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# Can there be essential medicines for rare diseases?

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**Hans V. Hogerzeil, MD, PhD, FRCP Edin**



**Director  
Medicines Policy and Standards  
World Health Organization**

# Overview

- Orphan diseases, rare diseases, neglected diseases
- The concept of essential medicines
- Essential medicines for rare diseases?



## Rare diseases

- 5000-8000 rare diseases, 80% of genetic origin
- Prevalence <5/10,000 (EU) or <6/10,000 (USA)
- EU: About 6-8% of the population (30 million) have a rare disease
- For 60% some (symptomatic) treatment is possible
- Often not recognized and/or not treated

*Ref:* **Priority Medicines for Europe and the World – a public health approach to innovation.** WHO/EDM, 2004; background paper 7.5 Orphan diseases



## Examples of rare diseases

- **Well-known:** Cystic fibrosis, haemophilia, SARS
- **Regional:** Thalassaemia, G6PD deficiency
- **Rare in Europe but frequent elsewhere:** TB, malaria, HIV/AIDS
- **Migrating:** Sickle cell anaemia, TB, ?SARS



# Orphan diseases: rare or neglected?

## Rare diseases

- Life-threatening or severely debilitating (1300 well described)
- Too rare to create a profitable market for drug development
  - Cystic fibrosis, haemophilia, etc

## Neglected diseases

- Rare in rich countries but common in developing countries, no profitable market for drug development
  - Malaria, TB, paediatric HIV/AIDS, sleeping sickness, leishmaniasis, Chagas' disease, Buruli ulcer



# Essential Medicines

WHO Model List updated every 2 years since 1977

**Definition:** Essential medicines are those that satisfy the priority health care needs of the population

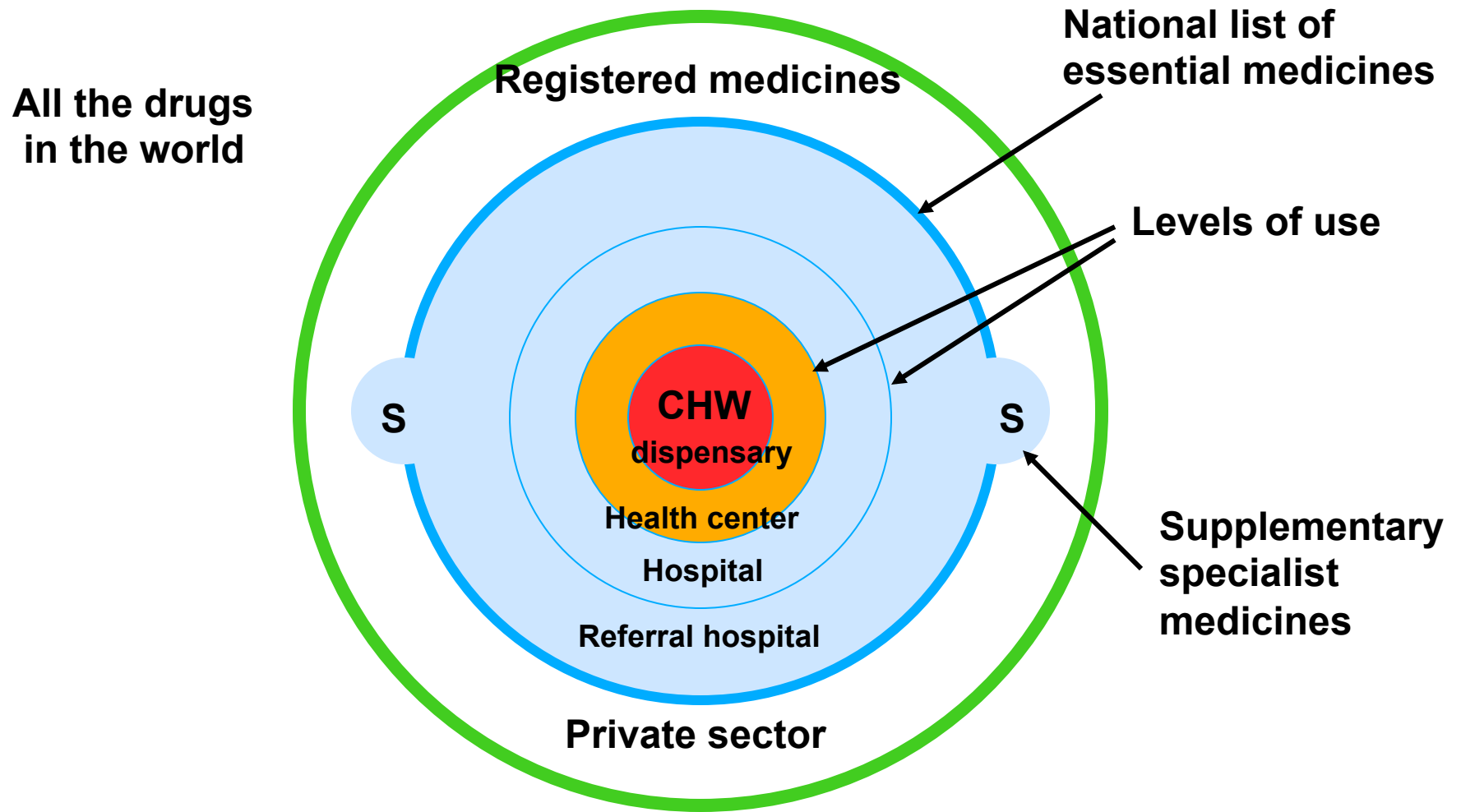
**Selection criteria:** Disease prevalence, evidence on efficacy and safety, comparative cost-effectiveness

