

The Australian Total Diet Study

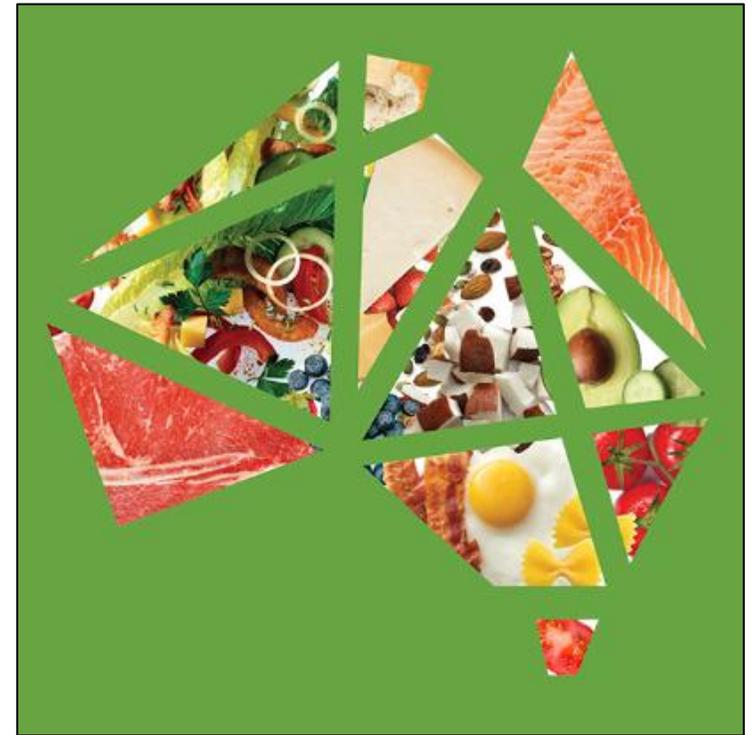
6th International Workshop on Total Diet Studies

Keith Henderson

October 2022

Overview

- Introduction to Food Standards Australia New Zealand (FSANZ) and the joint Food Regulation System
- The Australian Total Diet Study (ATDS)
 - History
- Key stages
 - Concept and design
 - Food sampling and analysis
 - Assessing and managing results
- Recent studies



About us

- We are an Australian statutory agency within the Australian Government Health portfolio
- Our main function is to develop and administer the Australia New Zealand Food Standards Code (the Code)
- Underpinned by our coordination of surveillance and monitoring activities
- Primary objective to protect public health safety
- Not responsible for enforcement



The Australian New Zealand Food Regulation System



Surveillance, Evidence and Analysis Working Group

ISFR Coordinated Food Survey Plan

- Australian Total Diet Study (ATDS)
- National Antimicrobial Resistance Surveillance in Retail Foods
- Patulin in Apple Juice and Other Apple Products
- Pilot Survey of Pyrrolizidine Alkaloids in Australian Foods
- Hemp Seed Food Compliance



History of the ATDS

- First undertaken in 1970 (Australian Market Basket Survey)
- FSANZ has managed since 2001 (19th ATDS onwards)
- Traditional focus: pesticides and metals
- Recent expansion to include veterinary chemicals, additives, nutrients, natural toxicants, industrial chemicals, food packaging chemicals



Key stages of the ATDS

1. Concept and design
2. Food sampling and analysis
3. Assessing and managing risk

The Australian Total Diet Study

The Australian Total Diet Study is Australia's most comprehensive monitoring survey of chemicals, nutrients and other substances in the Australian diet.

1 Concept & design

We decide what chemicals to look at using a range of different information sources and consultation with expert authorities. We work closely with states and territories on the design of the survey including which food should be collected from where.



We usually sample approximately 100 different food types based on current dietary patterns and the likely presence of the chemicals being analysed.



2 Food sampling and analysis

Food samples are taken in capital cities and regional areas in all Australian states and territories. They are purchased from a range of retail outlets to reflect normal purchasing habits.

Samples are prepared to a ready-to-eat state, the same way they would be in a home kitchen.



Samples are analysed for chemicals and the laboratory reports the raw data to FSANZ. Data is then checked and validated.

