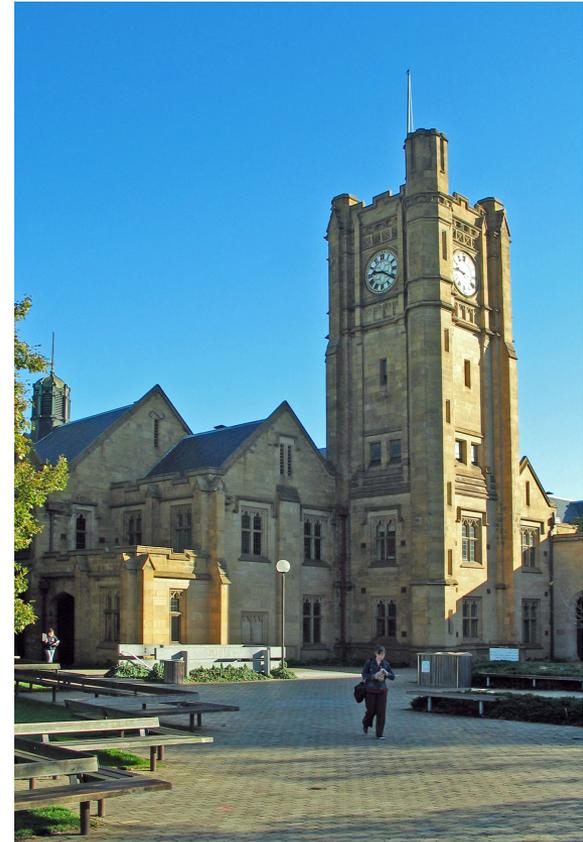


GLOBAL IDEAS FORUM



International Programmes in Global Health

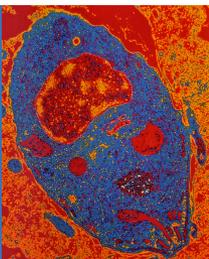
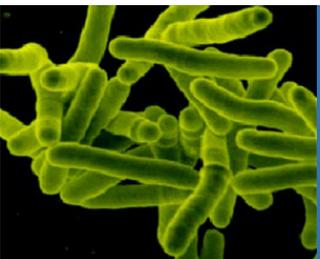
Sir Gustav Nossal
Professor Emeritus
The University of Melbourne



24 August 2012

MORTALITY STATISTICS HIGHLIGHT HUGE GLOBAL INEQUITIES

- Two-thirds of premature deaths are preventable.
- Infectious causes dominate: pneumonia, diarrhoea, malaria, tuberculosis, measles.
- Immunology can really help.



LIFE EXPECTANCY AT BIRTH IN YEARS

	1960	2011
Sweden	73	81
Australia	71	82
USA	70	78
Japan	68	82
Zambia	45	39
Angola	33	38

2011 worst to best: 46%



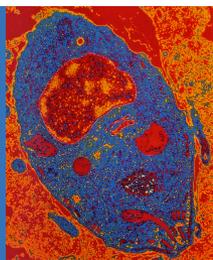
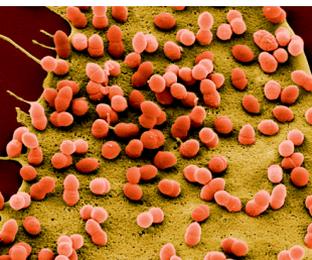
DEATHS UNDER FIVE YEARS PER 1,000 LIVE BIRTHS

	1960	2009
Singapore	28.6	2.3
Japan	25.8	2.8
Australia	19.8	4.7
USA	25.4	6.3
Angola	199.9	180.2
Zambia	126.6	101.2
India	140.1	30.1
Nigeria	164.0	94.3