**Purpose:** Essential medicines are intended to be available at all times, in adequate amounts, in the appropriate dosage forms, with assured quality, and at a price the individual and the community can afford.

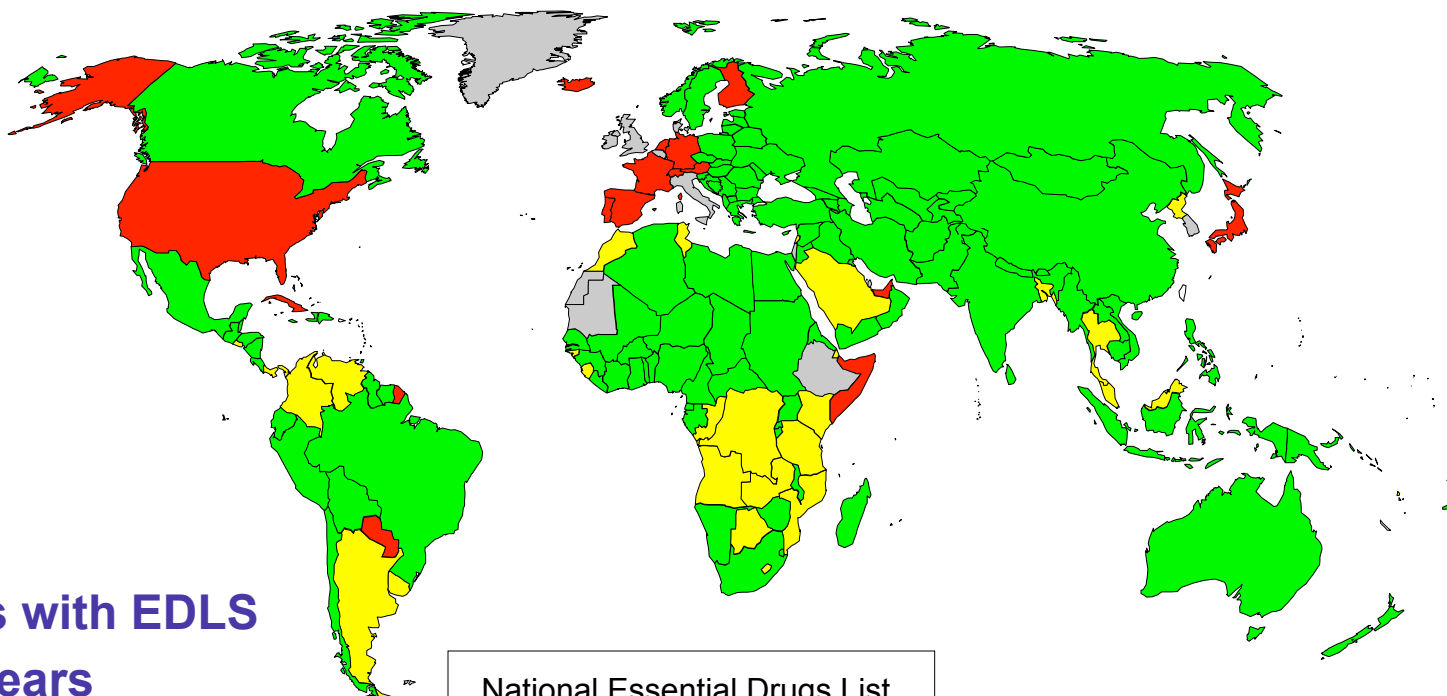
**Implementation:** Flexible and adaptable; which medicines are regarded as essential remains a national responsibility.



