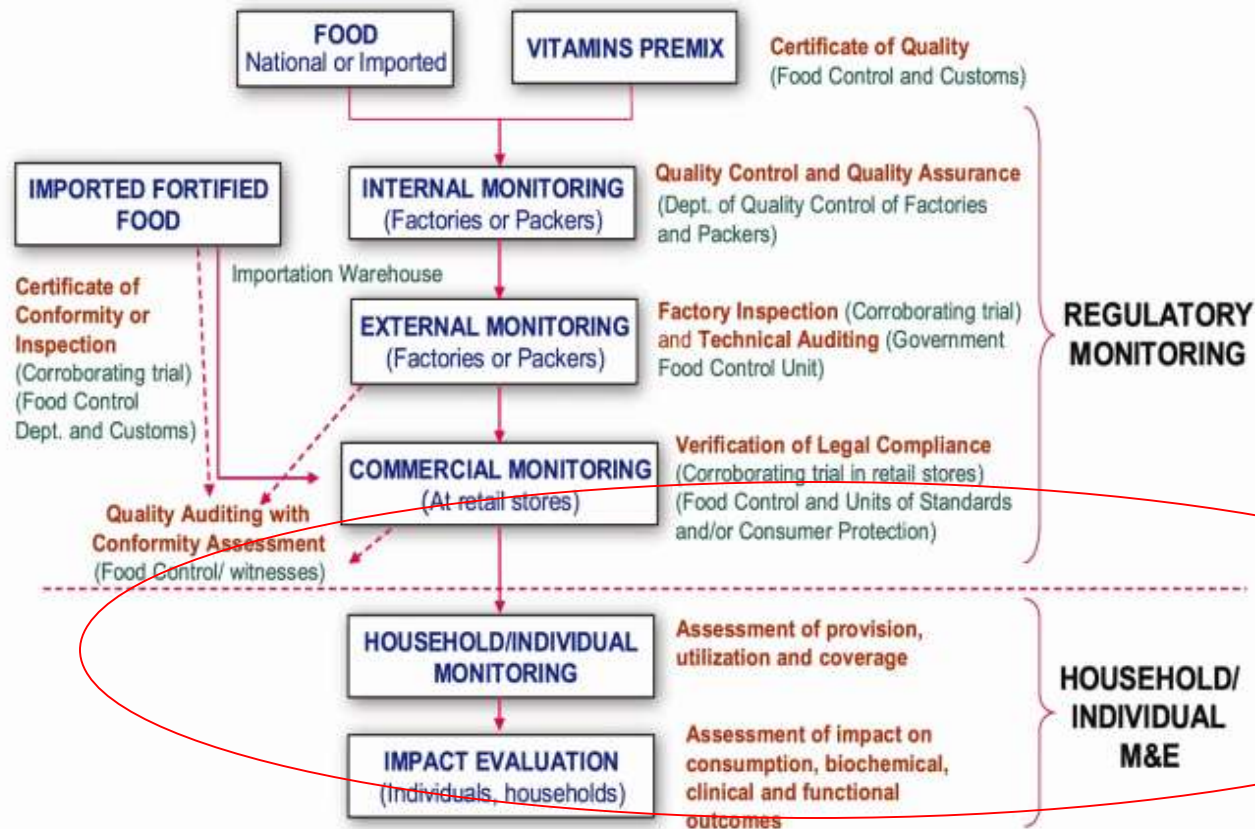


Monitoring, surveillance and evaluation of a food fortification program

by Anna Verster
with thanks to
Ibrahim
Parvanta



POPULATION LEVEL MONITORING, SURVEILLANCE & EVALUATION “below the dotted line”



Important preconditions before
moving “below the dotted line”

Ensure that:

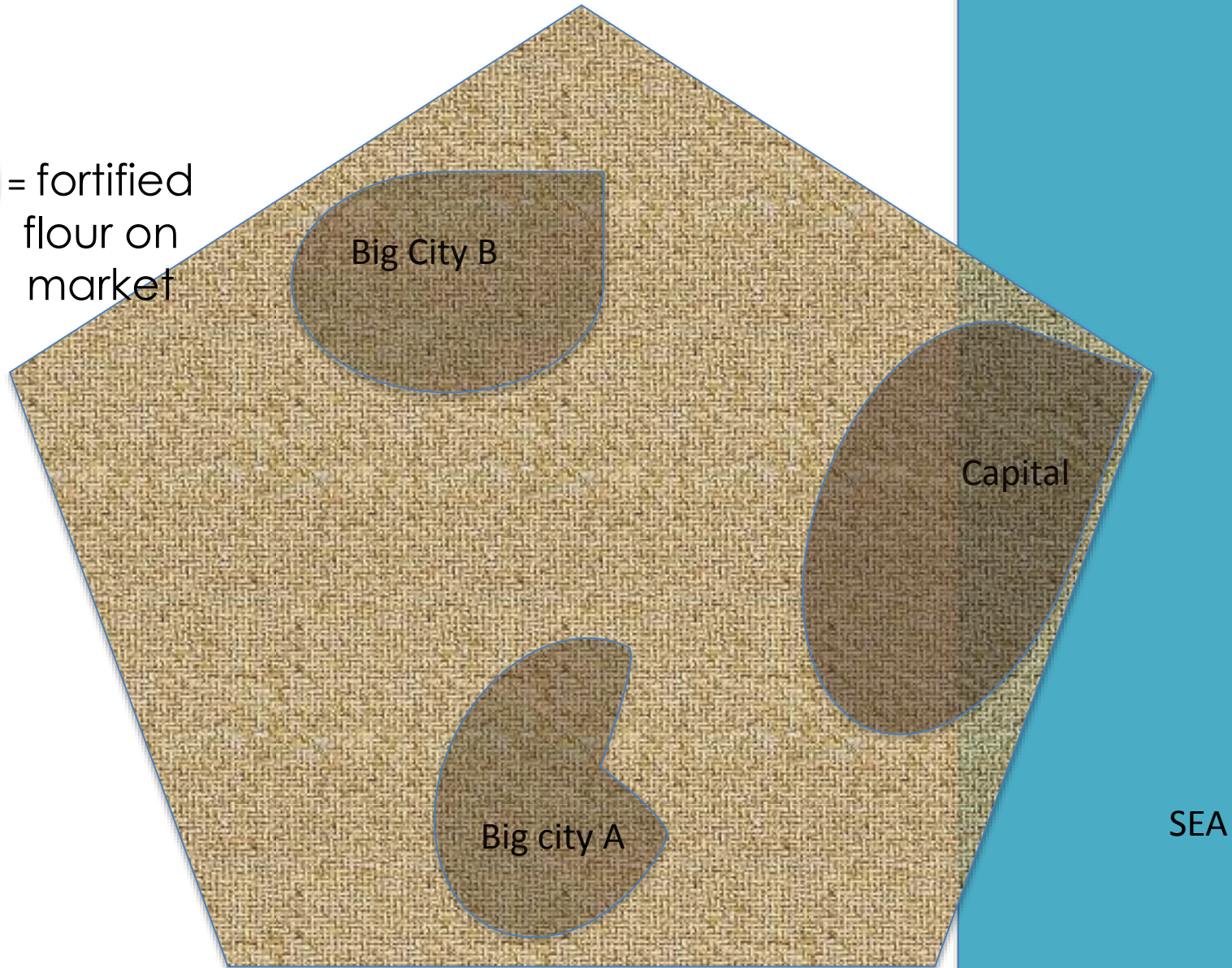
- Good estimate is available on average per capita intake of fortifiable flour (i.e. flour produced in roller mills with ≥ 20 MT/day capacity) - not total flour - in a defined geographic area.
 - Essential for determining the standard for concentration of vitamins and minerals to be added to fortified flour.
- With regard to iron fortification, a bio-available form of fortificant (sodium iron EDTA, ferrous sulfate, ferrous fumarate, or electrolytic iron) must be used based on WHO guidelines and dependent on extraction level

Ensure that:

- Good QA/QC procedures are in place at the flour mills, along with regulatory inspections and enforcement by the food control and/or customs agencies to ensure that quality (adequately) fortified flour is marketed.
- Sufficient fortified flour containing fortificant levels consistent with WHO guidance is accessible to meet the daily per capita intake needs of the vast majority of the population **in a given geographic area**.
- Good awareness has been created to encourage consumers to accept mandatory fortification of industrially milled flour.