3 Assessing and managing risk

Data is used to estimate Australian consumers dietary exposure to the chemicals analysed and determine if there are any risks that should be looked at further and managed.



www.foodstandards.gov.au/ATDS

FOOD STANDARDS
Australia New Zealand
Te Mana Kounga Kai - Ahitereiria me Aotearoa

ATDS – Concept and Design

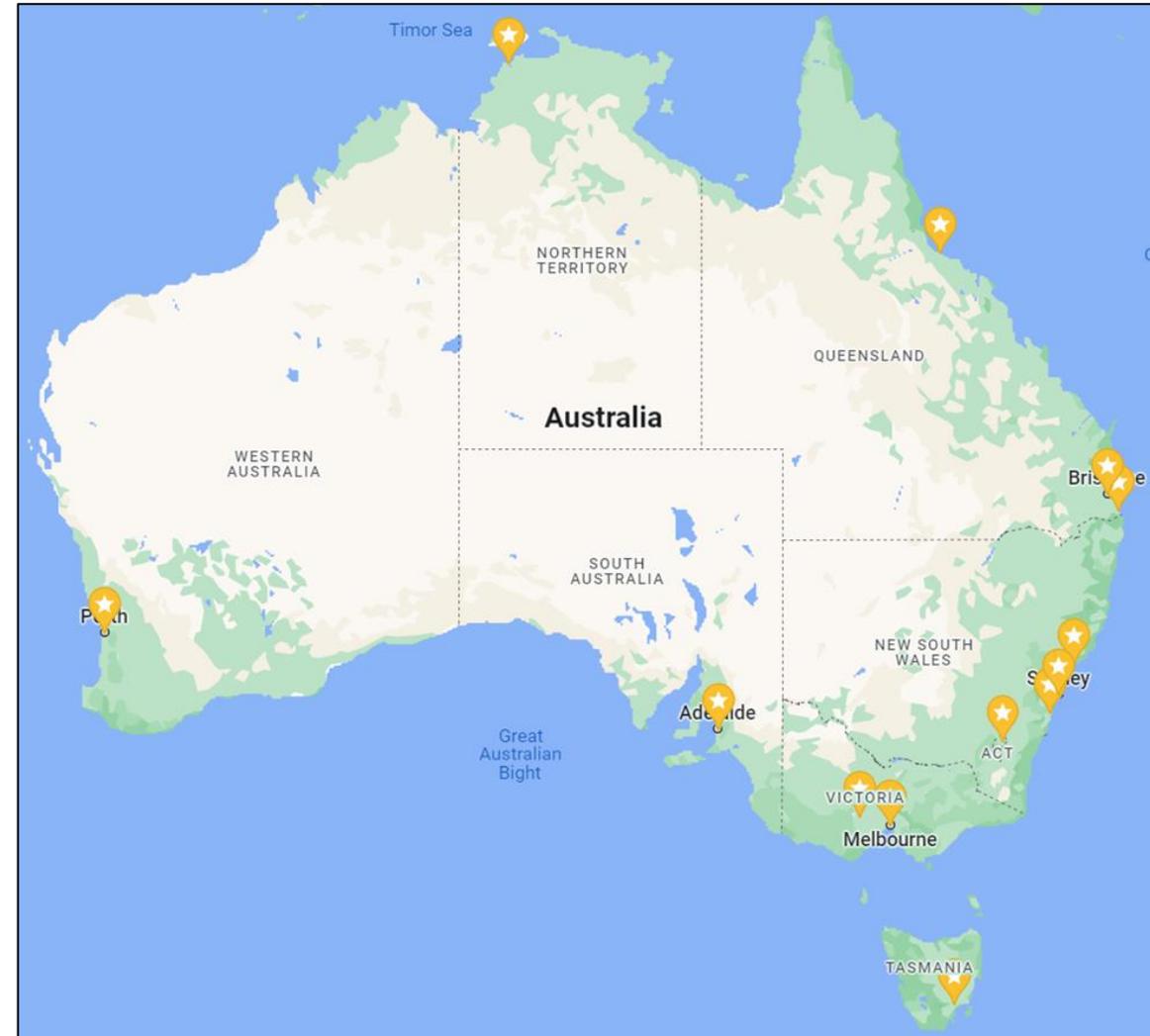
Developed in consultation with key stakeholders

