National Mapping of Mycetoma and Other Skin Neglected Tropical Diseases (NTDs)

Four Regions of Ethiopia – 2025

1. Executive Summary

This brief summarizes key findings and policy-relevant implications from the National Mapping of Mycetoma and Other Skin Neglected Tropical Diseases (NTDs) conducted in four regions of Ethiopia (Afar, Amhara, Southern Ethiopia, and Tigray) in 2025. The study was led by Arba Minch University, in collaboration with Bahir Dar University and Mekelle University, with financial and technical support from DNDi.

A total of 102,093 individuals from 25,164 households were screened using an integrated, community-based skin NTD approach. Overall, 897 individuals (0.9%) were diagnosed with at least one skin NTD. Mycetoma prevalence was 5.39 per 10000 (95% CI: 4.14–7.01 per 10,000), regionally, Afar showed the highest burden with a prevalence of 15.68 per 10,000 (95% CI: 11.76–20.91), confirming that mycetoma is rare nationally but shows clear geographic, occupational, and demographic clustering.

The findings provide the first large-scale population-based evidence on mycetoma and integrated skin NTD burden in Ethiopia and have direct relevance for policy, service delivery, surveillance, and research prioritization.

2. Background and Rationale

Skin NTDs—including mycetoma, scabies, leprosy, lymphatic filariasis–related lymphedema, impetigo, tungiasis, and cutaneous leishmaniasis—cause chronic morbidity, disability, stigma, and economic loss. Despite their importance, national-level data to guide programmatic action have been limited.

This mapping was undertaken to:

- Generate robust epidemiological evidence on mycetoma and other skin NTDs

- Identify high-risk populations and geographic hotspots
- Assess the feasibility and performance of HEW-led screening
- Inform integrated skin NTD programming, surveillance, and future clinical trials

3. Methods

- Design: Community-based cross-sectional mapping
- Regions: Afar, Amhara, Southern Ethiopia, and Tigray
- Households surveyed: 25,164
- Individuals screened: 102,093
- Screening approach: Initial screening by Health Extension Workers (HEWs), verification by health officers/nurses
- Analysis: Descriptive statistics, prevalence estimates with 95% confidence intervals, chi-square tests for associations, and diagnostic performance assessment of HEWs

4. Socio-Demographic Profile of Screened Population

- Sex: 51% male, 49% female
- Age distribution:
    - <5 years: 10.4%
    - 5–17 years: 32.7%
    - 18–60 years: 52.1%
    - 60 years: 4.8%
- Education:
    - Participatory/non-formal education: 45.8%
    - Primary education: 29.5%
- Occupation:
    - Farmers/farm workers: 30.6%
    - Students: 24.9%
    - Homemakers: 19.6%

These characteristics reflect predominantly rural, agrarian, and low-literacy communities, consistent with known risk profiles for skin NTDs.

5. Mycetoma: Policy-Relevant Findings

5.1 Prevalence and Geographic Distribution

Out of 102,093 individuals screened during the national skin NTD mapping, 55 cases were confirmed as active mycetoma by ultrasound, yielding a national prevalence of 5.39 per 10,000 population (95% CI: 4.14–7.01). This confirms that mycetoma is a rare disease at national level, but with marked geographic clustering.

Regional prevalence varied substantially:

- Afar Region: 15.68 per 10,000 (95% CI: 11.76–20.91)
- Southern Ethiopia: 2.25 per 10,000 (95% CI: 0.96–5.26)
- Amhara Region: 0.79 per 10,000 (95% CI: 0.22–2.87)
- Tigray Region: 0.80 per 10,000 (95% CI: 0.22–2.91)

5.2 High-Risk Groups

- Sex: Higher among males (0.179%) than females (0.052%)
- Age: Prevalence increases with age; highest among >60 years (0.247%)
- Occupation: Highest number among farmers and outdoor workers

Associations with sex, age, and region were statistically significant ($p < 0.001$).

5.3 Clinical Presentation

All mycetoma cases presented with swelling, pain, and discharge. Sinuses (88%) and grains (66%) were common, consistent with classical mycetoma.

6. Other skin NTD burden

6.1 Overall Skin NTD Burden

- Individuals with ≥1 skin NTD: 897 (0.9%)
- Co-infection:
    - Two skin NTDs: 17.7% of cases
    - Four skin NTDs: 1 case identified

6.2 Most Common Skin NTDs are

Cutaneous leishmaniasis, elephantiasis (secondary to podoconiosis, leprosy, scabies, and tungiasis ..

7. Performance of HEW-Led Screening

HEW screening demonstrated:

- High sensitivity (83–88%) for common skin NTDs
- Very high specificity (>99%) for all conditions
- Negative predictive value >99% across diseases

Detection of rare diseases (e.g., onchocerciasis) was weak due to very low prevalence, highlighting the need for targeted refresher training rather than system change.

8. Implications for the Ministry of Health

1. Skin NTDs remain present but under-detected in routine services
2. Mycetoma shows clear geographic clustering, particularly in Afar
3. Integrated skin NTD approaches are feasible within primary health care
4. HEWs can reliably detect most common skin NTDs with appropriate training
5. Low prevalence should not delay action due to severe disability and socioeconomic impact

9. Priority Recommendations

1. Integrate skin NTD screening into routine PHC and HEW service packages
2. Prioritize Afar and other high-risk areas for mycetoma surveillance and referral
3. Strengthen training and mentorship of HEWs on rare skin NTDs
4. Establish sentinel surveillance sites for mycetoma
5. Use mapping data to guide future operational research and clinical trials
6. Promote community awareness and stigma reduction for chronic skin diseases

10. Conclusion

This university-led national mapping provides strong, policy-relevant evidence on mycetoma and other skin NTDs in Ethiopia. While overall prevalence is low, the diseases are concentrated among vulnerable populations and specific regions. The findings support a targeted, integrated, and decentralized skin NTD strategy aligned with Ethiopia’s primary health care platform.