

# Risk Perception and Risk Communication

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# Risk Communication and Risk Assessment: Vulnerable groups in consumer protection



## Example Seveso Incident 1976 Children

### Exposure:

Children were exposed to a higher level (outdoor play, contact with the ground, consumption of vegetables).

### Kinetics:

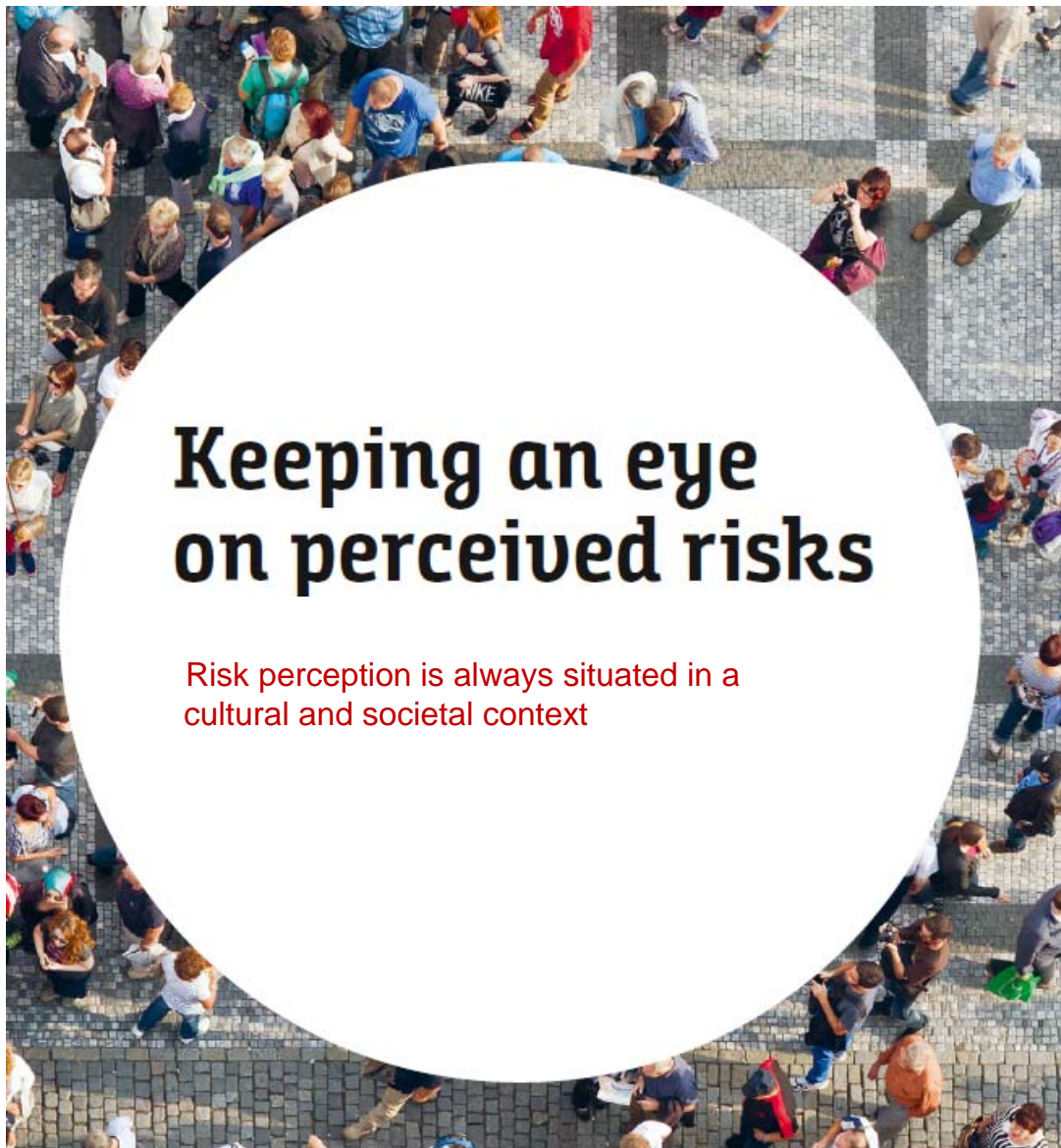
Children can degrade dioxin worse and therefore have a higher concentration in the body

### Dynamics:

The skin of children is more sensitive to dioxines, they develop choracne even at lower concentrations than adults

**The affected group  
can also have an  
impact on risk  
perception**

# Challenges in risk communication: Factors of risk perception



## Keeping an eye on perceived risks

Risk perception is always situated in a  
cultural and societal context

Examples:

**Personal Concern**

**Dreadfulness**

**Risk-Benefit  
relationship**

**Trustworthiness**

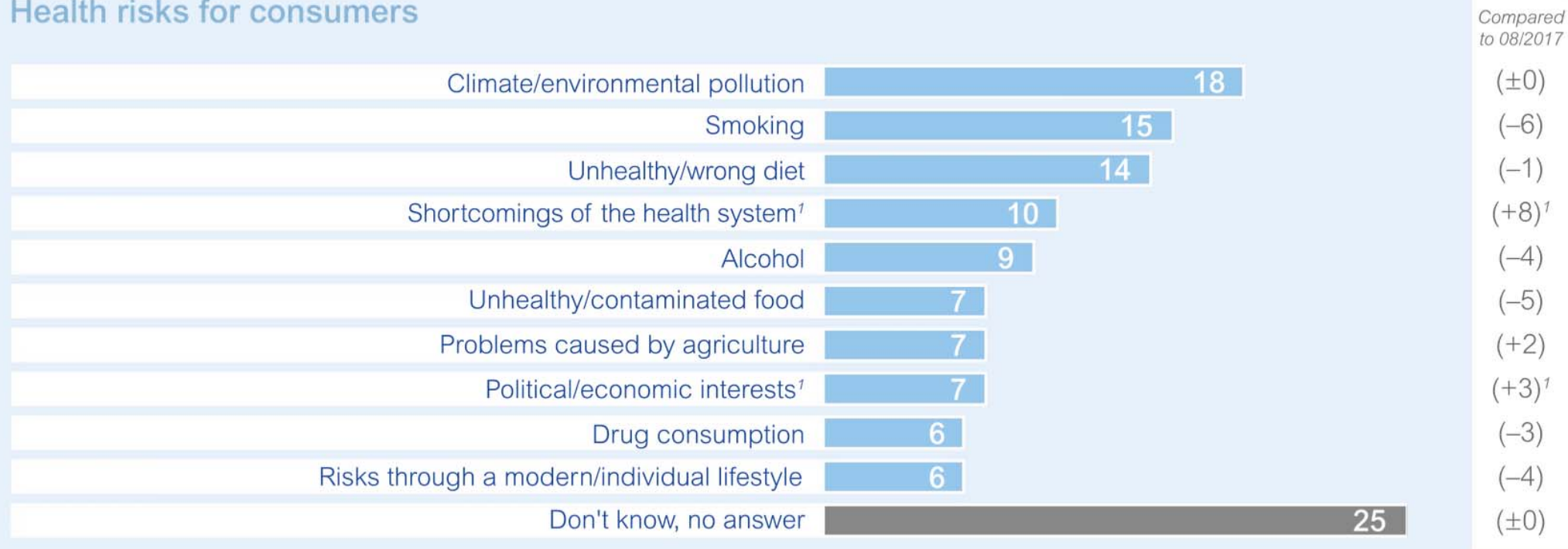
**Controllability**

**Disparities between experts and  
laypeople cannot be resolved by  
provision of information alone**

# Which topics do you personally regard as the biggest health risks for consumers?



## Health risks for consumers



Shown: The ten most common spontaneously mentioned risks

Basis: 1,017; Figures given as percentages (compared to 08/2017: percentage points);