- Current public health and safety concerns
 - New information on food hazards (JECFA evaluation etc.)
 - Findings from other Australian or overseas surveys
 - Emerging food safety issues
- Need for data to support decisions around food regulation or inform policy
- Changing dietary patterns for the Australian population
- Stakeholder concerns and priorities (government, politicians, public, academic, media etc.)
- Resourcing and availability of suitable analytical methods



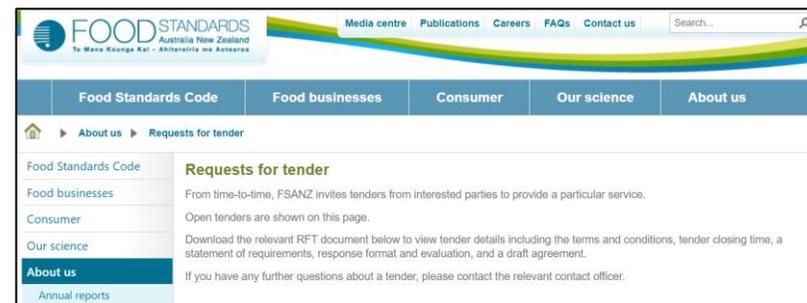
Food sampling and analysis

- Food sample purchasing undertaken by state and territory authorities
 - Major retail outlets from capital cities and other metropolitan areas
 - Two (seasonal) sampling periods
- Sample transport, preparation and analysis outsourced to commercial laboratories



Procuring laboratory services

- Competitive procurement processes through FSANZ Laboratory Panel (Request for Quote) or public Request for Tender
- Important considerations include:
 - Sampling kits, freight arrangements
 - Quality management systems and accreditation status of facilities (ISO 17025)
 - Details of method – must use validated (and preferably accredited) analytical methods
 - Performance characteristics of the method (Limit of Detection (LOD), Limit of Quantitation (LOQ), Limit of Reporting (LOR), other Quality Assurance (QA) and Quality Control (QC) measures (accuracy, precision), measurement uncertainty)
 - Key laboratory personnel
 - Results and QA/QC report
 - Costs



