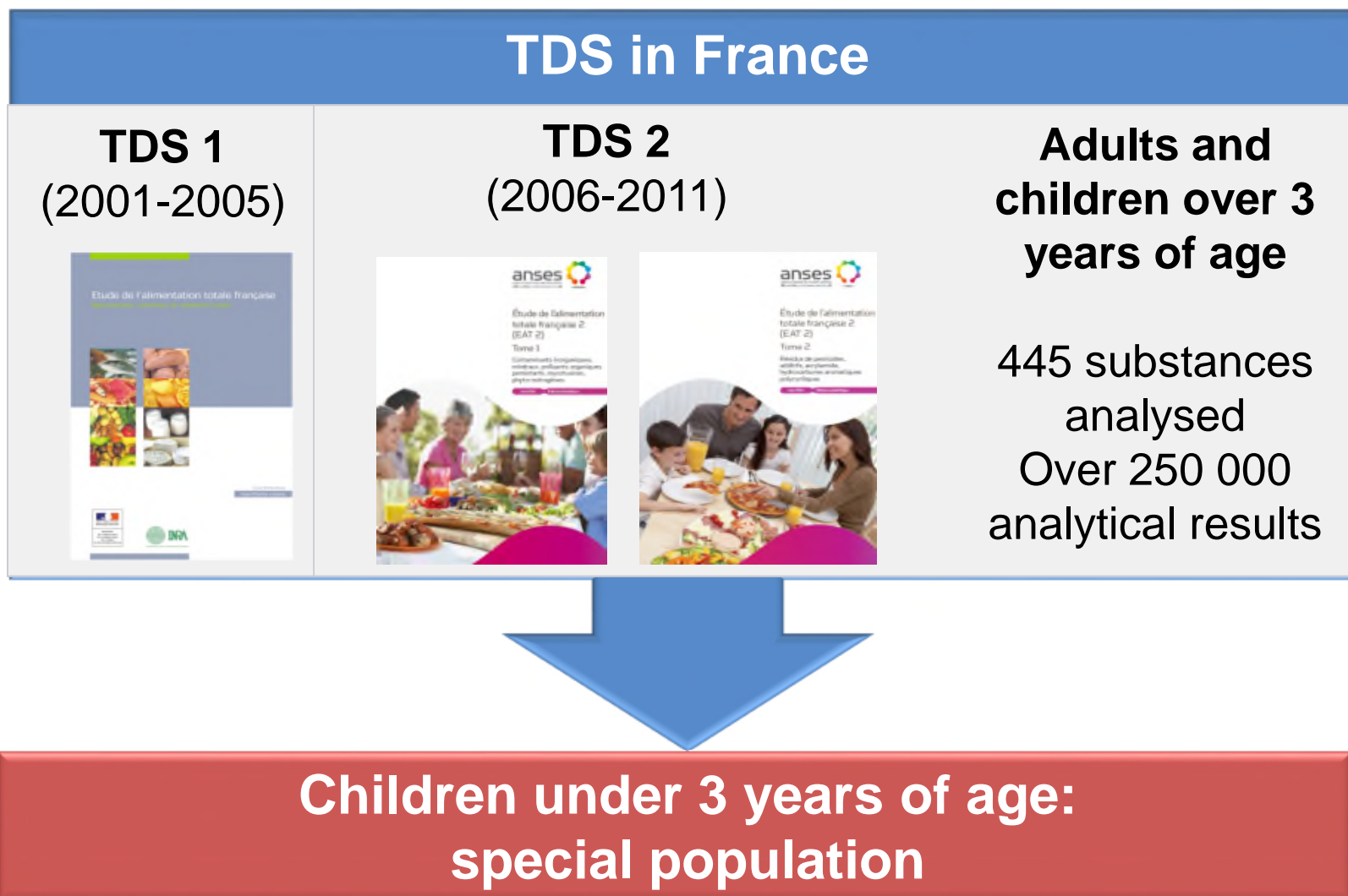


Infant TDS

Results of the ANSES study on
dietary exposure of children under 3
years of age to chemical substances
2010-2016

Why an infant Total Diet Study



The 3 phases of the Infant TDS



1.

