Objectives

- Nutritional status is a critical factor in physical, social and economic development of individuals, families and countries
- Overcoming all forms of malnutrition will require multi-sectoral collaborations – the global is local
- Evidence from research is necessary but not sufficient to influence policies and programs and result in improved nutrition of all types
- Malnutrition does not occur in a linear fashion – neither do improvements to nutritional status

“Nutrition defines in great part how many will survive infancy and how they will live and how they will die”

Prof Uauy 2009

Malnutrition in all its forms

- Fetus/infants/children
  - LBW/IUGR
  - Stunting and wasting
  - Micronutrient deficiencies
  - Infections

- Adults/ Older populations
  Cardiovascular – stroke
  Obesity/ Diabetes
  Cancers
  Osteoporosis – Age related loss of function

The Global Double Burden of Malnutrition

1. Need to redefine Malnutrition in all its forms in order to support a common agenda – integrated strategies
2. Life course approach to nutrition for health and development
3. Address under nutrition through prevention and treatment
4. Address burden of nutrition related chronic diseases
5. Assist countries with double burden equitably
Annually, What Global Risk Factor is Responsible for Causing the Most Human Disability and Deaths?

A. Unsafe sex (HIV-AIDs, etc.)
B. Unsafe water, sanitation, hygiene
C. War and genocide
D. Terrorism
E. Malnutrition

Some Major World Risk Factors Causing Deaths

Malnutrition accounts of ≈ 30 million deaths per year (about 1 death per second)

Each year...

Malnutrition:
2 to 5 million under five deaths

Malaria: 1 million deaths
750,000 children

HIV: 2.9 million deaths
540,000 children infected

TB: 1.6 million deaths

AI: 200 deaths*

*since 2003
Under Five Mortality

- 20-50% of the 9.7 million child deaths each year...
- 60.7% of diarrhea deaths
- 57.3% of malaria deaths
- 52.3% of pneumonia deaths
- 44.8% of measles deaths

...are attributable to undernutrition

Caulfield et al, 2004

Malnutrition -
will be responsible for 3,000 deaths globally, mostly women, infants and children, during this lecture!

- Globally, one in three people are malnourished
- This global crisis is happening now!
- These deaths are preventable!
- What is the root cause of these deaths?
- What can we do to prevent them from happening in a sustainable way?

Malnutrition’s costs:

- Health: contributes to 3.5 million deaths/year from common illnesses otherwise not fatal
- Education: lower IQ and school performance
- Economic growth: costs countries 3-6% of GDP

Malnutrition costs - cont

- Poverty: wages half in adulthood in children undernourished in early life
- Infectious disease treatment: hastens HIV progression and reduces adherence to treatment
- Under nutrition undermines investments of country and donors
Developmental Pathways to obesity and metabolic disease

- Developmental factors do not cause obesity
- They significantly influence the risk of adiposity in a later obesogenic environment
- The mismatch pathway: conditions in early life set the developmental trajectory better adapted to low energy environment placing the individual at greater risk when placed in a high energy environment

Reducing low birth weight can:

- Reduce infant and child mortality
- Reduce costs of health care for infant and child
- Increase productivity by reducing stunting
- Reduce costs of chronic disease
- Improve health of next generation

Good nutrition in childhood improves cognition, education and economic productivity at adulthood

(Hoddinott et al, 2008)

The Ugly Face of “Hidden Hunger”

- Zinc Deficiency
- Iron Deficiency
- Vitamin A Deficiency
- Iodine Deficiency
- Ca Deficiency
- Rickets
How are funding decisions made??
Globally and locally

- Scientific evidence – population impact
- Policy directives
- Advocacy
- Resource allocations
- Political will/interests

Obstacles to implementation

- Donors want ‘quick’ impact results
- Coordination of ‘on the ground’ implementers
- Uncertain resource flows
- Definition of impact – recipients/funders/practitioners
Lessons for Nutrition from HIV/AIDS

• Government commitment – national leadership
• National strategies and frameworks linked to resource allocation
• Multisectoral approach – including not limited to health sector
• Community engagement
• Strengthened monitoring & evaluation

What is a Policy?

A statement by an authoritative body of an intent to act in order to maintain or alter a condition in society

NB: rarely made in a value free environment, e.g. food aid

Nutrition –HIV/AIDS contd

• Donor collaboration and coordination
• Bank instruments
• Implementation experience
• Regular international meetings/exchanges of experience

Science: Practice

• Disconnect and delay between compelling evidence and optimal practice
• Evidence from intervention assessments
• Widespread, high quality practice
• Validation of impact

Where do Nutrition and Health Policies come from

• Authoritative bodies:
  – WHO
  – FAO
  – USDA

Interpretation country specific
Ancient times - Xerophthalmia recognized, treated with juice squeezed from cod-liver, night blindness treated with liver

- 1691 Cure of night blindness and Bitot spots by cod-liver oil demonstrated
- 1913 Fat-soluble A factor, identified by McCollum
- 1917 Margarine fortified with VA in Denmark
- 1932 Ellison reported 50% reduction in measles-related mortality associated with vitamin A treatment
- 1967 WHO/UNICEF recognize VA as treatment for measles
- 1990 World Summit sets goal of eliminating Vitamin A deficiency by 2000
- 2010 Over 100 countries conduct Vitamin A supplementation programs
Extensive Scientific Guidance

- Diet Nutrition and Prevention of Chronic Disease
- A Model for establishing upper levels of intake for nutrients and related substances
- Cochrane handbook for Systematic Reviews of Interventions
- Dietary Reference Intakes – Academy of Sciences
- Nutritional Anemias – Cause and Prevention
- Trace Elements in Human Nutrition - USDA
- Protein and Amino Acid Requirement in Human Nutrition
- Reports of Joint FAO/WHO/UNU Expert Consultations
  - And the list goes on and on

Political Advocacy 2010

- “Food and nutrition security is the prerequisite for a decent and productive life and the achievement of the Millenium Development Goals. It is our collective responsibility to ensure food and nutrition security for all through synergy across the full range of sectors.”
  - Dr. David Nabarro, Special Representative of UN Secretary General for Food Security and Nutrition
New 2006 Mandate for the Food & Agriculture Organization, UN

- Extended to encompass entire food chain – from farm to plate – food chain approaches
- Assistant Director-General, Louise Fresco
  - “We are witnessing a ‘paradigm shift’ away from tonnes, calories and hectares towards issues of quality – quality of life, quality of environment, quality of nutrition”
  - Puts improved nutrition & health goals into production agriculture goals

Table to Farm: A New Agriculture Paradigm
(National Academy of Sciences Workshop - Exploring a vision: Integrating knowledge for food and health, 2003)

Improving nutrition requires a multi-sectoral approach

How do we get there?
Evidence-based, multi-sectoral approach

Adapted from Ruel (2008) & UNICEF (1990)
Conclusion

- Malnutrition of all types results from multiple factors
- Problems require systems approach solutions for sustainable changes
- Scientific information/evidence and knowledge is necessary but not sufficient to affect policy and program decisions
- Policy makers, funders and scientists have related but different constituencies