Procuring laboratory services

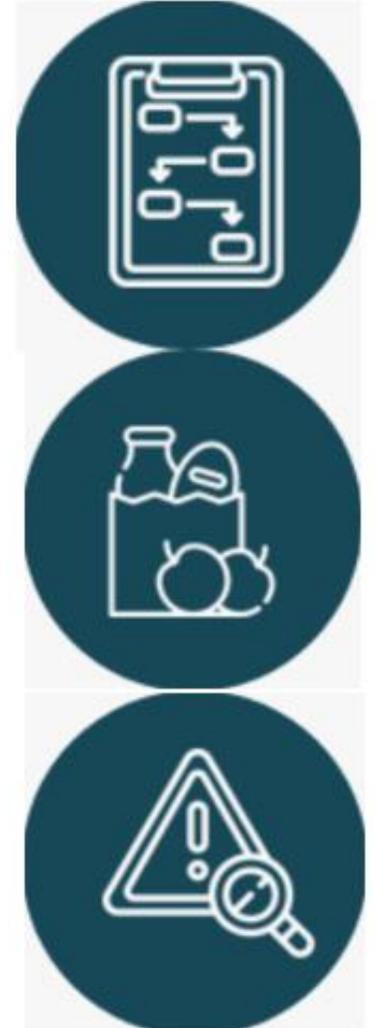
Work order or contract

1. Procedures manual

- Sample collection and transport

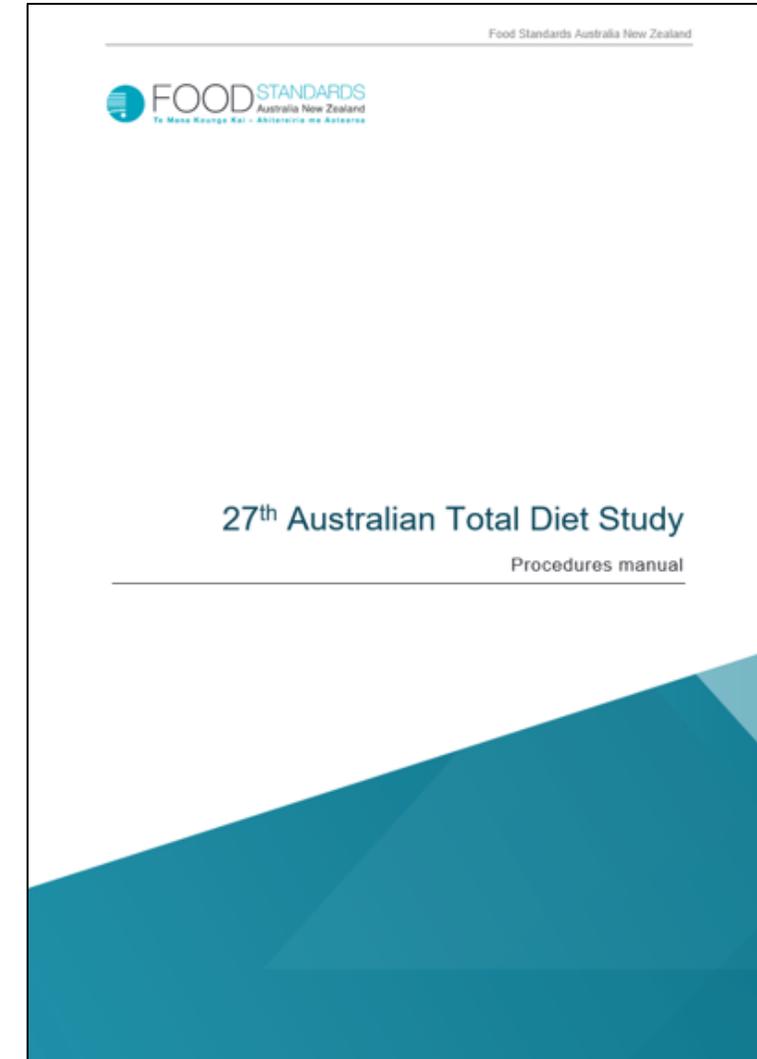
2. Sample analysis and reporting

- Sample preparation, analysis, results reporting



Contracts: procedures manual

- Covers all aspects of sample collection, transport and preparation
- Key contacts
- Purchasing instructions
 - Guidance on locations, brands, minimum sample amount, recording sample information
- Packing, labelling and transport of samples
- Food preparation (table ready state)
- Compositing of samples for analysis
- Storage of remaining sample



Contracts: sample analysis and reporting

- Food sample list, analytical method, analytes and reporting limits
- Results reporting template (Excel) and Certificates of Analysis
 - LOD, LOQ for all results
 - Measurement uncertainty + other key metadata
- QA/QC report and measures
 - Accuracy
 - Reference standards (spikes, certified reference material), blanks and associated recoveries
 - Precision
 - Duplicate analyses (repeatability), participation in inter-laboratory proficiency programs (reproducibility)
 - Acceptance criteria
 - Processes for managing 'out of control' results

