

[Indonesia]

Ensuring Food Safety Throughout the Life-course in Indonesia*¹

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Ensuring food safety throughout the life-course in Indonesia



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 SEAMEO RECFON

Food safety is an important public health concern in Indonesia

A critical issue in many countries, **especially Indonesia**



Food safety Problem in Indonesia

- Unsafe foods comprising pathogens or chemicals
- Can cause diarrhea to cancer
- Triggered **a disease and malnutrition vicious cycle** affecting infants, young children, elderly, pregnant mother, and the sick,
- **Largely under-reported**



Food safety concern: Malnutrition versus food-borne illness

Indicators	Indonesia	SEA ³	Africa ³	World-wide	archipelago
	%	%	%	%	
Stunting ¹	37.2	29.4	54	25	±40% of ASEAN population; ±37% of ASEAN GDP-
Underweight ¹	19.6	18.3	25	15	
Wasting ¹	12.1	9.4	14.8	7.7	
Overweight ¹	14	17	10.4	6.3	Increase in GDP per-capita,

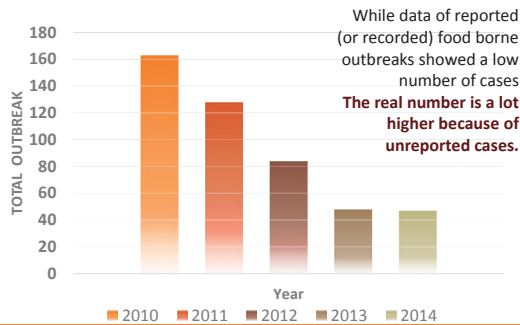
- **Chronic Malnutrition:**
 Child stunting remains persistently high (37.2%).
- **Foodbornes-illness-diarrhea:**
 Mainly concentrated in **15 countries, including Indonesia**, 75 % of worldwide diarrhea deaths; 3rd leading cause of child death; **14% with at least 10%**; most common among the poorest wealth quintiles, reflecting disparities in sanitation, hygiene, health services and food safety

Sources: (National Health Survey, 2013, IDHS, 2012, UNICEF, 2012)

*¹ This article is based on a presentation made at the Symposium “Ensuring Food Safety: An Important Challenge Today” held at the 30th CMAAO General Assembly and 51st Council Meeting, Yangon, Myanmar, on September 23-25, 2015.

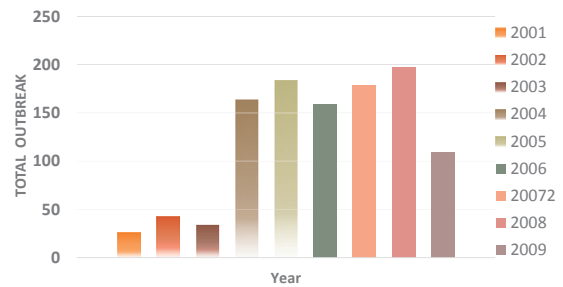
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Reported food-borne outbreak Indonesia 2010-2014



Source: National Agency for Drug and Food Control (BPOM), 2015

Reported food-borne outbreak Indonesia 2001-2009



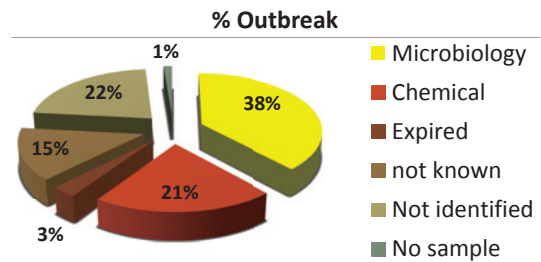
Source: National Agency for Drug and Food Control (BPOM), 2009

Reported Food-borne outbreak in Indonesia 1995-2000

YEAR	TOTAL OUTBREAK	TOTAL CASES	NO. OF DEATH
1995	58	1,919	24
1996	42	3,123	35
1997	31	3,671	6
1998	13	1,078	8
1999	19	1,267	1
2000	2	1,051	0

