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The role of intervention complexity for the feasibility of scaling-up health interventions in low and middle-income countries

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- **Why develop a framework for intervention complexity?**

- The conceptual framework

- Application of the framework: Solar water disinfection

- Potential usefulness of the framework

- Conclusions

WHY DEVELOP A FRAMEWORK FOR INTERVENTION COMPLEXITY?

- **To understand the role of intervention design in expanding access**
  - Is intervention complexity a useful criterion to complement burden of disease, cost-effectiveness, and affordability considerations?
- **To indicate R&D priorities for simplifying interventions**
  - Are there particular interventions that are easy to scale up?
  - How can existing interventions be simplified to relax constraints?
- **To guide decisions on how to implement interventions in a specific setting**
  - Which characteristics of an intervention can we change to implement it here?

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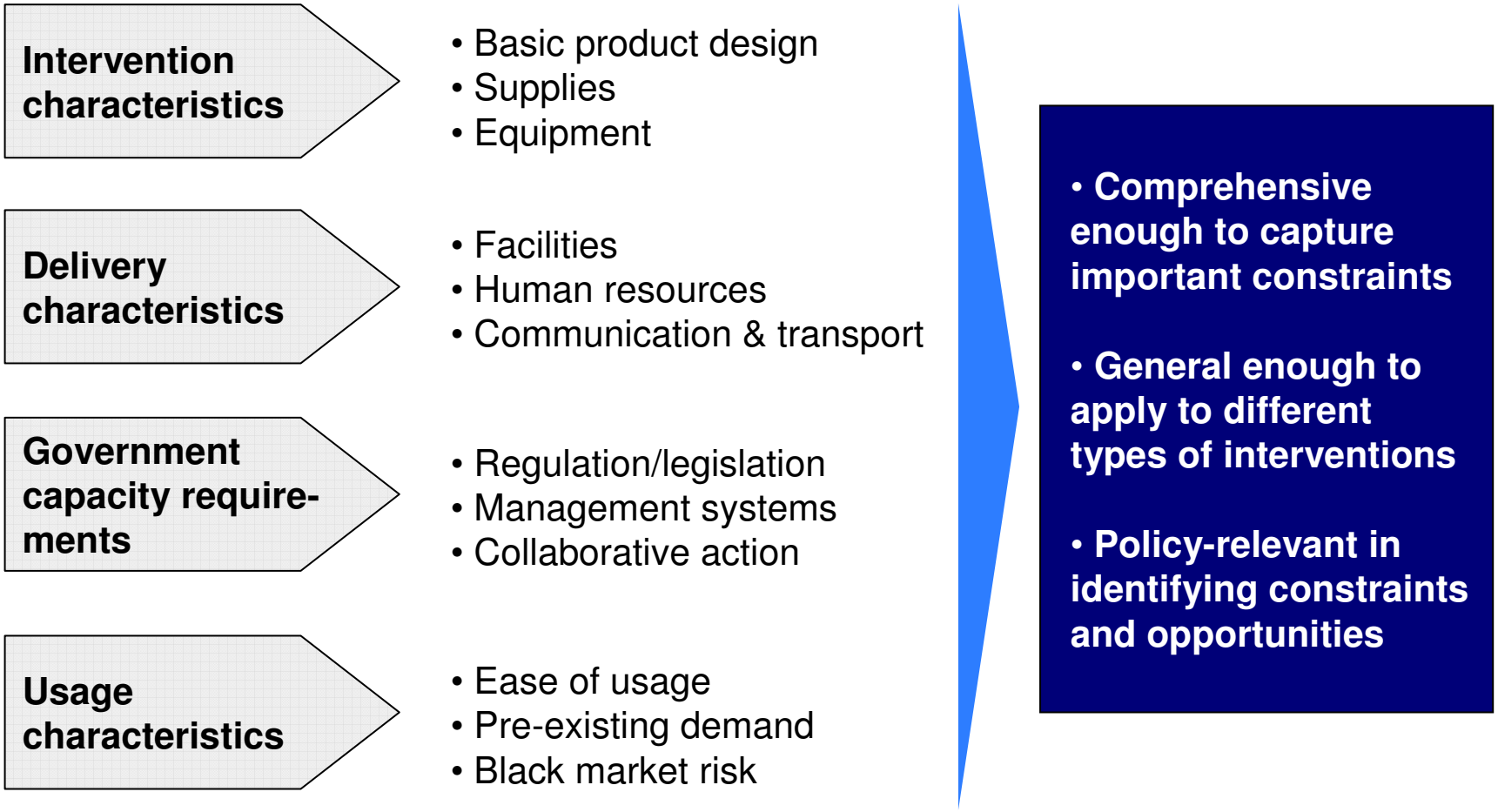
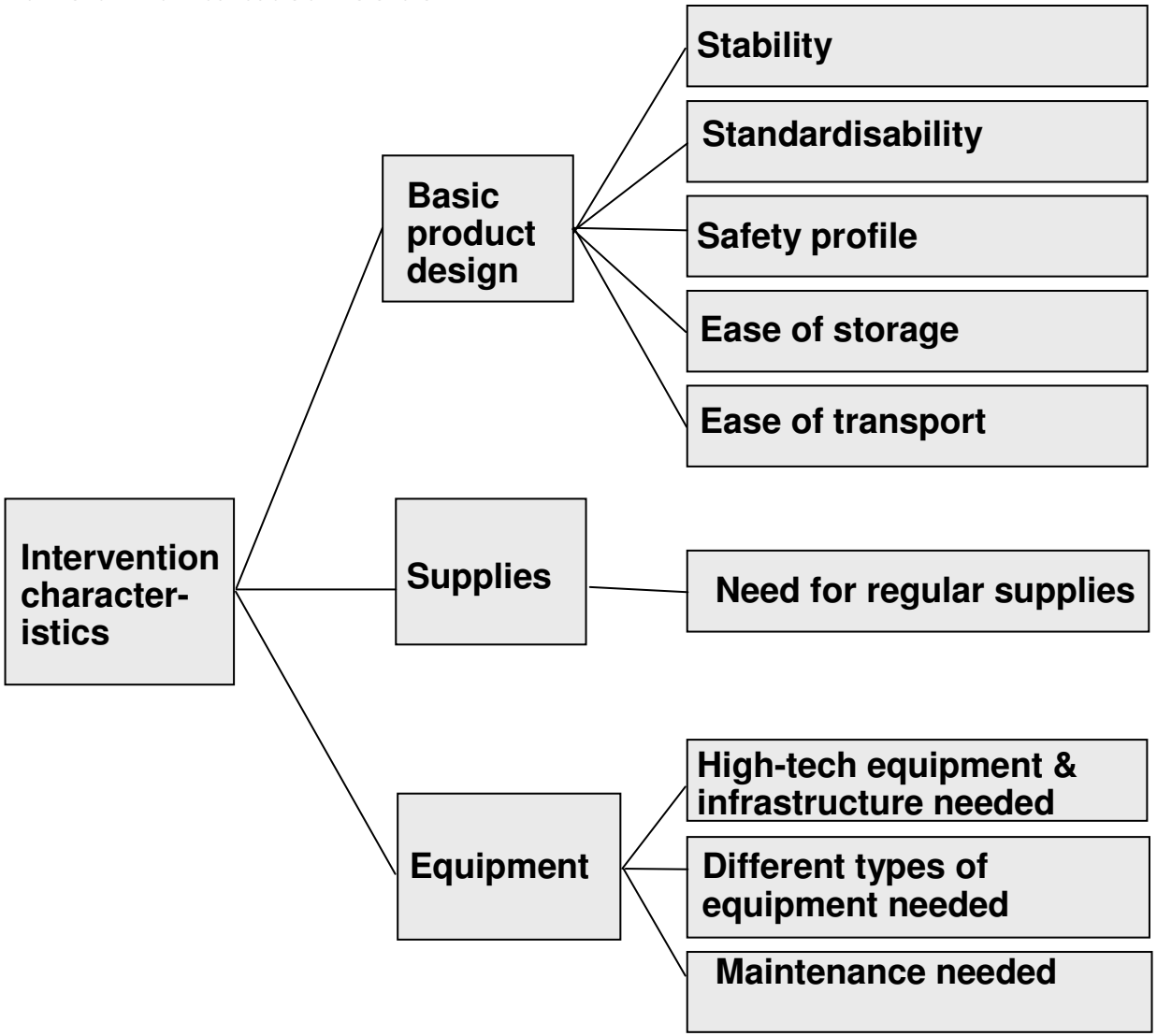
CONCEPTUAL FRAMEWORK FOR CATEGORISING INTERVENTIONS BY THEIR DEGREE OF COMPLEXITY