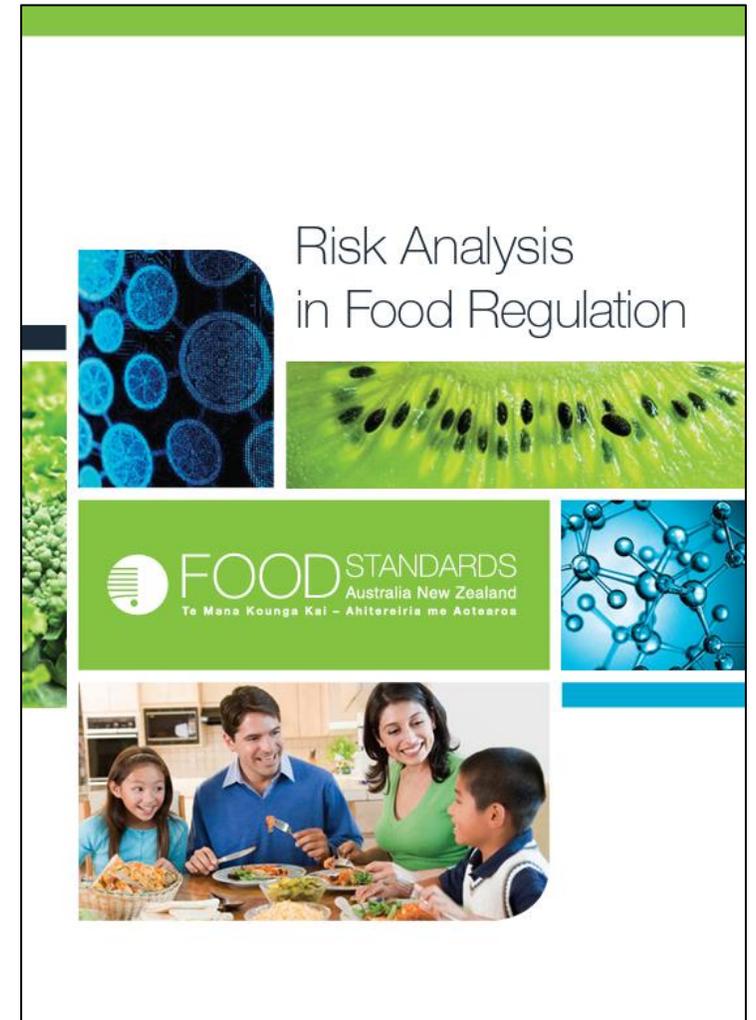
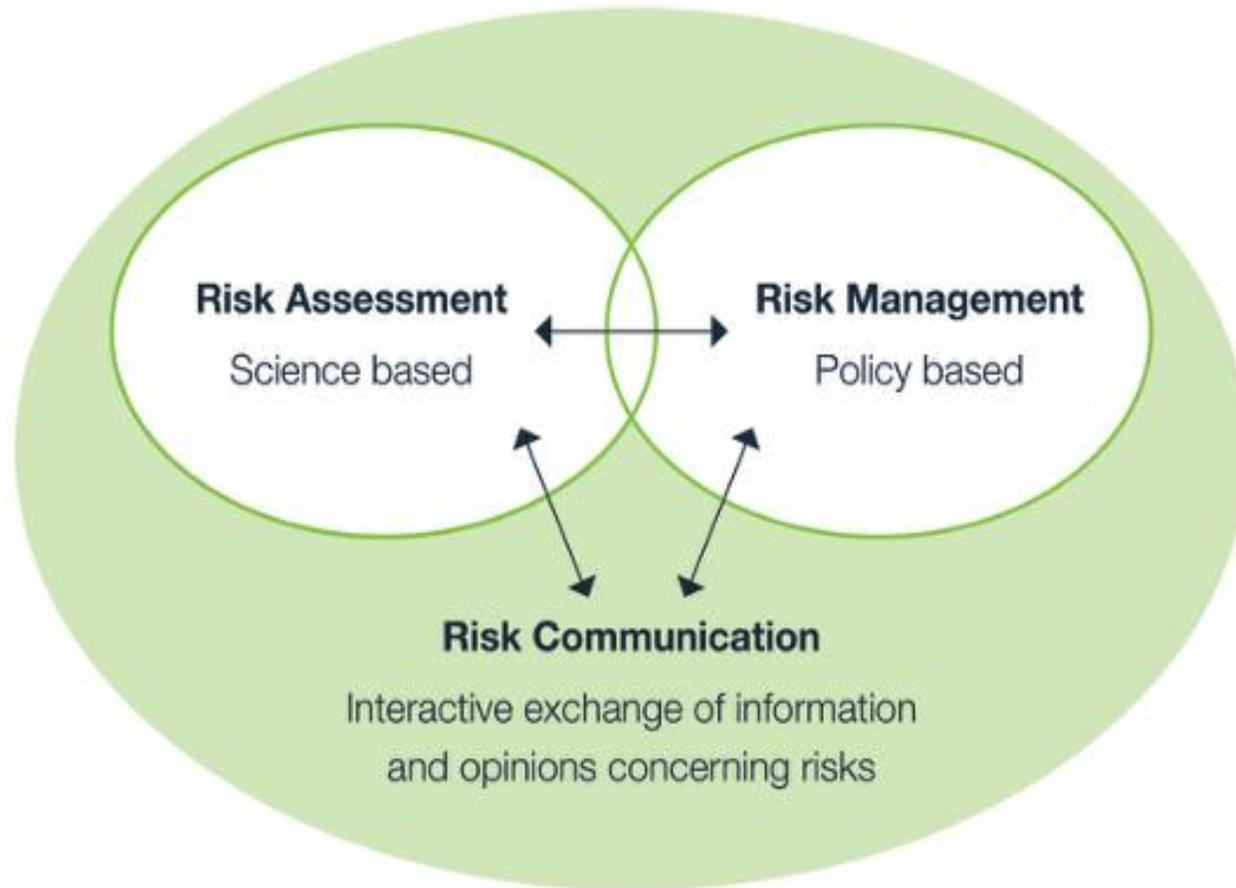