2009 mortality worst to best: 78

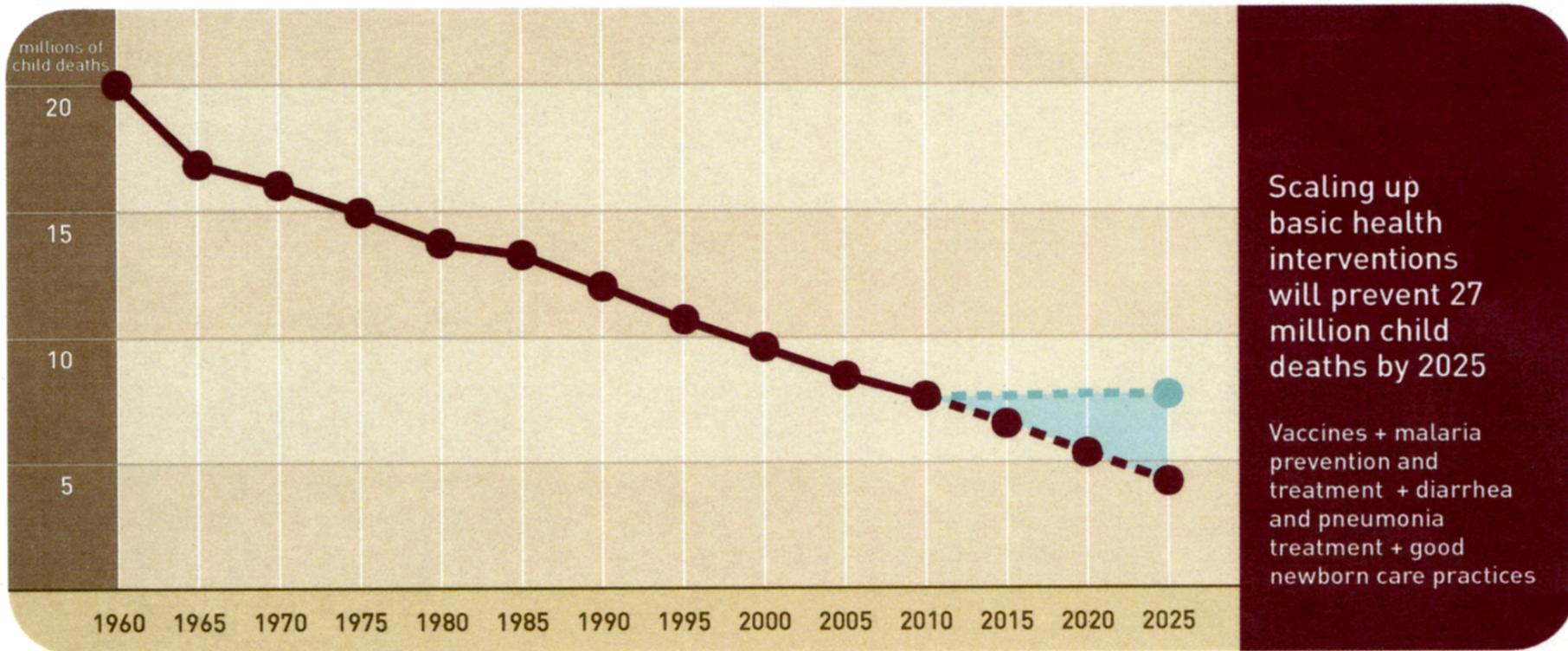
Last decade world improvement: 2.8% per annum

Pneumonia 1.5 million; Diarrhoea 740,000; Malaria 670,000

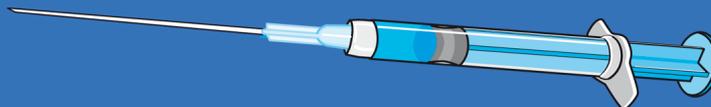




Aid Has Helped Reduce Child Deaths Dramatically, and Can Continue to Do So



Sources: Johns Hopkins Bloomberg School of Public Health, Bill & Melinda Gates Foundation estimates



MATERNAL MORTALITY PER 100,000 LIVE BIRTHS

	1990	2008
Italy	7.4	3.9
Sweden	6.3	4.6
Australia	6.3	5.1
Japan	11.7	6.8
USA	16.6	11.5
Afghanistan	1261.0	1575.1
Sierra Leone	1044.2	1032.7
Nigeria	473.4	608.3
India	523.3	253.8

2008 mortality worst to best: 404
Last 20 years improvement: 1.4% per annum



AID UNDER THREAT FROM TIGHT OECD BUDGETS

- 1970 – UN mandates 0.7% of GNI should go to aid.
- 2011 – Only 5 countries reach this goal; global total is 0.31%, or \$133.5 billion. Of this, 7-15% goes to health.

- **ODA as % GNI**

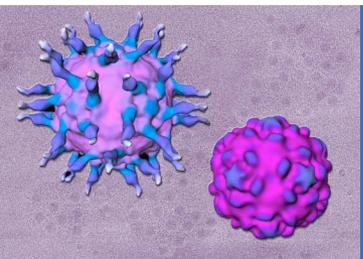
Sweden	1.02
Norway	1.00
Luxembourg	0.99
Denmark	0.86
The Netherlands	0.75
UK	0.56
USA	0.20
Australia	0.35

- 2012-13 – Australian aid is \$5.15 billion, 0.35% GNI, going to 0.5% by 2016-17.