Source: Suklan, 2000

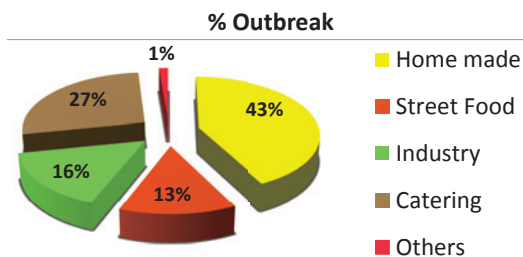
Cause of outbreak 2009 (n=119)



- Based on epidemiological surveillance data, microbial pathogens are still the leading cause of food borne outbreaks
- Among the low number of the outbreaks, the most causes are microbiology, followed by chemical agent, but large number are not identifies, not known

Dewayanti-Haryadi 2011

Cause of outbreak 2009 (n=119)



- Home made is the largest

Dewayanti-Haryadi 2011

Etiologic Pathogen for diarrhea patient

- 4 most frequently isolated pathogens
 - V. cholera O1 (37.1%)
 - Shigella flexneri (27.3%)
 - Salmonella (17.7%)
 - ETEC (18%)
- Others: V. parahaemolyticus (7.3%), S.Typhi (3.9%), C. jejuni (3.6%), V cholera non O1 (2.4%), EHEC 1%, Clostridiumdifficil e1%, S. Paratyphi (0.7%)
- Protozoa and parasites: Blastocystis hominis 5.7%, Trichuris trichuria 2.1%, Ascaris lumbricoides 1.5%, Giardia lamblia 0.8% and Endolimax nana

(Oyoyo et al., 2002;Tjaniadi et al., 2005; Dewayanti-Haryadi, 2011)

Resistancies to various antibiotics

- 75-95%: Shigella resistant to ampicillin, trimethoprim-sulfamethoxazole, chloramphenicol, tetracyclin, sensitive to nalidixic acid, ciprofloxacin and ceftriaxone
- E. coli resistant to ampicillin, gentamicin, cefotaxime, ciprofloxacin, and trimethoprim-sulfamethoxazole (hospital and community)

(Oyofa et al., 2002; Tjaniadi et al., 2005; Dewayanti-Haryadi, 2011)

Alfatoxin vs liver cancer

- Mould, particularly its mycotoxin production.
- Aflatoxin was frequently found in large amounts (> 30 ppb) Most maize samples collected from different places in Indonesia contained aflatoxin (10-several thousands ppb).
- Peanuts:** Frequently found in peanuts (rainy season), 80% in West Java (>30 ppb aflatoxin). Storage and slow drying processes of the grain were thought to be the main cause of the problem
- Beans:** not inconsistent data (suspected to be low-high concentration of alfatoxin)
- Incidence of liver cancer is increasing, unknown relation with alfatoxin

(Dharmaputra 2000)

Increasing industrial processed food

Fulfill the safety standard preparing ASEAN community 2015

- The safety for microbial pollutant
- Problem is magnified by
 - Excessive food grade additives, such as **artificial sweeteners, saccharine and cyclamate**, are sometimes used in concentrations exceeding the recommended ones.
 - Use of illegal non-food color additives such as **methanyl yellow and rhodamine B** (in syrup and street food sold in school areas).
 - Misuse of dangerous materials chemicals such as **boric acid and formaldehyde** (used as food preservative).
- Safety of novel foods

Food Hygiene Practices

- Many of the reported food safety problems in Indonesia are due to:
 - mishandling of food, during the course food continuum "from farm to table".
 - Caused by basic errors in preparing foods, due to lack of knowledge of basic food safety
 - Associated with lack of knowledge and poor practice, including poor sanitation and hygiene.