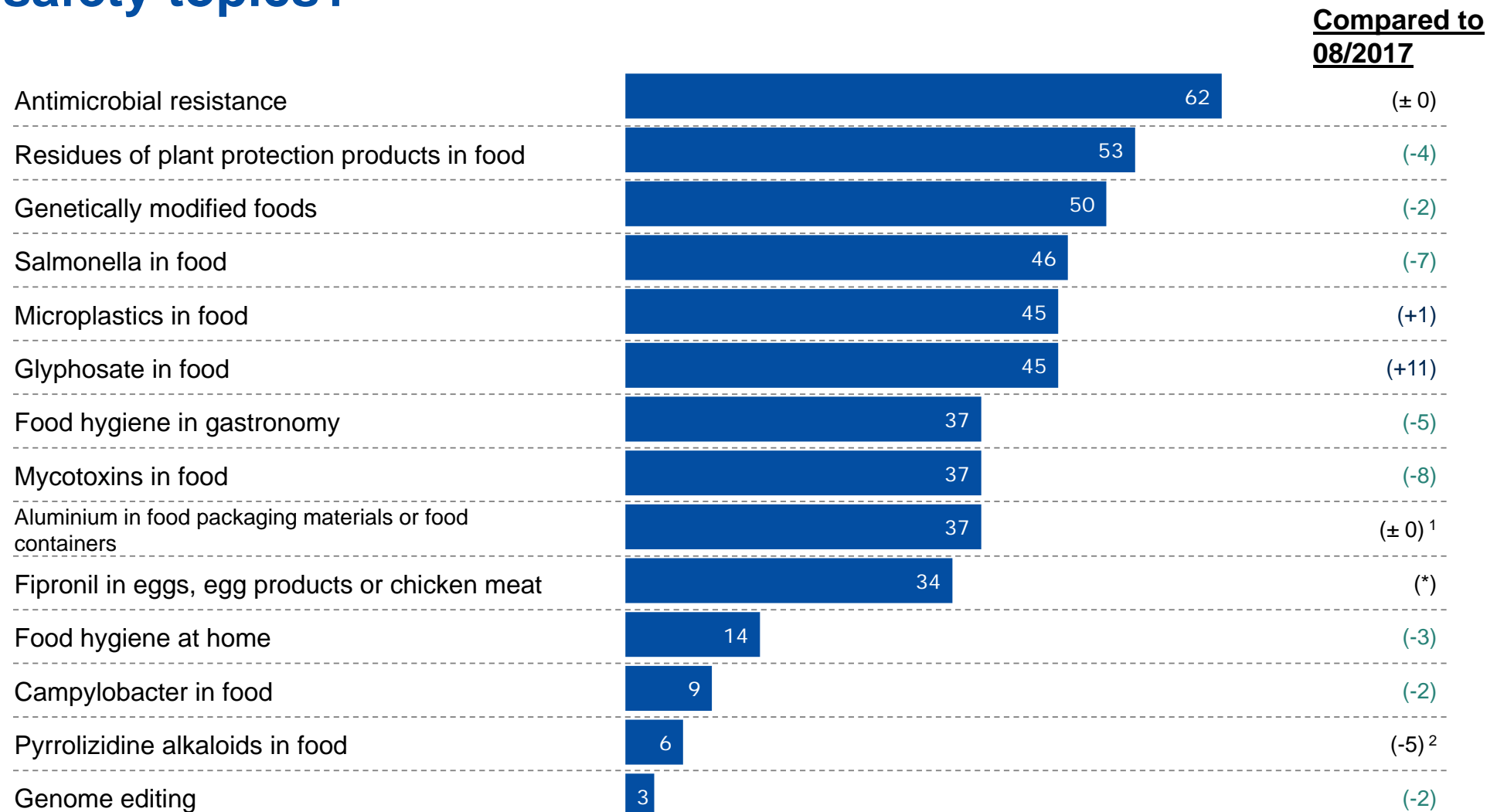
<sup>1</sup> Not among the ten most frequently mentioned risks in 08/2017

Random sample: 1,017

Population: German-speaking population aged 14 years and over in private households in the Federal Republic of Germany

Method: Telephone interview (CATI omnibus survey, Dual Frame)

# To what extent are you personally concerned or not about the following food safety topics?



Illustrated: Percentages “concerned” (scale values 4 + 5) Basis: 1,017

\* 08/2017 not asked; <sup>1</sup>Formulation 08/2017: “Release of aluminium from menu trays”; <sup>2</sup>Formulation 08/2017: “Pyrrolizidine alkaloids in teas and honey”



# Guidelines for Risk Communication



Transparency  
Reliability  
Greatest possible openness  
Timeliness

**Clear and simple messages**, appropriate complexity of the subject matter

Use suitable methods to **adapt communication to suit the situation**

Give **sources and references**


**Explain** the quality of the knowledge base and **uncertainties**

Good **illustration** and **intuitive access** to scientific principles

Recommendations for **risk reduction** or **risk avoidance**

Consideration of **vulnerable groups**

**Availability** for questions/remarks

 e.g. BfR 2010, EFSA 2012, FAO/WHO 1998, OECD 2002

# Risks at a glance: the BfR risk profile

Guidance Document for Health Assessments



## BfR risk profile on ...

A	<b>Affected group</b>	Group of persons				
B	<b>Probability of health impairment</b>	Practically impossible	Improbable	Possible	Probable	Certain
C	<b>Severity of health impairment</b>	No impairment	Slight impairment [reversible / irreversible]	Moderate impairment	Serious impairment	
D	<b>Validity of available data</b>	High: the most important data is available and there are no contradictions		Medium: some important data is missing or contradictor	Low: much important data is missing or contradictory	
E	<b>Controllability by the consumer</b>	Control not necessary	Controllable throu precautionary measures	Controllable through avoidanc	Not controllable	

## Arsenic in Rice in the German media - Examples

RTL, 8.12.2017:

**Foodwatch warns: baby products with rice are often contaminated with carcinogenic arsenic**

NTV, 26. Januar 2017

**Whole grain rice contaminated with arsenic**

Arsenic occurs naturally in the earth's crust.



Inorganic arsenic compounds are classified as carcinogenic to humans. Levels of inorganic arsenic compounds in foods should be reduced to an unavoidable minimum (ALARA principle).