Data management – looking forward

- Surveillance database including metadata requirements
 - Clean data, sample information, photos, analytical results etc.
- Prompt provision of results to relevant authorities
 - As soon as practical after data validation
- Publish all survey data
 - Including deidentified occurrence and dietary exposure data
- Online results portal

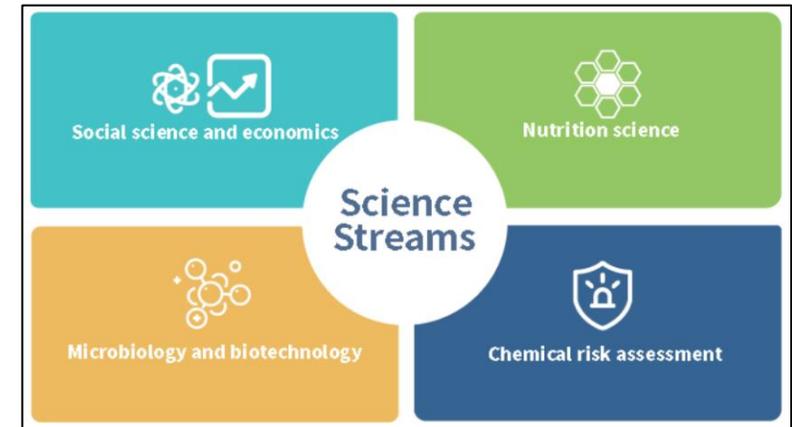


Assessing and managing risk



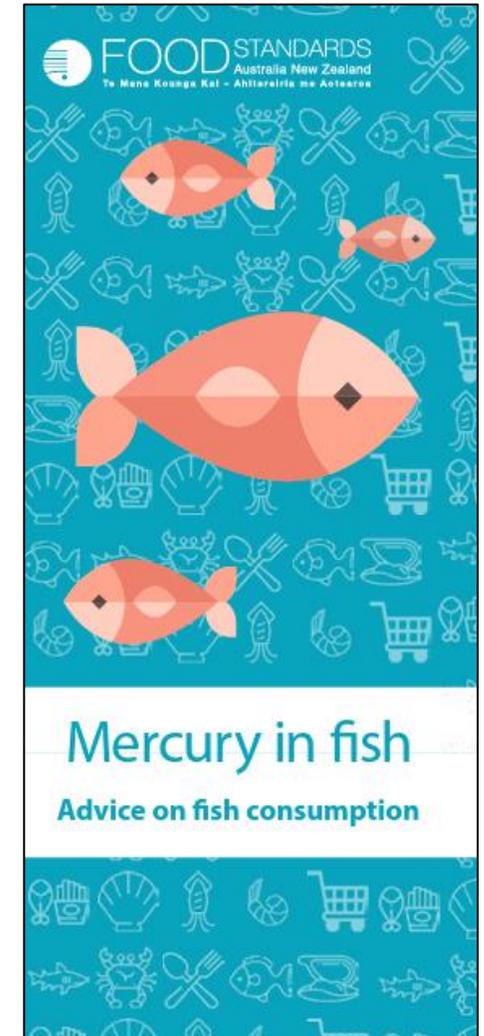
Risk assessment

- Hazard characterisation
 - Health based guidance values (Australian, JECFA, overseas/international)
- Dietary exposure assessment
 - Food chemical concentration x food consumption
 - Hazard based
 - Major food contributors
- Risk characterisation
 - Does estimated dietary exposure represent a public health and safety concern?



