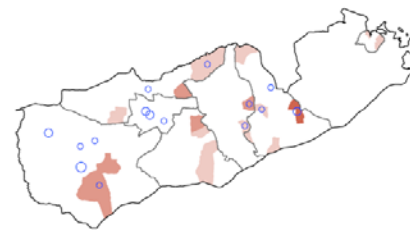
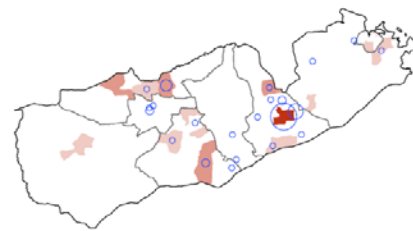
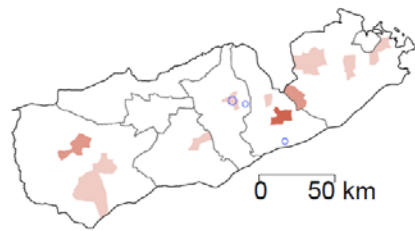
Reported high-risk bites



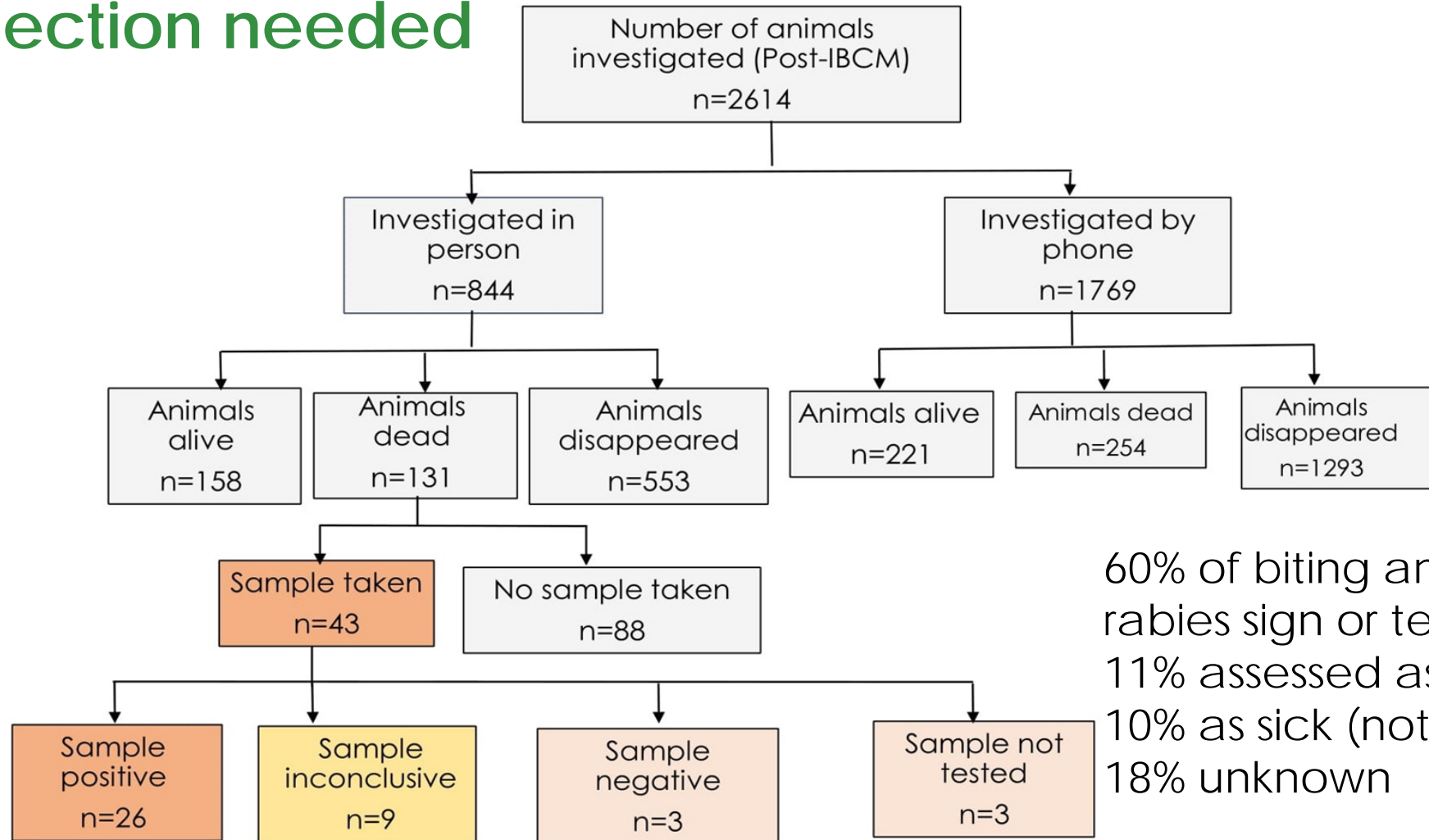
Probable rabies cases



Mtwara



Many investigations conducted but more and faster sample collection needed



60% of biting animals showed at least 1 rabies sign or tested positive
11% assessed as healthy
10% as sick (not rabies)
18% unknown

Conclusion

- IBCM dramatically improved rabies detection & communication between sectors
- IBCM helped to integrate the public and veterinary health sectors and generates more accurate surveillance data that can guide policy decisions and public health measures.
- Main challenges:
 - limited training of health workers in rabies
 - perceived burden of real-time recording
 - limited resources for livestock field officers to investigate
- **We encourage greater use of IBCM and recommend further implementation research to develop best practice in different settings and to evaluate its potential to support 'Zero by 30'!**
- **Moreover, IBCM could monitor PEP use as part of planned Gavi-support for human rabies vaccines**