Sampling that reflects food consumption and practices

80-90% coverage of the diet

5484 products bought
457 composite samples



2.

Analysis of composite samples, prepared "as consumed"

Accredited laboratories
Lowest analytical limits

670 substances analysed



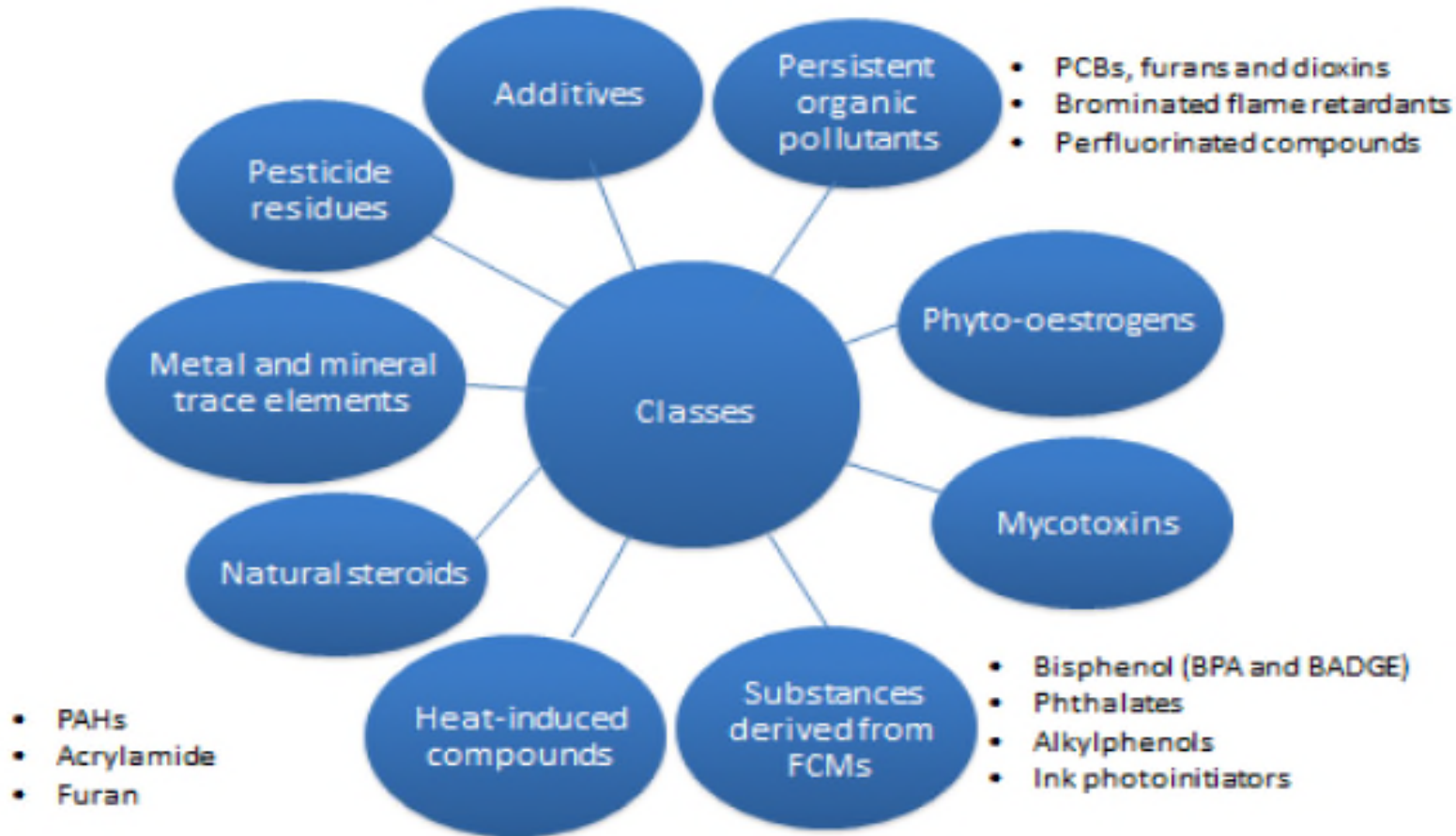
3.

