

# Vitamin A Fortification of Wheat Flour to Prevent Vitamin A Deficiency

Vitamin A Working Group

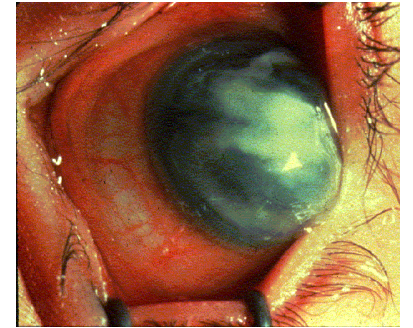
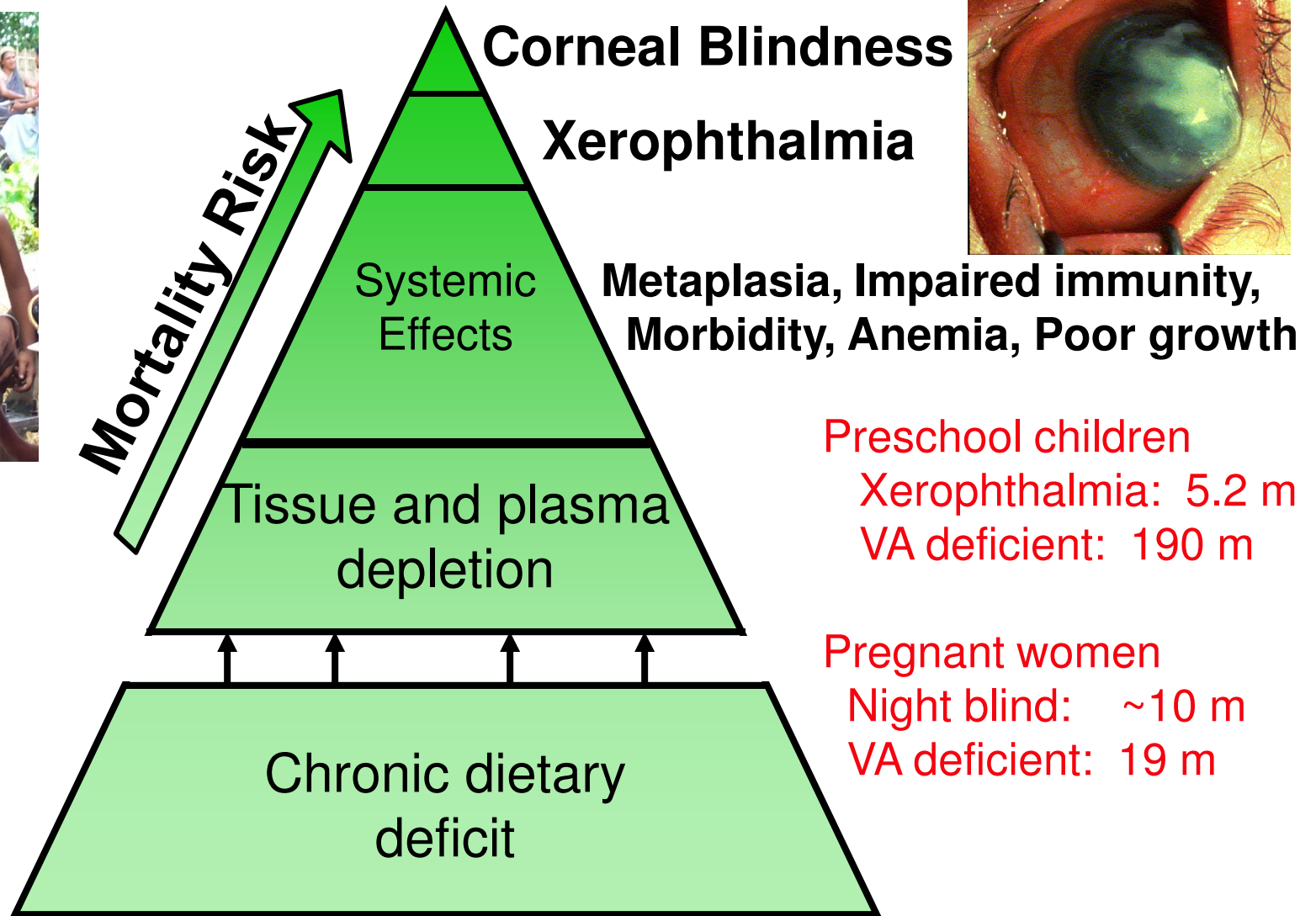
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# Vitamin A Deficiency Disorders

## Gradient of Health Consequences





Breast milk remains the preferred dietary source of vitamin A for infants up to 6 months of age

# Vitamin A Working Group Conclusions/Recommendations

- Vitamin A deficiency (VAD) can lead to impaired health of vulnerable groups, manifested by xerophthalmia and blindness, increased risks of anemia, severe infection and mortality
- VAD is a public health problem that merits practical, effective, adequate and affordable approaches to its prevention and control
- Target groups for prevention of VAD are
  - Preschool age children
  - Women of reproductive age
  - Older preadolescent

# Vitamin A Working Group Conclusions/Recommendations

- The workshop deliberations affirmed that
  - Although vitamin A is most often used in the fortification of oils and fats, currently 11 countries are fortifying or propose to fortify wheat and/or maize flour with this vitamin
  - Efficacy trials have reported a positive impact of vitamin A fortified wheat flour on vitamin A status
  - Currently, no published studies have evaluated the effectiveness of this intervention on a national scale

# Vitamin A Working Group Conclusions/Recommendations

- The workshop deliberations affirmed that
  - Food fortification with vitamin A should be guided by a fundamental public health principle to effectively and safely prevent vitamin A deficiency and assure a healthful dietary intake of vitamin A
  - Wheat and maize flour fortification can increase vitamin A intake and improve status
  - Fortification with vitamin A does not lead to sensorial incompatibility at fortification levels of up to 500 ug RE/kg
  - Baking of flour products typically results in losses of ~30% which need to be taken into consideration

# Vitamin A Working Group Conclusions/Recommendations

- Vitamin A palmitate, a dry form that is stable in flour, is the most common vitamin A fortificant for cereal products
- Nutritionally effective and safe dosage of vitamin A, adjusted for losses, are likely to be in range of 30% to 60% of an RDA or RNI

# Vitamin A Working Group Conclusions/Recommendations

- The workshop deliberations affirmed that
  - Wheat and, more broadly, other cereal grain flour (e.g. maize) can be considered as a vehicle for delivery of vitamin A to populations at risk of vitamin A deficiency when fortification of more cost-effective food vehicles is not feasible and when the target population consumes enough flour to deliver sufficient amounts of vitamin A.
  - When possible, fortify multiple foods with fractions of RDA for vitamin A. Specifically consider options for edible oil fortification.



# Vitamin A Working Group Conclusions/Recommendations

- Current data on wheat and other flour products (and other vehicle) intakes is inadequate to match intake with need
- Guidelines developed through the workshop proceedings should be used to estimate fortifiable flour intake when considering fortification with vitamin A
- Recommended VA fortification levels (ppm) for estimated per capita wheat flour consumption:
  - <75 g per day: 5.9
  - 75-149 g per day: 3.0
  - 150-300 g per day: 1.5
  - >300 g per day: 1.0