Risk management

- FSANZ not responsible for compliance and enforcement
 - Prompt provision of results and advice to relevant authorities
- ATDS reports include risk management recommendations
 - May include non-regulatory or regulatory options
 - Follow-up/targeted surveillance or monitoring
 - Consumer and industry education e.g. advice on fish consumption (methylmercury), promotion of codes of practice (acrylamide)
 - Proposals for regulatory measures – benzoate and sulphite (P298), packaging chemicals (P1034)
- Consideration of regulatory measures informed by internationally recognised best practice
 - Risk assessment (public health and safety), practicality (achievability), regulatory, political (policy), social, economic and other factors



Risk communication

- Communication plan
- Identify and notify key stakeholders
 - Food and other government authorities, industry, public, media, academics, politicians
- Publication materials and timing
- Ensure coordinated and consistent messaging
- Management of outcomes and enquiries



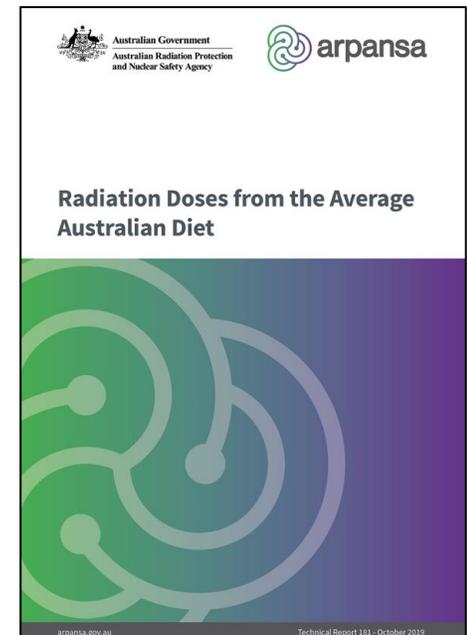
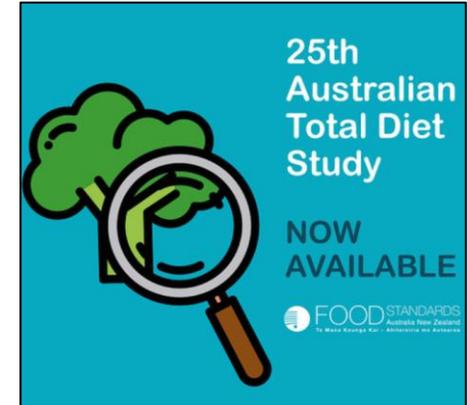
25th ATDS (2019)

Scope

- Agricultural and veterinary chemicals (226), metal contaminants (4), radionuclides (12)
- 1,524 food samples were collected representing 88 foods during 2013/14. A total of 508 composite samples were analysed

Outcomes

- No public health and safety concerns for most substances
- Risk management measures
 - Concerns regarding prothiofos were managed in consultation with the pesticide regulator: the Australian Pesticides and Veterinary Medicines Authority
 - Updated FSANZ publication; *Mercury in Fish: Advice on Fish Consumption*