FLOUR COVERAGE IN FORTIFITOPIA

 = fortified flour on market



Regular and transparent collaboration between public health sector, food and/or customs control, and flour industry (millers and importers) is critical for effectiveness of flour fortification and its successful monitoring, surveillance and evaluation.

Flour Fortification Monitoring vs. Surveillance vs. Evaluation

Flour Fortification Program *Monitoring*

- The ongoing and systematic collection and analysis of *data* and interpretation and use of the resulting *trend information on program inputs, implemented activities, and outputs* to assess how a flour fortification program is performing compared to predefined criteria.
 - QAQC or regulatory monitoring is an essential part of programme monitoring
 - tracking the quantity and sufficient population coverage of adequately fortified flour serves as output indicator

Flour Fortification *Surveillance*

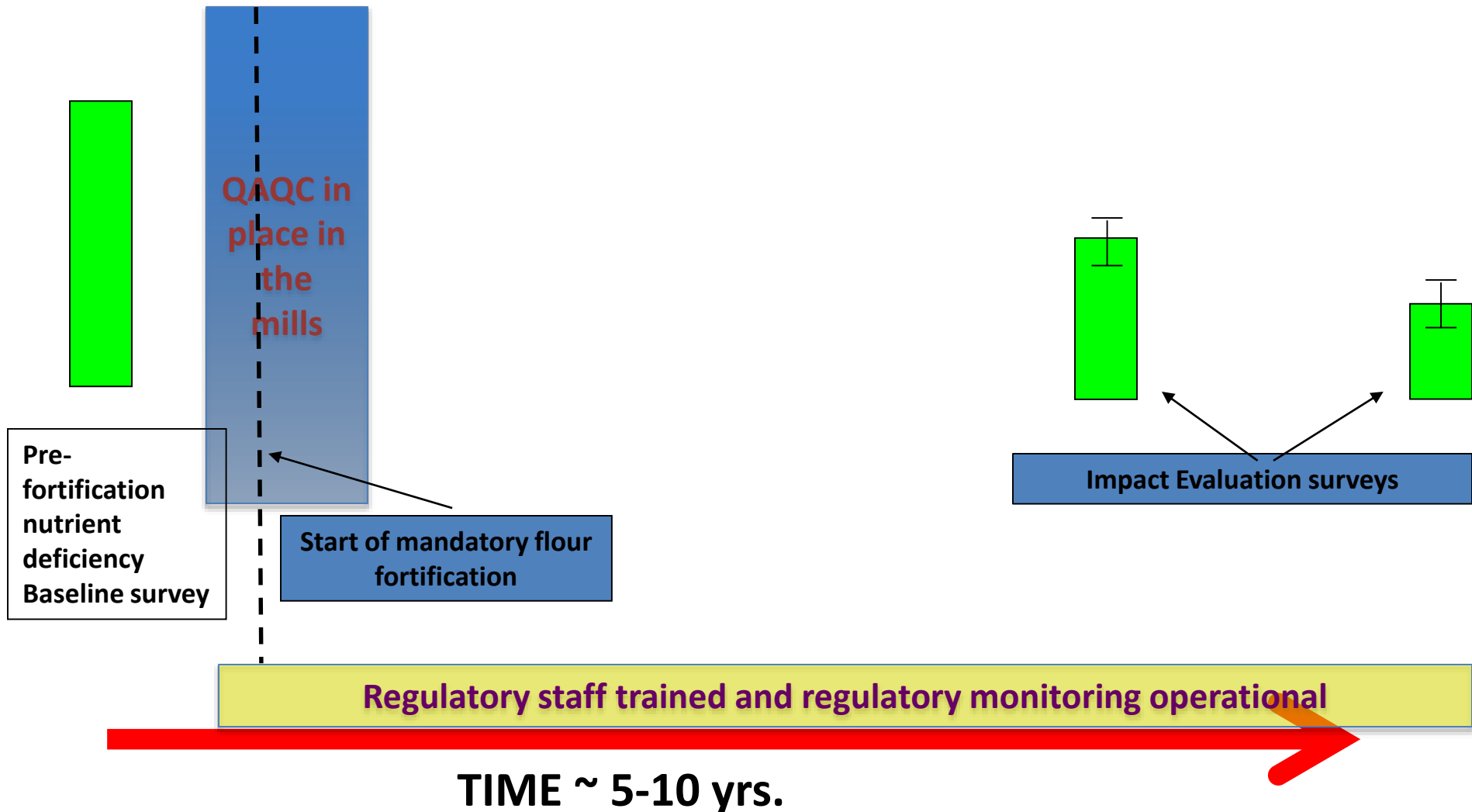
- The ongoing and systematic collection, analysis, and interpretation of *data* and dissemination of the *trend information* on micronutrient and health status of a population with regular access to fortified flour, to help strengthen and sustain a flour fortification program as impact indicators.
 - iron and folate nutrition and NTD incidence are impact indicators.