Assessment of chronic exposure

Children under 3 years of age non breastfed

Phase 2: 670 substances analysed

670 substances analysed



Dietary exposure assessed for 500 substances

Risk assessed for 400 substances incl. 281 pesticide residues

What the study can conclude

- The study aims to characterise the **chronic dietary exposure (or intake) to substances of interest** for children under 3 years who are not breastfed
- It **does not aim** to characterise:

In terms of populations

- The exposure of children who are **breastfed**
- The exposure of specific groups of populations, for instance premature children
- The exposure of children living **outside of mainland France**

In terms of consumption

- **Special diets** (e.g. only organic)
- Intake of food supplements

In terms of exposure and risk

- **Acute** exposure
- Exposure due to **specific situations** (local or accidental)
- **Prenatal** exposure
- **Other routes of exposure** (respiratory, dermal...)
- Risk assessment of **cocktail effects**

but is a source of data for subsequent work

Results presented

○ Risk Assessment

- General results
- Focus on substances for which risk cannot be excluded
- Recommendations

○ Observations linked to food diversification

○ Additional results

- Pesticide residues
- Water

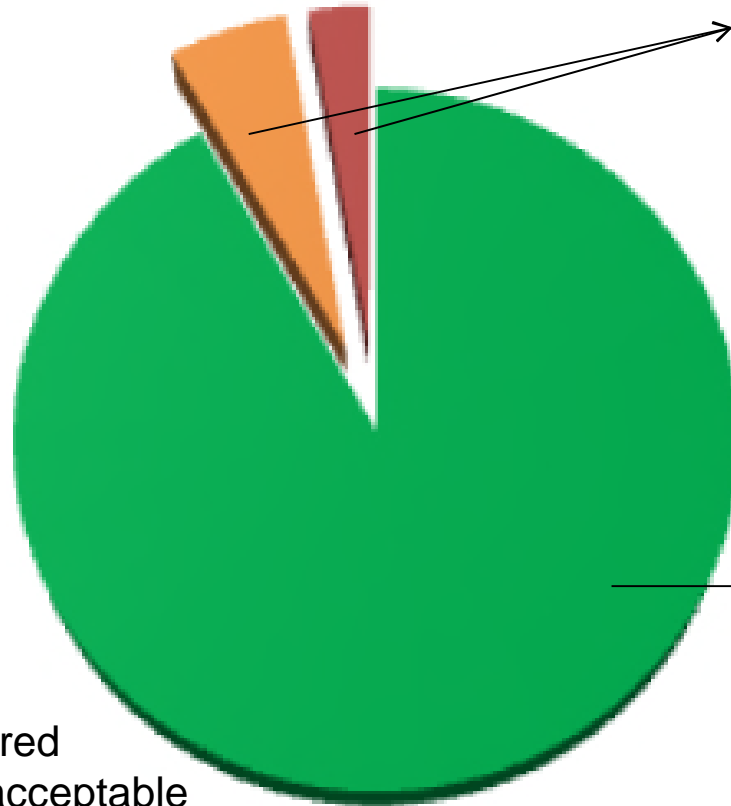
○ Nutritional risk assessment

Risk assessment: 4 types of conclusions

What conclusion?	In which case?
Risk considered tolerable or acceptable	Does not exceed the toxicity reference value
Risk cannot be ruled out	Uncertainties as to the observed exceedance of the toxicity reference value
Situation identified as a concern	Significantly exceeds the toxicity reference value
Unable to conclude on the risk	Conditions do not allow for a relevant assessment of health risks

About 400 substances assessed

(330 substances or families)



A limited number of substances for which the **risk can not be excluded** or situations of concern

FOR SOME, ACT TO REDUCE EXPOSURE

90% of substances for which the risk is considered **tolerable/acceptable**

MAINTAIN ADAPTED MONITORING

- Risk considered tolerable or acceptable
- Risk cannot be ruled out
- Situation identified as a concern

Reduce exposure: for which substances?