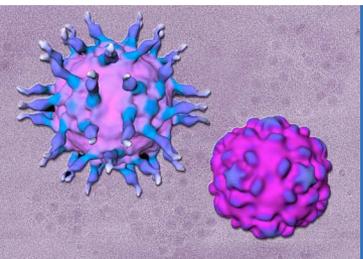
GLOBAL POLIOMYELITIS ERADICATION PROGRAMME

- Partnership between Rotary International, World Health Organization, UNICEF and others launched 1988.
- Key strategies
 - Sabin oral poliomyelitis vaccine
 - high routine infant coverage
 - national immunisation days
 - good acute flaccid paralysis surveillance and laboratory confirmation of polio
 - prompt outbreak control: doses of OPV two weeks apart around the index case
- Polio cases reduced by over 99%.
Total cases 2010 – 874; 2011 – 650; 2012 to date -103.



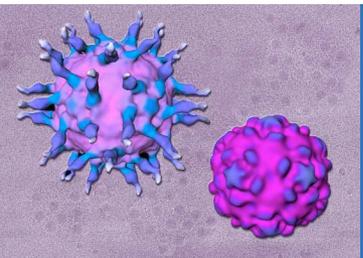
GLOBAL POLIOMYELITIS ERADICATION PROGRAMME- NEARING THE END?

- Globally, to 1 August 2012, only 103 cases from 4 countries: Nigeria (60), Pakistan (23), Afghanistan (15), Chad (5 – nomadic children).
- Though average price of OPV is down to US 13 cents/dose, programme remains expensive: 1.44 million paid vaccinators; 20 million volunteer workers; 146 laboratories to study 96,000 cases of acute flaccid paralysis with 206,000 stool samples; 400 million children immunised each year.
- Social mobilisation and communication costs are \$100 million/year.
- Total cost of programme \$1 billion/year.
- Total expenditure since 1988 \$9 billion.
- Economic benefits of final eradication \$40-50 billion.



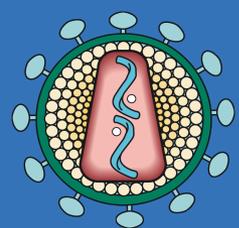
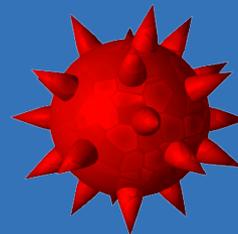
POST-ERADICATION STRATEGIES FOR POLIOMYELITIS

- Maintain good surveillance.
- Create international stockpile of OPV-monovalent for each of the three strains.
- Three years after global disappearance, simultaneously cease OPV immunisation globally.
- Residual risks include prolonged excretion of vaccine-derived polio virus by persons with severe primary immunodeficiency; accidental release from manufacturing site or research facility; mini-outbreaks due to circulating vaccine-derived polio virus.
- Therefore, contain virus stocks to minimum number of laboratories and consider IPV as part of routine infant immunisation schedule, but probably not cost-effective for low income countries.
- Probable continuing costs of \$200-250 million per year for some years.



THE GLOBAL STRUGGLE AGAINST HIV-AIDS (1)

- Global fight funded by 2 main consortia:
 - The Global Fund to Fight AIDS, Tuberculosis and Malaria (UN-backed Public Sector-Private Sector Partnership) – Launched 2002
 - PEPFAR, the President's Emergency Plan for AIDS Relief (USA-funded and co-ordinated) – Launched 2003.
Largest effort to combat a single disease.
- 151 low- and middle-income countries covered.
- Anti-HIV funding about \$9 billion/year.
- Over 8 million people on anti-retroviral therapy (ART).
- Cumulative 1.5 million pregnant women treated to prevent mother-to-child transmission.
- Care for over 12 million people including 5 million orphans and vulnerable children.