Flour Fortification Programme

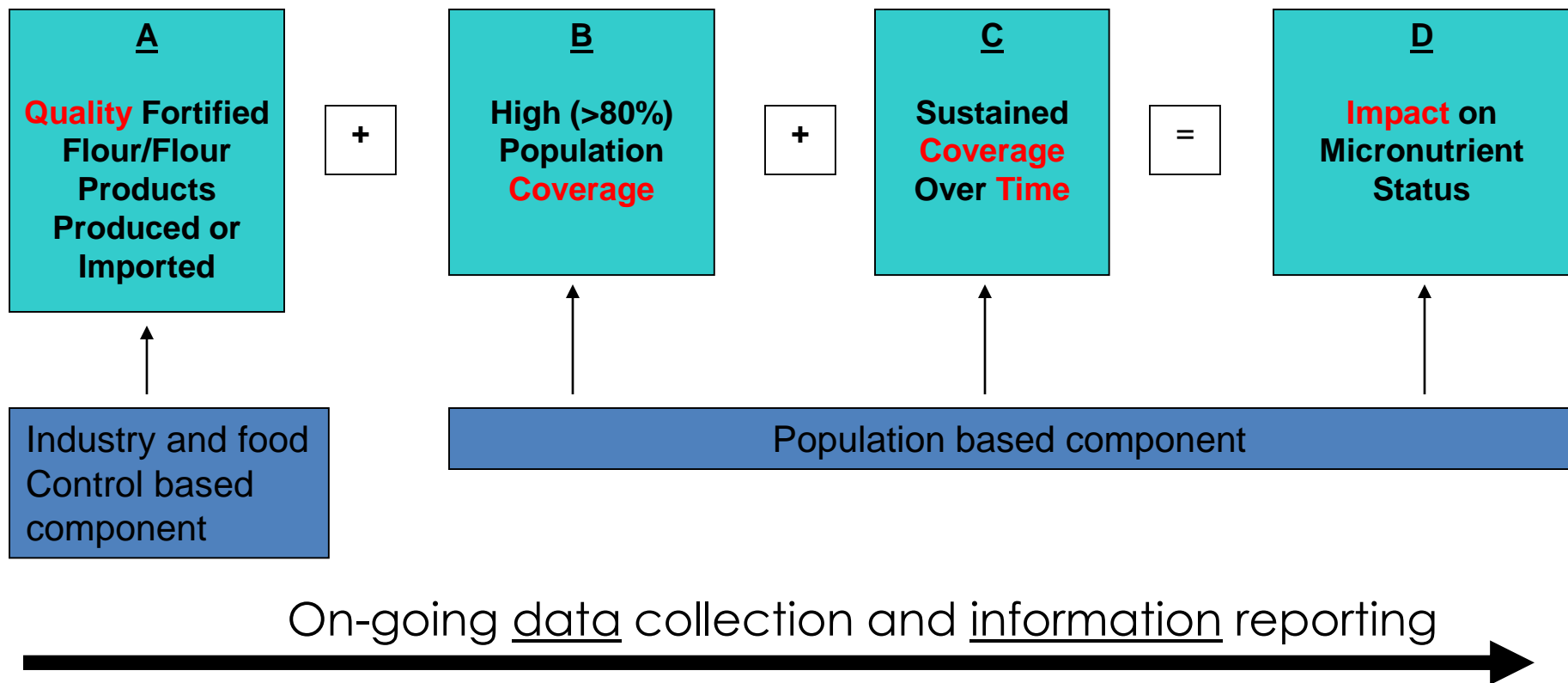
Evaluation

- Is the systematic collection and analysis of data and information about the activities, characteristics, and impact of the flour fortification program to assess (and improve) its effectiveness and inform decisions about its continuation or expansion.
 - *Surveillance* data and information informs program evaluation.
 - Additional data (quantitative and/or qualitative) may need to be collected; e.g. a population-based statistical survey.
 - May be conducted every 5 – 10 years.