9 Substances for which the situation is identified as a concern

Inorganic arsenic
Lead
Dioxins and furans
PCBs
Deoxynivalenol and its derivatives
Acrylamide

T2-HT2 toxins
Furan
Nickel

7 Substances for which the risk cannot be excluded

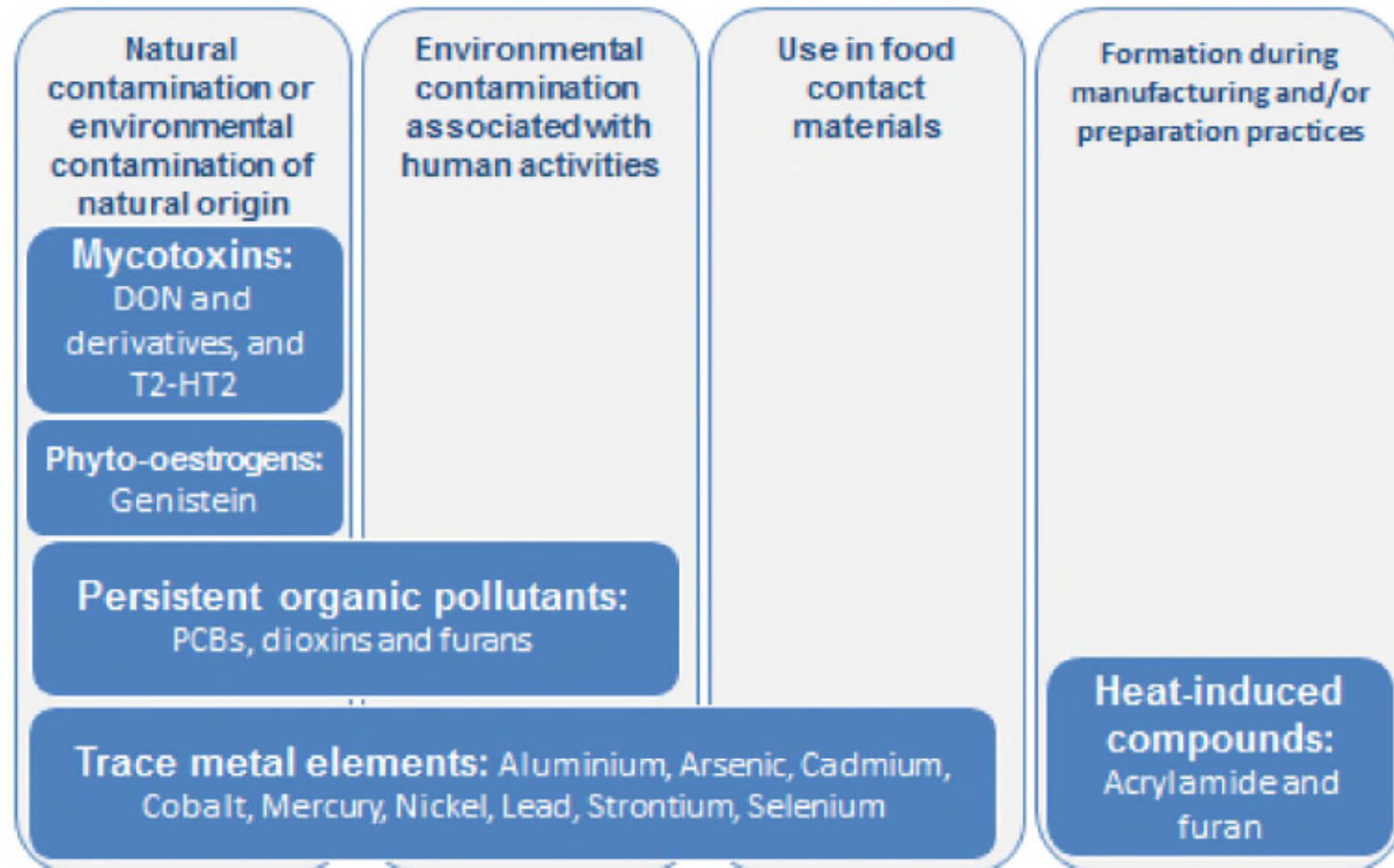
Aluminium
Cadmium
Methylmercury

Cobalt, Strontium
Selenium (>1 year)
Genistein (soy consumers)

**E
A
T
2**

Origin of the substances

Origin of these substances



Recommendations

Limiting exposure levels

- ❖ Policy to control releases into the environment
- ❖ Control of processes
- ❖ Establishment or reduction of regulatory thresholds