CONCEPTUAL FRAMEWORK: THIRD LEVEL CRITERIA

Intervention characteristics



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Source: www.sodis.ch

DIARRHOEA IS STILL ONE OF THE THREE TOP KILLERS OF CHILDREN

Epidemiology

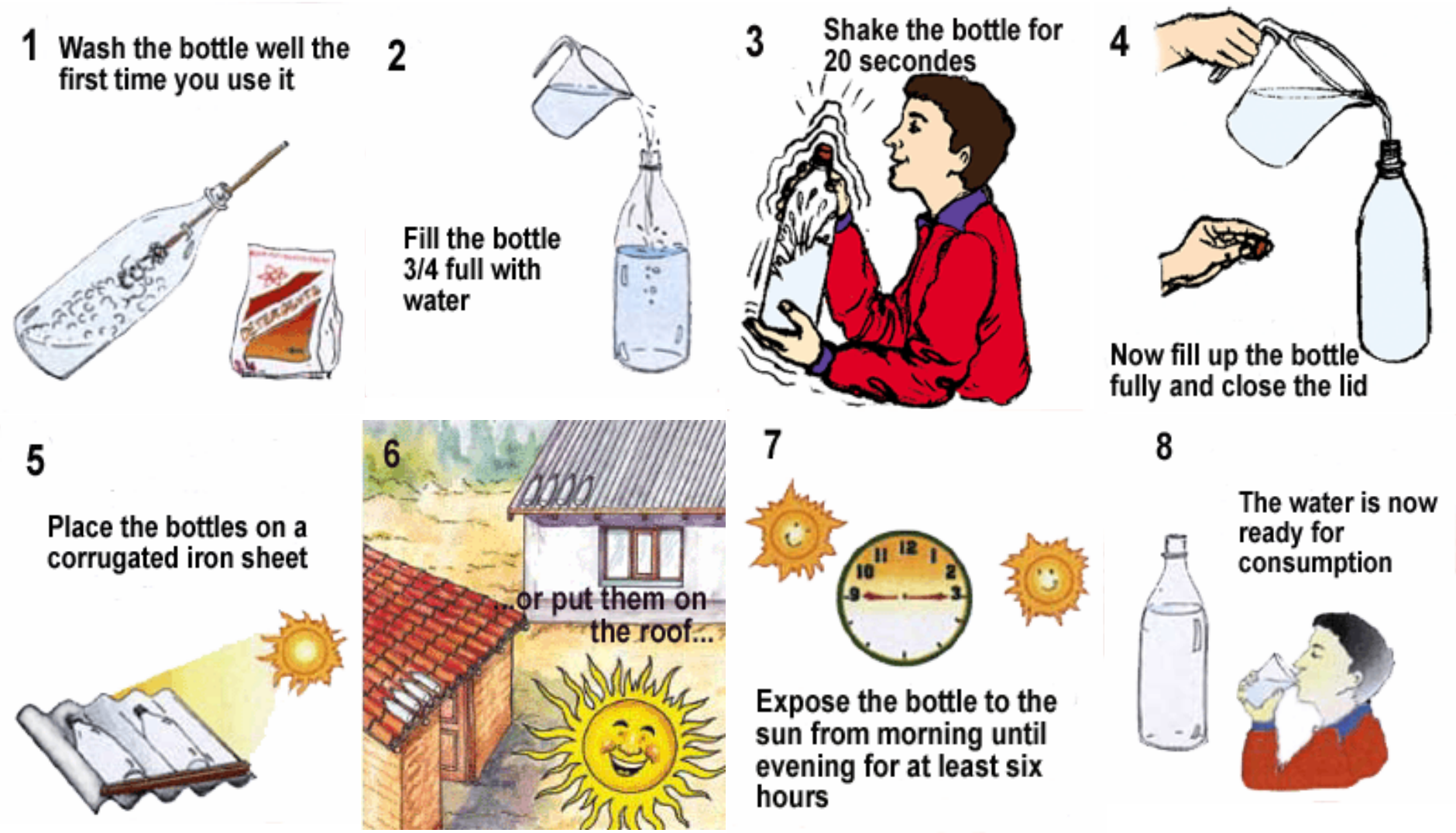
- 1.1 billion people still depend on rivers, streams, and other unsafe surface water sources for drinking water
- Contaminated drinking water is main route of transmission of diarrhoeal diseases
- 2.2 million people die from diarrhoea annually, mostly children