Agustina et al 2013

Preventable

Association between food-hygiene practices and diarrhea among children aged 12 – 59 months (n = 274)

Determinants	Food-hygiene practice		Diarrhea	
		%	Unadjusted OR (95% CI)	Adjusted ^a OR (95% CI)
All children	Poor	11	1.15 (0.51-2.60)	1.33 (0.57-3.14)
	Better	9	1.00	1.00
	p-value		0.73	0.51
Stratified by age group				
≤ 2 y (n = 93)	Poor	23	2.63 (0.78-8.89)	4.55 (1.08-19.10) [†]
	Better	10	1.00	1.00
	p-value		0.12	0.04 [*]
> 2 y (n = 181)	Poor	5	0.55 (0.17-1.78)	0.62 (0.18-2.14)
	Better	9	1.00	1.00
	p-value		0.32	0.38

Agustina et al, 2013

Association between Maternal factors and child morbidity due to diarrhoea and respiratory infections

Variables	Diarrhoea (n=18,865)			Respiratory infections (n=5,994)		
	Cases	%	Adjusted OR (95% CI)	Cases	%	Adjusted OR (95% CI)
Mother's access to health care index						
Lowest (reference)	645	13.2	1.00	557	36.8	1.00
Low	487	11.2	0.90 (0.79-1.02)	419	33.3	0.93 (0.79-1.09)
Moderate	568	12.1	1.04 (0.91-1.18)	497	32.9	0.97 (0.82-1.14)
High	622	12.6	1.11 (0.98-1.27)	506	29.5	0.84 (0.72-0.99) [*]
Maternal practices and experience index						
Lowest (reference)	694	13.3	1.00	549	32.7	1.00
Low	575	12.3	0.92 (0.81-1.04)	509	33.6	1.07 (0.92-1.10)
Moderate	550	11.5	0.86 (0.75-0.98) [*]	483	32.1	1.02 (0.87-1.04)
High	503	12	0.91 (0.79-1.05)	438	33.8	1.14 (0.95-1.02)
Maternal agency index						
Lowest (reference)	696	15.4	1.00	613	35.6	1.00
Low	630	13.5	0.87 (0.77-0.98) ^{**}	556	35.5	1.02 (0.88-1.18)
Moderate	519	10.8	0.73 (0.64-0.83) ^{**}	443	31.7	0.91 (0.78-1.06)
High	477	9.8	0.68 (0.60-0.77) ^{**}	367	28.0	0.77 (0.66-0.91) [*]

Agustina et al, 2015

Indonesian Action Plans for Food and Nutrition 2010-2015

- World Health Day 2015 highlights the importance of food safety which impacts both food and nutrition security and the global health agenda
- Gov released *guidelines to avoid excessively used food additives of sweetener, and conducted the hazards material assessment in dietary intake.*
- the Indonesian Action Plans for Food and Nutrition** to improve nutritional status especially mothers and children by strengthening multi-sectoral and inter-programs coordination and partnerships.

Indonesian Integrated Food Safety System (IFSS)



- Importantly, the Indonesian National Agency for Drugs and Food Control (NADFC)
- Introduced the integrated food safety system in 2003
- covering food intelligence, control and promotion

Indonesian Rapid Alert System for food and feed –INRASFF (Badan POM)



Strategy Food Safety programs initiatives by NADFC/Badan POM

- Ensure the implementation of food safety standards based on risk analysis (risk assessment expert committee on salmonella, infant formula and aflatoxin)
- food safety at school
- Food safety in the traditional market
- Food safety go to villages
- encourage innovative-appropriate technologies for processed food industry
- empower local governments in improving food control
- Increase quantity and quality of food inspectors.

Food Hygiene Practices

- FOOD-BORNE DISEASES IS PREVENTABLE**
- This can be done by regular FOOD SAFETY education or training.
- Cost-effective and sustainable**
- Food safety education should be specifically targeted to this age group and designed to promote maternal empowerment on good food-hygiene practices and environment sanitation to improve child health.

SEAMEO RECFON: Training Modul Food Safety for health professionals

- Training modules on Food safety for nutrition and health professionals
- WHO/ICD/SEAMEO cooperation.
- Translated and rolled out in 10 countries in SEA



Way forward for Medical Association

- To share responsibility in these movements,
- Medical association, medical doctor and other health professionals should play critical roles in **preventive food safety program/culture**
- Promotive and preventive program:
 - Focus Food Safety education and control of food-related disease and outbreaks.
 - Specifically targeted to Med Education System, Primary doctor, Pediatrician, nurse, midwife, caregivers of young child age and food handlers
 - Guidelines for food safety practices