Act on concentrations / content

- During the manufacturing or preparation of industrial products (acrylamide, furan)
- Better understand the origin of contamination (nickel in chocolate products, T2-HT2 in infant formulas)
- Review or implementation of regulations (acrylamide, furan, nickel, T2-HT2, PCBs, dioxins & furans, inorganic arsenic, lead, DON & derivatives)

Act on consumption

- Vary the diet to not always consume the most contaminated food (e.g. lead, aluminium)
- Establish/recall consumption recommendations
 - fish for PCBs, selenium, methylmercury
 - strongly mineralised mineral waters for strontium
 - Soy products for genistein

Further work to determine possible actions / levers

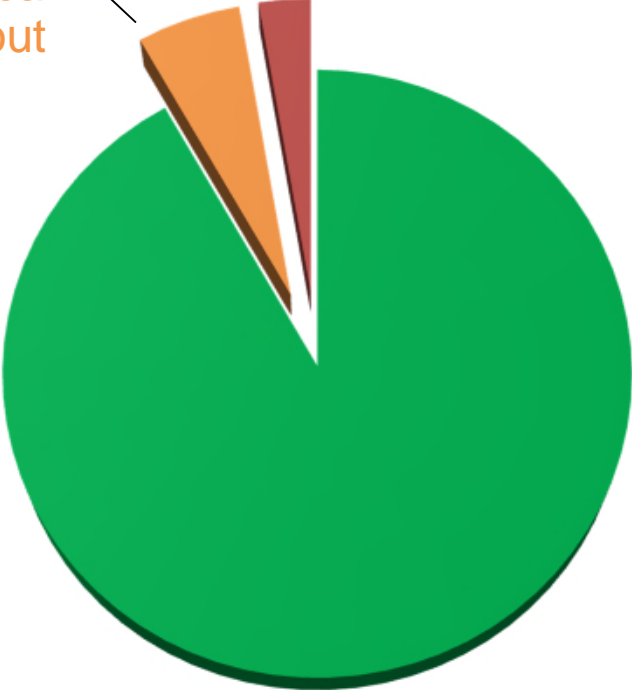
- Dioxins & furans (milk, ultra fresh milk products and fish)
- DON & derivatives (infant milk drinks with cereals, fruit & vegetable pots, biscuits & bread)
- Inorganic arsenic (vegetable /fish pots, rice, infant cereals)
- Cadmium (potatoes, vegetables)
- Cobalt

Substances that require more knowledge

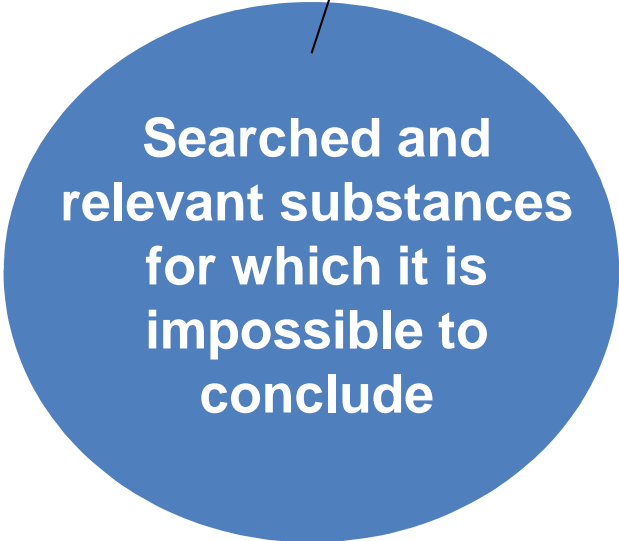
Reduce uncertainties for substances for which the risk can not be ruled out

Guide management measures for substances of concern

Conduct a health risk assessment for substances for which it is impossible to conclude