 - Most public nutrition programs are evaluated at adequacy level – i.e. the preponderance of evidence indicates that the program has (or has not) helped improve nutritional status of the population.

Often used M&E model for a Flour Fortification Programme

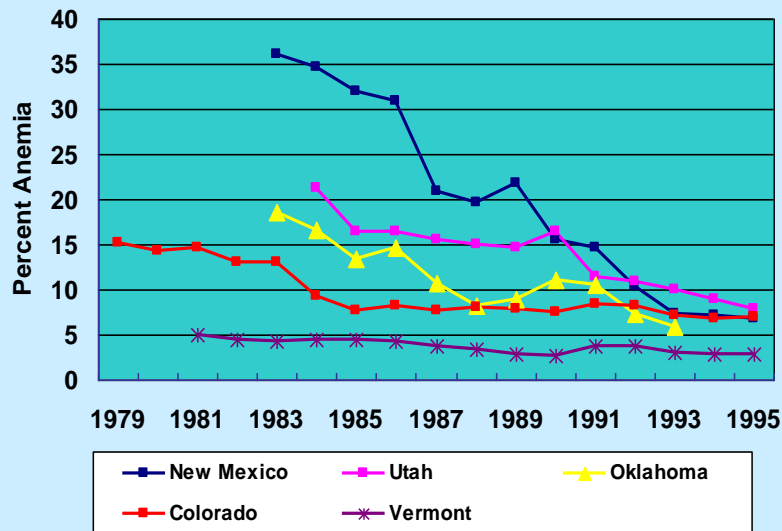


“Formula” to Describe Public Health Success of an Effective Flour Fortification Programme



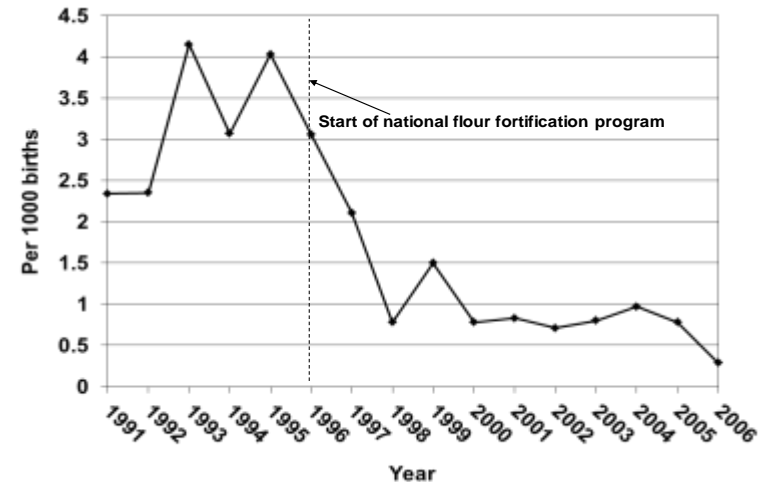
Flour fortification must be continued indefinitely to achieve maximum sustained impact on the nutritional and health status of the population

Declining trends in anemia prevalence in low-income children <5 years old in five states in the United States.