Household water treatment and storage

- Boiling water for 10 min, simple chlorination systems (tablets, drops)

Solar water disinfection

- Water filtration through charcoal and subsequent exposure to sunlight practised in India 2000 B.C.
- Simplest application today: Storing water in transparent containers that are placed in direct sunlight
- Two synergetic effects: UV radiation & temperature rise



Health impact in Kenyan children < 6 years

- Reduction of diarrhoea episodes by 34% (adjusted OR 0.66, 95%CI 0.5 to 0.87)
- Reduction of severe diarrhoea episodes by 35% (adjusted OR 0.65, 95%CI 0.5 to 0.86)
- Risk of contracting cholera during epidemic reduced by 88% (OR 0.12, 95%CI 0.05 to 0.26)

Source: www.sodis.ch, Conroy et al. 1996, 1999, 2001

1. INTERVENTION CHARACTERISTICS: SODIS

Basic Product Design

- Transparent PET plastic bottles
- Process is highly standardisable. Many container types proved effective
- Excellent safety profile. Leak of chemicals has been excluded
- Water treatment & storage in same container minimises recontamination

Supplies

- No need for regular supplies

Equipment

- Plastic bottles
- Black paint

2. DELIVERY CHARACTERISTICS: SODIS

Facilities

- Plastic bottles from domestic refuse

Human Resources

- No medical knowledge needed
- Initial training, monitoring & evaluation by community development volunteers with training by development agency or NGO

Communications & Transport

- No dependency of delivery on strong communication & transport infrastructure
- In very remote rural areas, purchase & transport of used bottles from the city has to be organised

3. GOVERNMENT CAPACITY REQUIREMENTS: SODIS

Regulation/ Legislation

- No need for regulation

Management Systems

- No need for sophisticated management systems

Collaborative Action

- Eventually some partnership requirements in promotion and information/education/communication campaigns eg public sector, NGOs, media

4. USAGE CHARACTERISTICS: SODIS

Ease of Usage

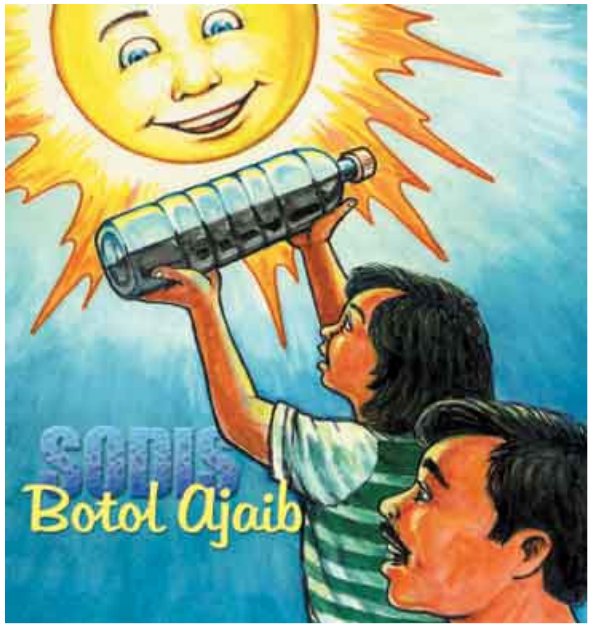
- Basic information/education on how to use SODIS needed.
- Best results if integrated in wider sanitation & hygiene strategy
- Some need to monitor practice and correct mistakes during first months of use

Pre-existing Demand

- Pre-existing demand is low, therefore substantial need for initial promotion.
- However, once introduced practice is sustained over years

Black Market Risk

- None.