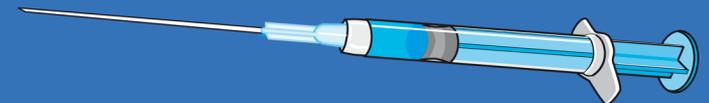
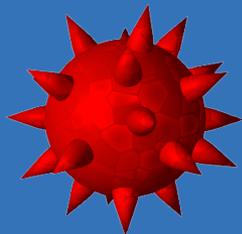


THE GLOBAL STRUGGLE AGAINST HIV-AIDS (2)

- Programmes getting traction. The pandemic has peaked. 2.3 million deaths 2005, 1.7 million deaths 2011.
- 34 million people living with HIV, at least 15 million people need ART, more than 1 million people start ART each year but 2 million each year newly infected!
- ART cuts transmission between discordant couples 96%!
- PRICE of cheapest 3 drug combination for 1 year's treatment:

2000 : \$10,000

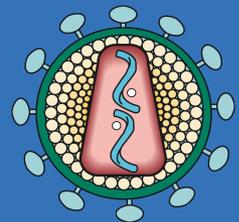
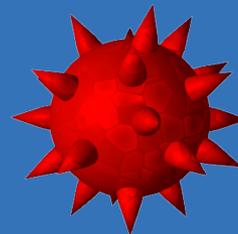
2012 : \$100



THE GLOBAL STRUGGLE AGAINST HIV-AIDS (3)

New recommendations and new puzzles

- Give ART to HIV-positive partner in discordant couple whether or not person is immunodeficient.
- Now ART given when CD4⁺ count = 350 or less. Consider giving earlier:
 - Pros – much reduced transmission.
 - Cons – earlier drug resistance?
 - higher costs.
 - side effects.
- Consider giving prophylactic ART to high risk groups:
 - men who have sex with men and transgender persons.
 - professional sex workers.
- Despite high costs of above, benefits will exceed costs in 15 years (productive work, less hospitalisation, fewer orphans, etc.).



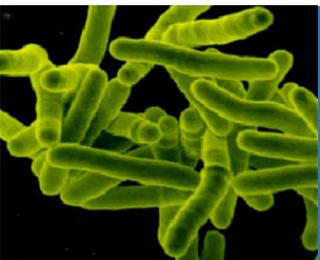
NEW PERSPECTIVES IN MALARIA CONTROL

- Global Malaria Action Plan, endorsed by UN 2008, seeks to co-ordinate global effort with the (over-ambitious) goal of eliminating deaths by 2015.
- Situation is improving, 2010; 655,000 deaths from 216 million cases, but half the world's population is still at risk.
- Vector control: long-lasting insecticide-treated mosquito nets are helping to control mortality, 300 million distributed so far. Indoor residual spraying also important. New attractants and repellents coming on stream through research.
- Treatment with artemisinin combination therapy highly effective – at least 300 million treated via Global Fund.
- Intermittent prophylactic therapy (IPT) recommended for pregnant women (2nd and 3rd trimester) using sulfadoxine/pyrimethamine, also 3 doses for infants alongside routine immunisation.
- For Sahel, seasonal malaria chemoprevention with amodiaquine plus sulfadoxine/pyrimethamine recommended monthly for all children under 5 during high transmission season.



STOP TB PARTNERSHIP

- Founded in 2001, hosted by WHO, 1,000 partners, aims to bring prevalence and deaths down by 50% by 2012, and global incidence to <1 per million by 2050. Today, 8.8 million new active cases per year of which 1.1 million also have HIV and 1.4 million deaths yearly.
- Key treatment is DOTS, 6-month course of 4 antimicrobial drug cocktail. Since 1995, 46 million people treated with DOTS, 7 million lives saved.
- Special emphasis on TB + HIV; MDR TB; XDR TB. MDR: resistant to isoniazid and rifampycin; XDR resistant also to fluoroquinolones and at least one injectable drug. MDR: 3.3% of all new TB cases. XDR, 9% of these. Still rare but in 77 countries.
- Active research: E.g. first novel regimen trial NC001, a new combination of a novel TB candidate, PA 824; an antibiotic not yet approved for TB, moxifloxacin and an existing TB drug, pyrazinamide. Kills >99% TB bacteria in 2 weeks, 4 month course under trial. NC002 will be a 2-month course.



THE GAVI ALLIANCE

- Launched in 2000, this seeks to bring vaccines to the 72 poorest countries in the world.
- To end 2011, 326 million additional children immunised.
- Over 5.5 million deaths averted. Coverage 82% (up from 66%).
- Extensive use of pentavalent vaccine: diphtheria, whooping cough, tetanus, hepatitis B, Haemophilus influenzae b.
- Other priorities: pneumococcus, rotavirus. HPV, rubella.
- Budget over \$1 billion per year, needs to rise.
Still 19 million children unimmunised each year.