Source of data: Sherry, B. et al. Pediatrics 107:677, 2001

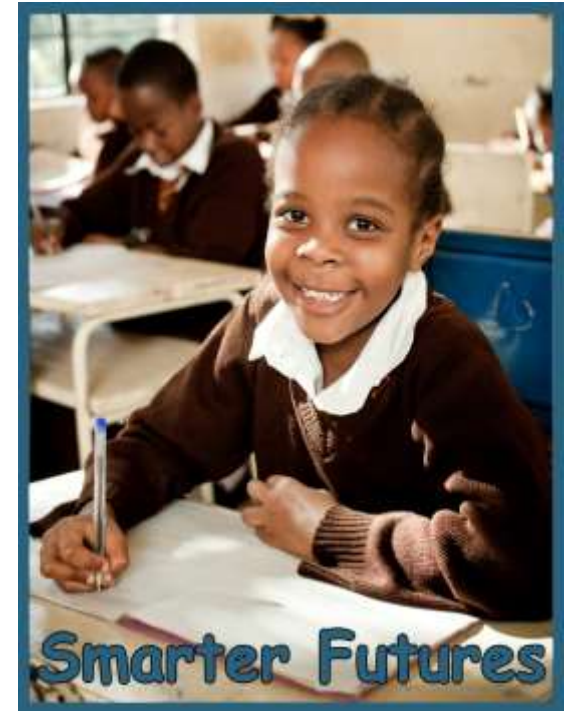
Trends in the incidence of spina bifida and other birth defects in Oman



Source: Personal communication; Ms. Deena Alasfoor, Oman Director of Nutrition

FORTIMAS, a monitoring and surveillance tool

- A tool to help you to track *trends* in the effectiveness of a flour fortification programme *over time* in populations **documented to regularly consume fortified flour**
- Not a tool to provide statistically representative estimates of the prevalence or incidence of micronutrient deficiencies in the population at *a point in time*.



FORTIMAS answers the 1st Question

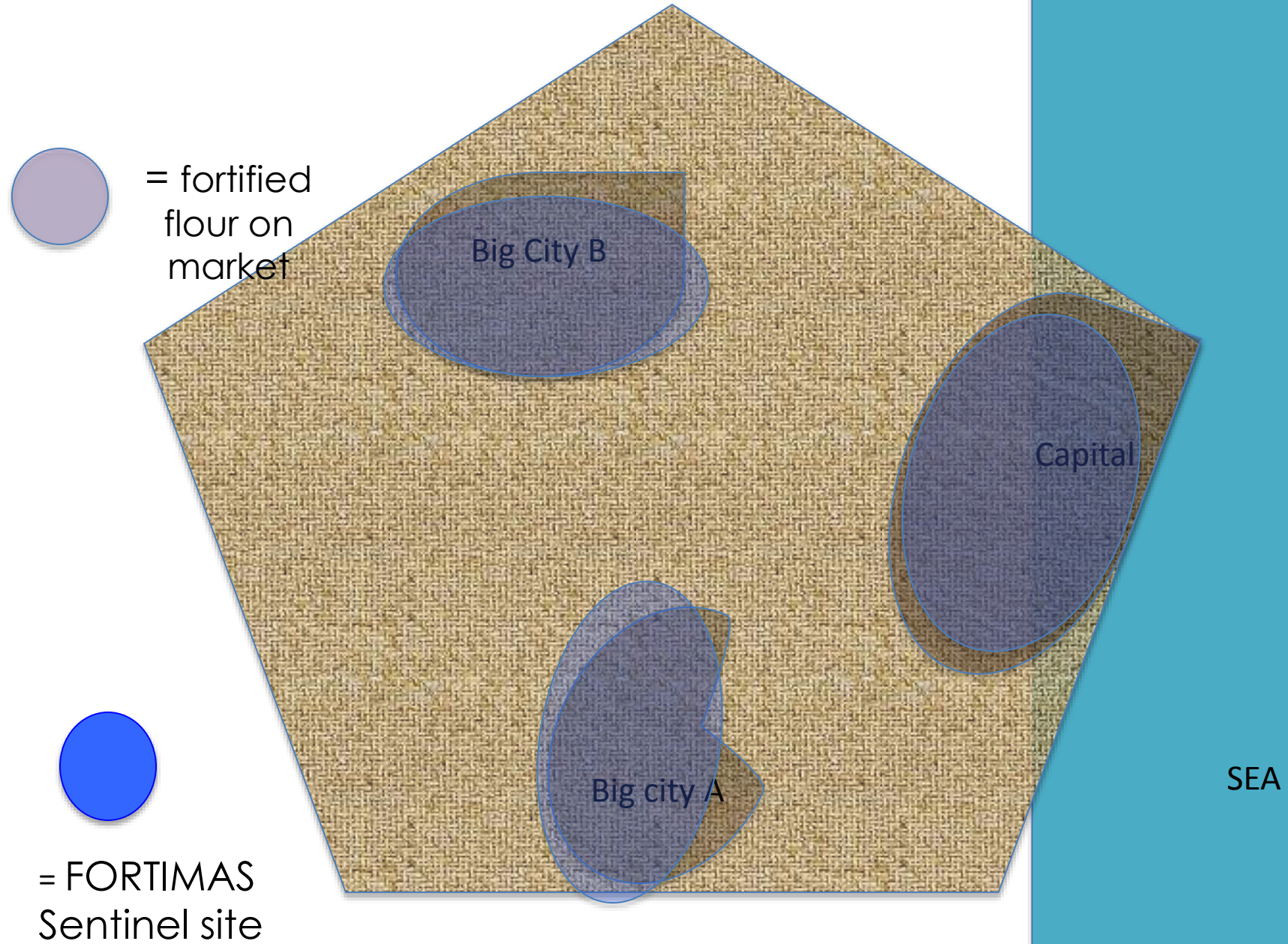
- Is micronutrient status **improving** among people in the country that regularly consume quality fortified flour (foods)?
- What is the micronutrient status of the population of the country?