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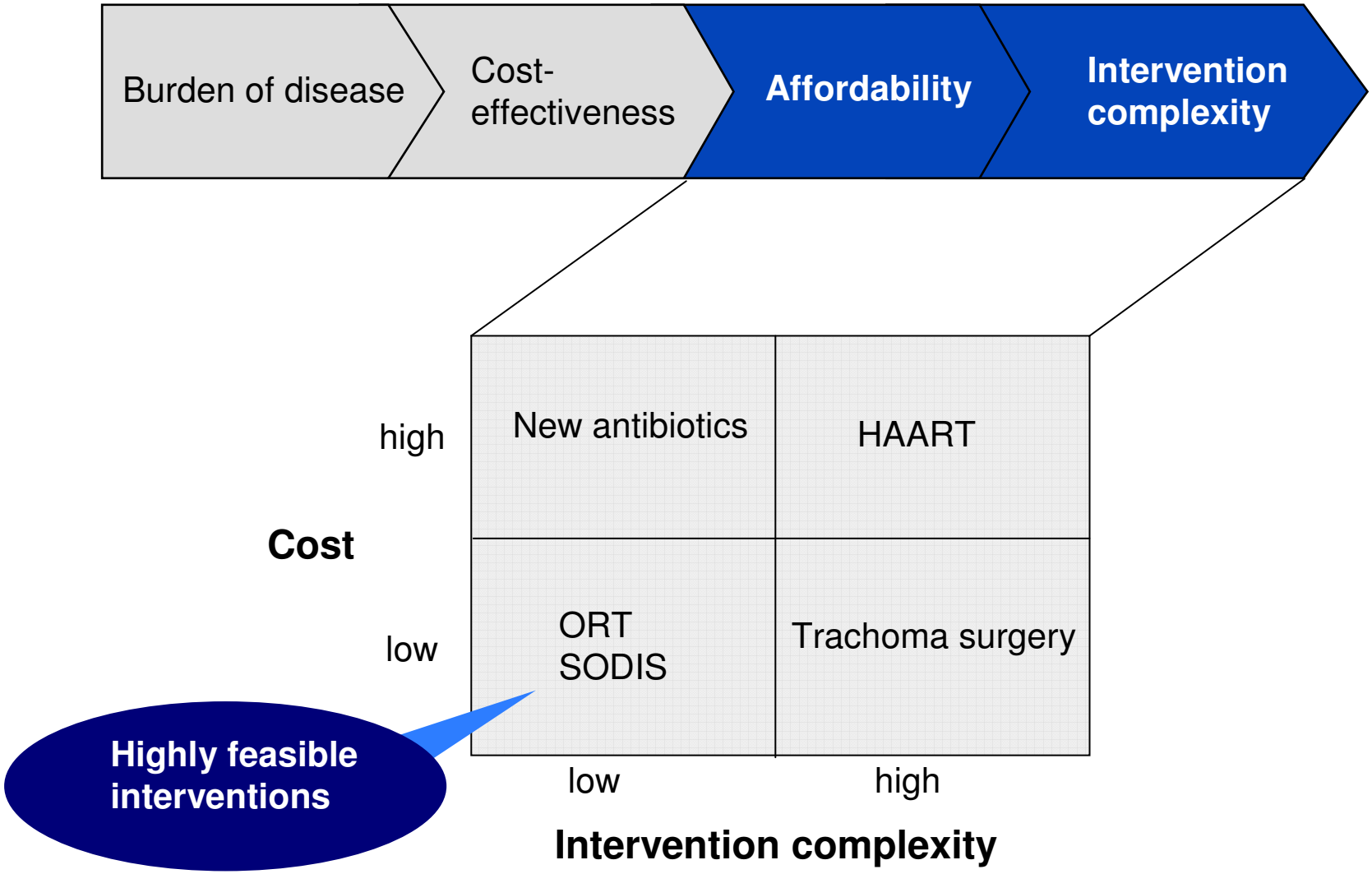
INTERVENTION COMPLEXITY CAN COMPLEMENT OTHER CRITERIA FOR PRIORITY SETTING



NON-CONVENTIONAL WAYS TO SCALE-UP INTERVENTIONS IDENTIFIED IN LITERATURE REVIEW

Simplified technology

- Medical abortion replacing surgical abortion
- Long-lasting insecticide treated nets

Different delivery/distribution channels

- Social marketing for condoms or insecticide-treated nets
- Use of NGOs where government capacity is weak

Pushing down human resources requirements

- Midwifery training of traditional birth attendants
- Sticking-plaster treatment replacing trachoma surgery

Simplified usage

- Solar water disinfection at point of consumption

Gericke et al. DCPP Working Paper No 13, http://www.fic.nih.gov/dcpp/wps/wp13.pdf

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CONCLUSIONS

- Intervention complexity is a useful way to think about feasibility
- It complements burden of disease, cost-effectiveness, and affordability considerations
- It can help to identify R&D priorities to simplify interventions
- It can guide decisions on how to implement interventions in specific settings

Intervention complexity is a useful additional criterion for decision making on scaling-up health interventions


Source: www.sodis.ch