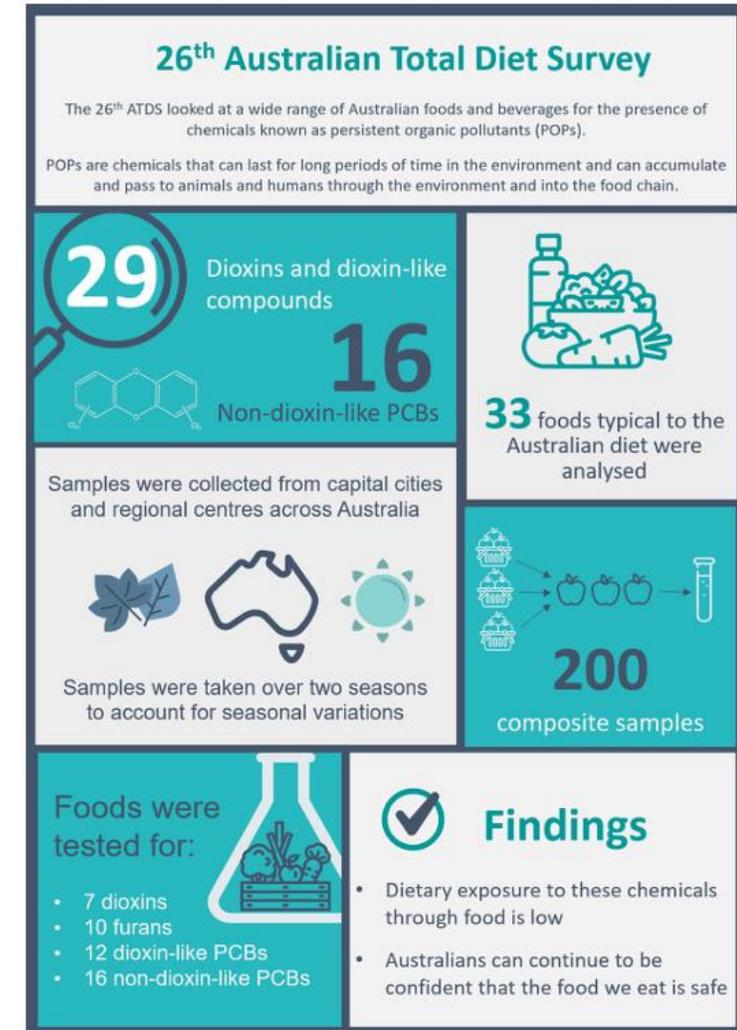
26th ATDS (2021)

Scope

- Persistent organic pollutants: dioxins (29) and non-dioxin-like polychlorinated biphenyls (PCBs) (16)
- 600 food samples were collected representing 33 foods during 2017/18. A total of 200 composite samples were analysed

Outcomes

- Levels in food consistent with, or lower than overseas and previous Australian studies
- No public health and safety concerns
- All occurrence data and dietary exposure results published for the first time



27th ATDS (2021)

Scope

- Per- and poly-fluoroalkyl substances (PFAS) (30)
- 4,008 food samples were collected representing 112 foods during 2019/20. A total of 1,336 composite samples were analysed

Outcomes

- Perfluorooctane sulfonic acid (PFOS) only congener detected in 5 food types and below Australian non-regulatory guidance values
- No public health and safety concerns and no need for food regulatory measures
- FSANZ continues to monitor developments and support Australian government actions regarding PFAS

27th Australian Total Diet Study

The 27th ATDS looked at a wide range of Australian foods and beverages for the presence of chemicals known as per- and poly-fluoroalkyl substances (PFAS). Results were used to estimate dietary exposure for Australian consumers.



We tested for **30** types of PFAS.



In **112** commonly eaten foods and beverages and **1,336** composite samples.



Samples were collected from capital cities and regional centres from **all states and territories**. They were taken over **2 seasons** to account for seasonal variations.



Only **1 type of PFAS** was detected - perfluorooctane sulfonic acid (PFOS). It was found in **less than 2%** of all samples and the overall dietary exposure for the general Australian population is lower than the Tolerable Daily Intake.

Overall, the results indicate:

- PFAS levels in the general food supply are very low
- there are no public health and safety concerns for the general Australian population, and
- there is no current need for additional risk management measures (like maximum levels) in the Australia New Zealand Food Standards Code.

Recap

- The ATDS is the most comprehensive ongoing monitoring survey of the general Australian food supply
- It provides evidence of the safety of the Australian food supply and supports the continued effectiveness of food regulatory measures
- The ATDS continues to evolve in line with international best practice
 - Broader range of substances
 - Improving data generation and management
 - Communicating more effectively
- Stay tuned for the 28th ATDS!



Thank you!



www.foodstandards.gov.au



Food.Standards



@FSANZnews



foodstandardsanz

Copyright

© *Food Standards Australia New Zealand 2022*

This work is copyright. You may download, display, print and reproduce this material in unaltered form only (retaining this notice) for your personal, non-commercial use or use within your organisation. Apart from any other use as permitted under the *Copyright Act 1968*, all other rights are reserved. Requests for further authorisation should be directed to information@foodstandards.gov.au