FORTIMAS uses Sentinel
Data Collection and
Purposive and
Convenience Sampling
Approaches

- “Sentinel” refers to “watching over”.
- Sentinel data collection involves purposively selecting a few communities within a larger geographic area (expected to have high population coverage) as sentinel data collection sites such that:
 - Data trends from the sites are expected to reflect (mirror) trends in household coverage and impact of flour fortification in the broader geographic area.
- Existing health clinics, schools, worksites, houses of worship, etc. within each sentinel site could serve as data collection points.

Once FORTIMAS documents the desired trends in population and impact, more detailed assessment and evaluation of the flour fortification program could be performed.

SENTINEL SITES IN FORTIFITOPIA



FORTIMAS uses different data sources to *triangulate* the info from each to create a more complete picture

Flour industry & Food Control Agency data

- 1. Millers and Importers – amount of fortified flour produced and imported.
- 2. Food Control Agency – quantity of fortified flour which meets quality standards

Population-level data

- 1. Women's awareness of fortified flour.
- 2. Women's reported purchases of fortified flour/staple foods.
- 3. Anemia, iron deficiency & folate sufficiency prevalence in non-pregnant women.

Health Clinics




- 1. Presence of fortified flour in households.
- 2. Sales of fortified flour, bread, noodles, other staples by wholesalers, bakeries, supermarkets

- 1. Anemia prevalence in 1st trimester pregnant women.
- 2. Anemia, iron deficiency & folate sufficiency prevalence in adolescent school girls.
- 3. NTD incidence among maternity facility births.

