Interruption of transmission and elimination of leprosy disease

Report from the WHO Task Force on Criteria for the Elimination of Leprosy (TFCEL)

Wim H van Brakel
Medical Director NLR
Chair, ILEP Technical Commission
Chair, TFCEL
Content

• TFCEL introduction
• Leprosy elimination conceptual trajectory
• Concepts related to elimination of leprosy
• Phases in the elimination of leprosy
• Criteria for readiness
Task Force on Criteria for Elimination of Leprosy

• Countries request verification of elimination
• Criteria and indicators needed for verification process
• => Informal consultation, Mexico, February 2020
• => Task Force on Criteria for Elimination of Leprosy (TFCEL)
• Objectives:
  • To define criteria for countries to be ascertained for having made significant progress towards interruption of transmission and elimination of leprosy disease.
  • To establish criteria and indicators that best define interruption of transmission of \textit{M. leprae} and elimination in term of zero incidence leprosy disease.
Task Force on Criteria for Elimination of Leprosy

Task Force on Criteria for Elimination of Leprosy
• Task Team 1: Systematic literature reviews (lead: Annemieke Geluk and Wim van Brakel)
• Task Team 2: Analysis of data from national programmes (lead: GLP)
• Task Team 3: Analysis of available PGL-1 laboratory data from field surveys (esp. PGL-1 in children) (lead: Epco Hasker)
• Task Team 4: Draft ‘criteria for readiness’ to move into the next phase of leprosy elimination (lead: Arielle Cavaliero)
• Task Team 5: Draft definitions for concepts concerning interruption of transmission and elimination of leprosy as a disease (lead: Vivek Lal)
• Task Team 6: Identify and define indicators that best define/monitor interruption of transmission and elimination of leprosy disease (lead: Wim van Brakel)
• Task Team 7: Draft criteria and propose cut-offs for indicators and milestones (lead: VK Pannikar)
Leprosy elimination conceptual trajectory

First inflection point: 2020
Enhanced post exposure prophylaxis (PEP), with or without vaccines, and coverage in high endemic communities with real-time surveillance

WHO Goal: 2020
Zero disabilities among new pediatric patients by 2020

Second inflection point: 2030-35
Criteria to be determined by global leprosy partnership
Options include:
- Enhanced PEP no longer required
- Zero incidence among children <5
- Reduced seroprevalence levels (if diagnostic developed)

End goal:
Global leprosy - global community is aligning around this goal

NTD Action Planning report, BMGF, 2017
Concepts related to elimination of leprosy
Autochthonous case

**Definition:** “A case of leprosy presumed to have acquired the infection following local transmission in the reporting area”

- Theoretical concept is that the case resulted from a locally acquired infection.
- Definition now accommodates within-country situations of cases detected who are not residents of the district or state/province where they are detected.
Elimination as a public health problem (EPHP)

**Definition**: “A country or area that has achieved a registered prevalence rate of <1 per 10 000 population”

- Although this definition is known to have quite a few disadvantages, it was decided not to modify this given its previous adoption by the WHA (WHA44.9; 1991).
Eradication

**Definition:** “Permanent reduction to zero of a specific pathogen, as a result of deliberate efforts, with no more risk of reintroduction”

- Eradication of leprosy is not (currently) feasible because of the zoonotic reservoir and zoonotic transmission of *M. leprae*
Population at risk

**Definition:** “Everyone in a given area who lives (or has lived) for at least one year in the close vicinity of leprosy cases”

- Vulnerable groups: migrants, people living in hard to reach areas, etc; people in these groups may be at increased risk statistically compared to the general population, but they are not automatically ‘population at risk’.

- In some other ‘preventive chemotherapy NTDs’, this concept is being replaced by ‘Population requiring preventive interventions’ (e.g. preventive chemotherapy or vaccination)
  - Paper submitted to PLoS NTDs: ‘How many people require preventive treatment to end leprosy? A modeling study’ (Taal et al; 2020)
Elimination of transmission

**Definition:** “An epidemiological state in a previously leprosy-endemic country or area where there is no more local transmission of *M. leprae*, evidenced by a ‘new case rate among children’ of 0 for at least 5 years”

- Also referred to as ‘ Interruption of transmission’
- Most appropriate age cut-off to define ‘children’ in this context is being investigated further
Elimination of leprosy disease

**Definition**: “Zero new autochthonous leprosy cases in the past 3 years”

- Also referred to as ‘Zero incidence of leprosy’
Proposed levels of endemicity

- **High endemic**
  - NCDR >100 new autochthonous cases per 1 million population per year

- **Moderately endemic**
  - NCDR 50 to 100 new autochthonous cases per 1 million population per year

- **Low endemic**
  - NCDR 5 to 49 new autochthonous cases per 1 million population per year

- **Sporadic cases**
  - <5 new autochthonous cases per year

- **Non endemic**
  - No autochthonous cases for at least 10 years
Phases in the elimination of leprosy
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Verification of elimination of leprosy disease
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Verification of elimination of leprosy disease
Criteria for readiness
Criteria for readiness to move to the next phase

• Developed by Task Team 4 (led by Arielle Cavaliero and Christine Fenenga)
• Purpose: to develop organisational and operational criteria to help countries assess readiness to move to next phase of elimination.
• To be incorporated in country roadmaps for leprosy elimination
• Matrix developed showing criteria needed in subsequent phases:

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<th>PHASE 3 (Post Elimination)</th>
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<td>Endemicity Level</td>
<td>High</td>
<td>Low</td>
<td>Low (sporadic cases)</td>
<td>Non-endemic</td>
<td>Classification used at 3 levels: national, state/province/regional and district level</td>
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<td>Cut-off indicator for going to the next endemicity phases (input: T7)</td>
<td>&gt;100 new autochthonous cases per 1 million population per year</td>
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<td>Policy</td>
<td>National strategy and corresponding operational and normative guidelines and action plans are up to date</td>
<td>Update program tactics by taking stock endemicity levels** and craft national zero leprosy strategy (includes endemic specific, sub-national strategies) + corresponding roadmap, action plans &amp; guidelines</td>
<td>National authorities endorse zero leprosy</td>
<td>National authority endorsement of strategy,</td>
<td></td>
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<tr>
<td>Commitment (political and)</td>
<td>Active lobbying for political commitment and funding</td>
<td>National authorities endorse zero leprosy</td>
<td>*National strategy and corresponding roadmap, action plans and guidelines are available (endemic specific) and up to date with latest actions required and targets set by NTD Roadmap</td>
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* Table 1: Defines the organizational/operational aspects per phase.
Criteria for readiness to move to the next phase

• Policy (e.g. zero leprosy strategy + roadmap)
• Political and funding commitment
• Participation of persons affected
• Awareness raising
• Training
• Screening of contacts, skin patients and other high-risk groups
• Chemoprophylaxis
• Surveillance and response system
• Services for leprosy management, disability management and mental health care
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Co-opted experts: Annemieke Geluk (Netherlands), Peter Steinmann (Switzerland)
until
No Leprosy Remains