EVIDENCE BRIEF

Yaws

(DCP4 ID: NTD03-10)
Cluster: Neglected Tropical Diseases

FairChoices
 DCP Analytic Tool

Early detection and treatment of nationally important NTDs: Yaws

Authors:

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Description of condition and intervention

Yaws is caused by the bacterium Treponema pallidum subspecies pertenue and manifests as a chronic skin infection. Children aged under 15 years residing in poor communities in humid and tropical forested areas of Africa, Asia, Latin America and the Pacific islands are primarily affected. About over 80 000 cases of yaws occur each year. Proper surveillance and control measures could facilitate in elimination and ultimately eradication of yaws. Lack of animal vector for yaws and its occurrence in humans makes this control easier with availability of adequate treatment measure. Two antibiotics-a single oral dose of azithromycin (30 mg/kg, maximum 2 g) or benzathine penicillin (single intramuscular dose) at 0.6 million units (children aged under 10 years) and 1.2 million units (people aged over 10 years) are the recommended treatment regimens to treat yaws. (Source: WHO 2021).

International guidelines

Organization	Indications/recommendations	Applicability in LIC & Lower MIC settings

Intervention attributes

Type of interventions

Curative

Delivery platform

This intervention may be delivered at the community level.

Equity

In addition to considerations like cost-effectiveness and health systems factors, dimensions of equity can be relevant for priority setting. The opportunity for a long and healthy life varies according to the severity of a health condition that individuals might have, so there are inequities in individuals' opportunities for long and healthy lives based on the health conditions they face. Metrics used to estimate the severity of illness at an individual level can be used to help prioritize those with less opportunity for lifetime health. FairChoices: DCP Analytics Tool uses Health adjusted age of death (HAAD), which is a metric that estimates the number of years lived from birth to death, discounting years lived with disability. A high HAAD thus represents a disease less severe in terms of lifetime health loss, while a low HAAD represents a disease that is severe on average, causing early death or a long period of severe disability. It is also possible to estimate the distribution of HAAD across individuals with a health condition. FairChoices shows for each intervention an average HAAD value of the conditions that are affected by respective interventions that have health effects. Additionally, a plot shows HAAD values for around 290 conditions (Johansson KA et al 2020).

Time dependence

Low level of urgency. Treatment outcomes may be affected by some days of delay.

Population in need of interventions

Treated population: All individuals (prevalent cases) of Other neglected tropical diseases in the age group of 0 to 99 years and gender are eligible to receive the intervention. The treated fraction is assumed to all for this intervention.

Affected population: The affected population includes those with the Yaws disease condition in the age-group of 0 to 99 years, both genders. The affected fraction by this intervention is assumed to be 10%.

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Disease states addressed

This intervention targets Yaws disease state (based on prevalence of other neglected tropical diseases).

Intervention effectiveness and safety

Table 1: Effectiveness and safety of early detection and treatment of Yaws

What happens?	No intervention	With intervention	Certainty of evidence
Disability	Treatment is 95% effective (WHO 2021) So, taking this as 95% reduction in disability with the intervention		See appendix

Model assumptions

Table 2: Summary of model parameters and values used in FairChoices – DCP Analytical Tool

Category	Model parameter	Notes
Intervention	**Yaws**	Early detection and treatment of nationally important NTDs (Level 2)
Cost calculation		
Treated population	Based on prevalence of other neglected tropical diseases	Global Burden of disease study 2019
Gender	Both	
Age	0 to 99 years	
Treated fraction	all	
Effect calculation		
Affected Population	Those with condition	
Affected gender	Both	
Affected fraction age	0 to 99 years	
Affected fraction	0.1	
Comparison	placebo or other care	
Disability Reduction (RRR)	0.95	

RRR: Relative risk reduction

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Intervention Cost

The total unit cost for early detection and treatment of Yaws disease per person is estimated to be USD 4.115-year 2012 in Benin. the unit cost is calculated based on economic cost per person treated (Fitzpatrick et al 2014.)

References

WHO 2021: World Health Organization. Yaws. Available from https://www.who.int/health-topics/yaws#tab=tab_1

Johansson KA et al 2020: Johansson KA, Coates MM, Økland JM, Tsuchiya A, Bukhman G, Norheim OF, Haaland Ø. Health by disease categories. Distributional Cost-Effectiveness Analysis: Quantifying Health Equity Impacts and Trade-Offs. 2020 Sep 30:105.

Fitzpatrick C, Asiedu K, Jannin J. Where the road ends, yaws begins? The cost-effectiveness of eradication versus more roads. PLoS neglected tropical diseases. 2014 Sep 25;8(9):e3165.

Appendix

Literature Review for effectiveness & safety

This literature search is an example of a level 1 search of literature and guidelines for early detection and treatment of Yaws disease.

Level 1: intervention inputs taken from DCP3 or generated in an ad hoc manner (e.g., quick google search found one study of cervical cancer screening cost-effectiveness that was used to create an effectiveness parameter for that intervention).

Level of evidence of efficacy studies:

1. low (expert opinions, case series, reports, low-quality case control studies)

2. moderate (high quality case control studies, low quality cohort studies)

3. high (high quality cohort studies, individual RCTs)

4. very high (multiple RCTs, meta-analysis, systematic review, clinical practice guidelines)