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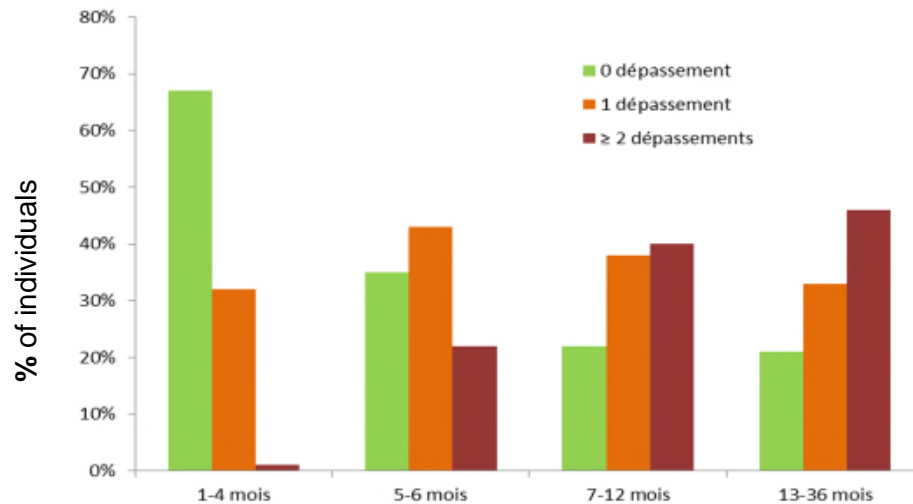
About 90 substances

Key messages of the Risk Assessment

- An acceptable situation for 90% of the substances assessed
- A limited number of substances for which the risk can not be ruled out, including 9 of concern
- Continue efforts to reduce exposure to certain substances

Co-exposure and food diversification

Number of exceedances for some substances deemed of concern according to age



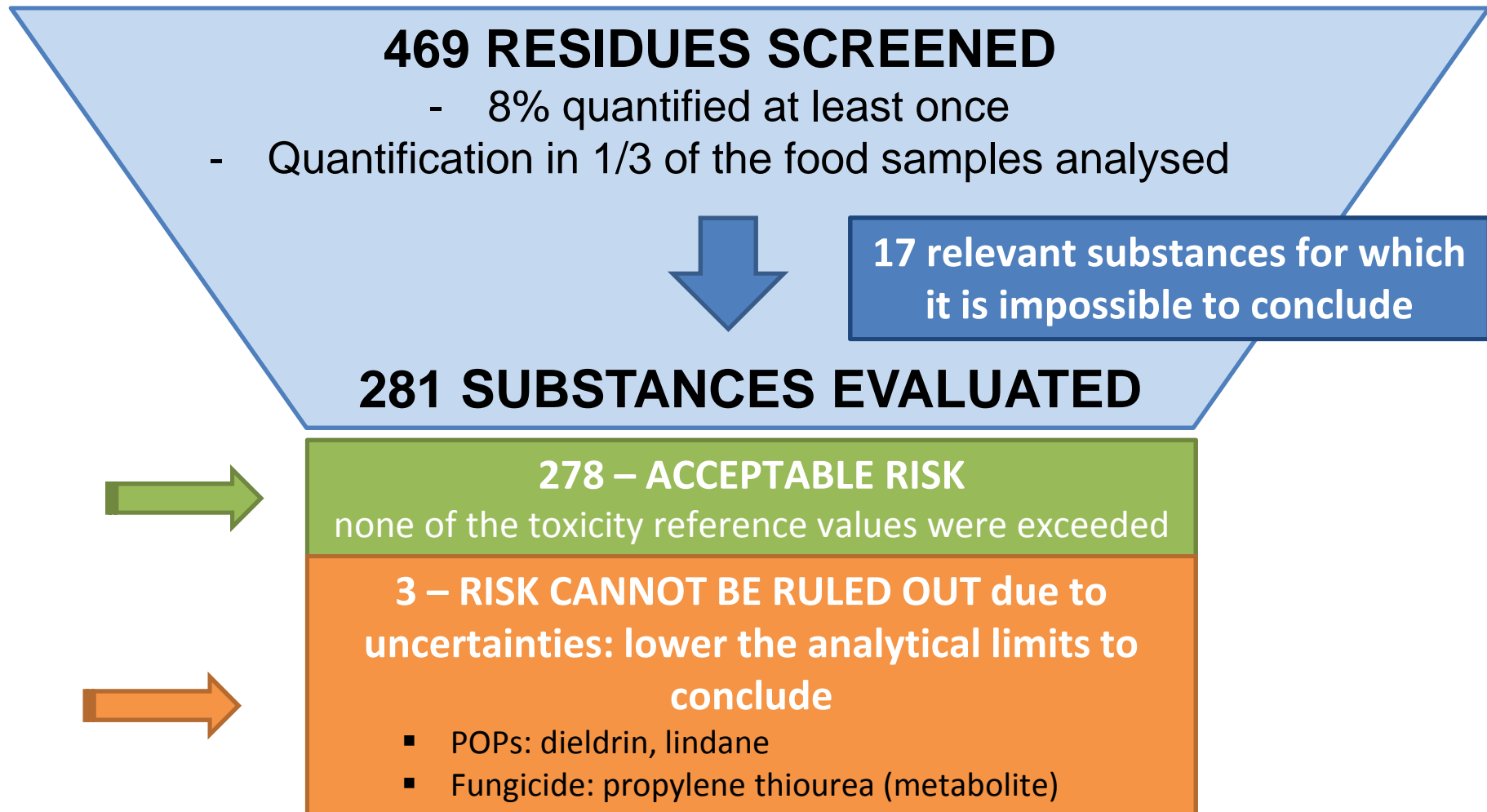
Progressive food diversification explains these trends