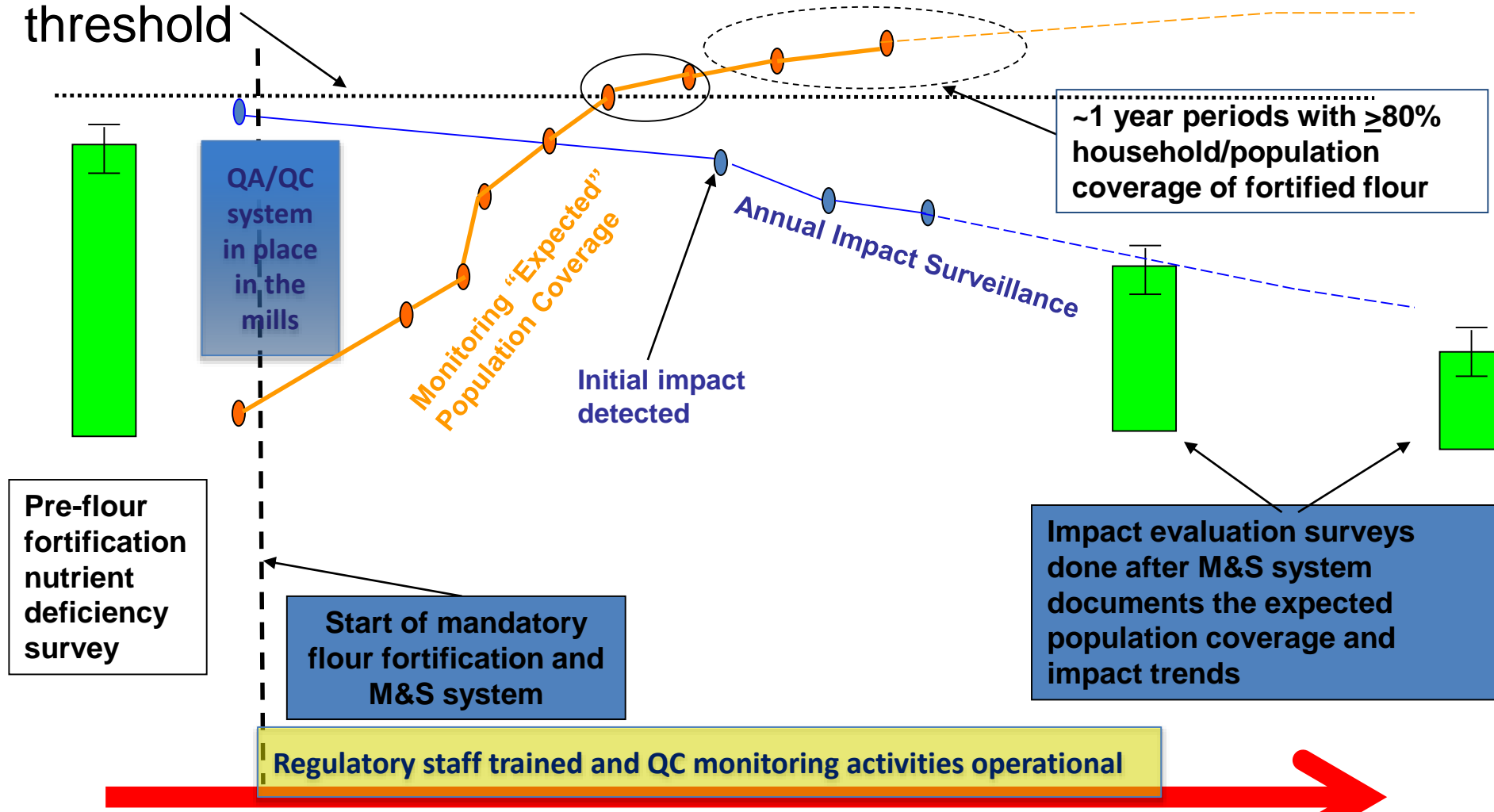
Schools, wholesalers, bakeries, supermarkets

Secondary schools, maternity hospitals/birth centers

Hypothetical FORTIMAS System for Flour Fortification

-  - Micronutrient deficiency prevalence ... often based on representative population survey
-  - FORTIMAS system - Micronutrient deficiency indicator prevalence
-  - FORTIMAS system - % "expected" population coverage based on industry data; $\geq 80\%$ household coverage also confirmed through sentinel site monitoring

80% coverage threshold



TIME ~ 5-10 yrs.



- You can access FORTIMAS on-line at www.smarterfutures.net/FORTIMAS
- The webpage gives guidance on how to use FORTIMAS
- You can download the entire document or download specific chapters
- You can download and use the interactive data sheets
- You can link to the WHO/CDC/ICBD tool for NCD surveillance
- Feel free to print copies!
- For more information: info@smarterfutures.net



search

FORTIMAS



FORTIMAS: An Approach for Tracking the Population Coverage and Impact of a Flour Fortification Program

How to use FORTIMAS?

The primary aim of the guide is to propose a population-level data collection approach to help answer the question, “**is the micronutrient status of those who regularly consume sufficient quality fortified flour improving?**”. During the planning stages of FORTIMAS, it may be useful to “work backwards” from the ultimate aim and review the issues that need to be addressed to achieve it. [Flow Diagram 1](#) (see below) illustrates this approach. Also, keep in mind that [Box 1](#) (see below) lists the essential preconditions for an effective flour fortification program that must be met before embarking on collecting primary data or using existing data to track the population coverage and impact of the intervention.