# The Essential Medicines Target



# Number of countries with a national list of essential medicines (latest count)



**156 countries with EDLS**  
**1/3 within 2 years**  
**3/4 within 5 years**

National Essential Drugs List	
<span style="color: green;">■</span>	< 5 years (127)
<span style="color: yellow;">■</span>	> 5 years (29)
<span style="color: red;">■</span>	No NEDL (19)
<span style="color: grey;">■</span>	Unknown (16)





## Request from China (e-mail 23 December 2004)

**Merry Christmas!**

**I'm X.A. from the State Food and Drug Administration of China. I work in the Essential Medicine Department of Drug Reevaluation Center. During the process of revising the National Essential Medicine List (NEML) this year, we have a technical question to ask you. There is one medicine which is named orphan drug, it's effective but it's also at a price most Chinese can't afford. We want to know whether such a drug can be included in NEML.**

**We are looking forward your reply. X.A.**

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## Example of a question the WHO Expert Committee is struggling with:

- In 2003 Factor VIII and Factor IX were listed for possible deletion in 2005 because "*the public health relevance and/or efficacy and/or safety has been questioned*".
- The treatment is effective to improve the quality of life, but it costs \$ 40,000 – \$150,000 per patient per year. Can this be called an essential medicine?



# Can a medicine for a rare disease ever be an essential medicine?



# Essential medicines for rare diseases?

## WHO Core List

A list of minimum medicine needs for a basic health care system, listing the most efficacious, safe and cost-effective medicines of priority conditions. Priority conditions are selected on the basis of current and estimated future public health relevance and potential for safe and cost-effective treatment

National prevalence  
(thalassemia, sleeping sickness)

How cost-effective  
is the treatment?

What is cost-effective is not always affordable



Can a medicine for a rare disease be included on a **national list** of essential medicines?

**A national list of essential medicines guides training, supply in the public sector, and reimbursement.**

**A medicine for a "rare" disease can be included, if:**

- **Treatment exists which is effective and safe**
- **Cost-effectiveness of the treatment is better than of the treatment of other diseases**
- **Cost of the total treatment is affordable for the system (not too expensive, not too many patients)**

**Ideal scenario: Few patients, cheap cost-effective treatment**

**Worst scenario: Few patients, very expensive somewhat effective treatment**

**Real world: Many patients, very expensive somewhat effective treatment**



## Comparative cost-effectiveness: offers the treatment **value for the money**?

- Vaccinations, free condoms for prostitutes, safe blood transfusion services: <\$5 per life year saved
- Anti-retroviral medicines: \$300-600 per life year saved
- Factor VIII and IX for haemophilia: >\$25,000/life year saved
- Developing countries:
  - You can spend your money only once
  - Whom do you chose to ignore?



# Can there be essential medicines for rare diseases?

## Conclusion (1): National lists in developing countries

### Disease common (neglected disease):

- Treatment cost-effective (e.g. <\$300/DALY): medicine listed
- If most cost-effective treatment is costly: medicine listed; but reduce the price, ration its use and rely on special funds

### Disease rare:

- Treatment cost-effective (e.g. <\$300/DALY): medicine not listed, but treatment through "supplementary list" for special centres
- Treatment less cost-effective than treatments for common diseases (e.g. >\$300/DALY): no listing, no systematic public supply or reimbursement; but supply remains possible in private sector



## Can there be essential medicines for rare diseases?

### Conclusion (2): National lists in richer countries

- Higher cost (e.g. <\$25,000/DALY) are usually accepted for public supply and reimbursement schemes
- For still higher costs, special support funds or specific political decisions may be needed

#### Interesting discussion:

Is access to essential medicines as a Human Right restricted by a national list of essential medicines?





## Can there be essential medicines for rare diseases?

### Conclusion (3): WHO Model List of Essential Medicines

#### If rare in rich countries but common in some countries/regions:

- The most cost-effective treatment should be listed
- Treatment should preferably be cost-effective at <\$300/DALY; if more expensive, a global effort is needed to reduce prices.

#### If generally rare in all countries:

- No public health priority; no justification for WHO listing; but WHO information and reasoning can be useful to countries

**A disease should be non-rare somewhere in the world for the treatment to become "essential" for WHO**



## Further reading

**Priority Medicines for Europe and the World – a public health approach to innovation.** WHO/EDM, 2004

Background paper 7.5: Orphan diseases

Background paper 6.9: Neglected diseases

**WHO Model List of Essential Medicines**

**WHO Essential Medicines Library**

Available on the WHO Medicines Website

**[www.who.int/medicines](http://www.who.int/medicines)**