Recommendations on food diversification

Given these results, today, the Agency therefore advocates following the recommendations issued in the 2005 national Health and Nutrition Programme, namely, to begin food diversification from the age of 6 months for optimal benefit and in any event never before 4 months of age

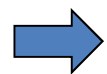
Pesticide residues

Improved analytical performance compared to EAT2



What about water?

- Water accounts for a significant share of the food consumed by non-breastfed infants, in particular as it is used to reconstitute infant formulas for bottles
- However:
 - The study is based on the **actual behaviour of parents** and very few parents use tap water to dilute baby bottles
 - The study is **not designed to allow comparison of the impact on exposure of the type of water used**



The study is **unable to recommend a type of water to use preferentially**

In the absence of further results, the Agency reiterates that unsoftened and unfiltered tap water, is only suitable for reconstituting infant formula under certain conditions

Nutritional risk assessment

Results for mineral intake:

Intake generally meets nutritional needs to a **satisfactory level**

- Iron & zinc in children under 6 months
- Magnesium, calcium & copper in those under 1 yr
- Manganese, selenium, molybdenum & potassium in children under 3 yrs

Inadequate intake

- Iron and zinc in children ages 7-36 months
- Calcium, magnesium and copper in children aged 13-36 months

Excess intake

- Calcium & zinc

- Need to take into account **all nutrients** to make **dietary recommendations**
- **Lack of certain reference values** in the targeted population

Ongoing work on the revision of **food consumption benchmarks** includes the definition of **nutritional guidelines for infants**

Important points to remember

A study in real-life conditions to assess the exposure of children under three years of age to substances in their diet

Exposure generally well managed

For the consumer

- No diversification before 6 months
- After diversification, vary the diet and the sources of supply

For the public authorities and industry

- Take action to reduce exposure:
- Continue the efforts and identify the sources of contamination during the production chain
 - Conduct a debate on the regulation of substances for which the situation is identified as a concern

For the scientific community

- Acquire additional knowledge:
- To consolidate the results of the HRA
 - To gain more in-depth knowledge of exposure

Key figures

The iTDS: key figures

6 years of work

More than 200,000 analytical results

Covering 97% of the diet of children under 3 years of age

5,484 products purchased, 457 samples

670 substances analysed

Dietary exposure assessed for 500 substances

Risk assessed for 400 substances, including 281 pesticide residues

Prospects

Aggregate exposure and substance mixtures

- Integration of all exposure routes for certain relevant molecules
- Identification of relevant substance cocktails in terms of public health and realist exposure
- Use of the iTDS results in Anses work and national studies (ANR COCTELL)

Breast milk

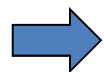
- Study implemented to analyse contamination of breast milk (CONTA-LAIT). Risk-benefit assessment.

Other substances

- Nanoparticles: study on nanomaterials found in food for children and adults

Data needs

- Susceptibility of the infant population
- Mechanism linked to endocrine-disruption



Need to sustain monitoring tools to estimate exposure