**BfR-Assessment:**

**Health impairments concerning the risk of cancer are possible.**



# Risks at a glance: the BfR risk profile

 <span style="float: right;">BfR Risk Profile: Arsenic in Rice and Rice Products (Opinion No 018/2015)</span>	
<b>A Affected group(s)</b>	1. Children 2. General public 
<b>B Likelihood of a health impairment</b>	Practically excluded      Unlikely <b>Possible</b> Likely      Assured
<b>C Severity of the health impairment</b>	No impairment      Slight impairment [reversible/irreversible]      Moderate impairment [reversible/irreversible] <b>Severe impairment irreversible</b>
<b>D Reliability of available data</b>	High: The most important data are available and consistent <b>Moderate: Several important data are missing or inconsistent</b> Low: Numerous important data are missing or inconsistent
<b>E Controllability by consumers</b>	Control not necessary      Controllable through precautions      Controllable through avoidance <b>Not controllable</b>

**E:** As consumers cannot recognise the levels of inorganic arsenic in rice or rice products, they cannot control them either. They can reduce their intake of arsenic through rice and rice products, however, by varying their consumption of cereal types and products (reduction of the rice percentage).

# Clear and simple messages, Recommendations for risk reduction



## Consumers cannot tell how much arsenic is in their food

The BfR recommends consuming products such as rice cakes or rice flakes/rice pudding **in moderation** and varying these products with products based on other cereals.

Parents are advised not to feed their **babies or toddlers exclusively with rice-based drinks** such as rice milk or food such as rice pudding.

**Nevertheless, rice should remain part of a balanced diet.**

In light of this, the BfR welcomes **the European Commission's decision to introduce maximum limits** for inorganic arsenic in rice and rice products at a European level.

The recommendations by the BfR remain valid even after the introduction of maximum limits.

## Safe Food: Especially vulnerable groups in communal facilities

**Leaflet: measures to be taken by institutions that regularly provide meals for YOPIs.**

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### Safe Food

#### Especially vulnerable groups in communal facilities

Every day, many people are catered for in hospitals and rehab clinics, old people's homes, childcare centres, schools and school recreation camps, as well as corporate catering facilities. Due to the state of their health, their young or advanced age or their intake of certain medications, some catering participants are particularly susceptible to foodborne infections. In some cases, illnesses of this kind can result in severe health damage or even death. Mistakes made when selecting and preparing food can have fatal consequences, especially for particularly vulnerable groups of people.

Although people in this category can protect themselves in the gastronomy, hotel and corporate catering sector by choosing what they eat by themselves, this is only possible to a limited extent in certain curative and care facilities. For this reason, the operators of these facilities, including the management boards of clinics and homes, have a special responsibility for preparing and selecting the food. From a legal point of view, the re-

sponsible persons in facilities of this kind must ensure that the food they produce is safe, just like other food business operators.

The Commission for Hospital Hygiene and Infection Prevention at the Robert Koch Institute (KRINKO) has published requirements for hygiene in the medical care of immunosuppressed patients (1). Supplementary to these and the existing guidelines and DIN standards, the German Federal Institute for Risk Assessment (BfR) has prepared these recommendations in cooperation with the BfR Commission for Hygiene. They are aimed primarily at the management of childcare centres, old people's homes and hospital kitchens, as well as hygiene specialists and the administrative directors and boards of trustees of curative and care institutions. These recommendations are intended to help the responsible persons in facilities which regularly cater for especially vulnerable sections of the population in the implementation of the existing legal provisions.



# YOPI

(young, old, pregnant, immunosuppressed)

**Especially vulnerable sections of the population who are prone to getting food-borne infections.**

Suitable methods to adapt communication to suit the situation:

**To address the target audience:**

**Institutions not YOPIS**

# Language can be relevant to target vulnerable groups

## Hygiene rules in the catering sector: ensuring safe handling of food

Leaflet on the rules of hygiene **in public canteens** in twelve languages


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### Zasady higieny w zakładach żywienia zbiorowego

Co roku w Niemczech zgłaszanych jest ponad 100 000 przypadków zachorowań, których powodem może być występowanie mikroorganizmów, w szczególności bakterii, wirusów albo pasożytów w środkach spożywczych. Liczba nieujawniona w ocenie ekspertów jest o wiele wyższa. Kto dla innych ludzi produkuje żywność, ponosi wielką odpowiedzialność. Potrawy nie mogą stanowić żadnego zagrożenia dla zdrowia, a ich jakość musi być nienaganna. Aby tak właśnie było, konieczne jest, aby cały personel kuchenny wykonując codzienne prace w kuchni dbał o czystość i higienę. Dotyczy to osobistej higieny ciała i rąk, prawidłowego obchodzenia się ze środkami spożywczymi oraz czystości w kuchni i w całym zakładzie. Na co należy zwracać uwagę w codziennej praktyce kuchennej, o tym właśnie informują w skrócie poniższe zasady higieny dla pracowników zakładów żywienia zbiorowego.



Kto pracuje w zakładach żywienia zbiorowego, powinien zawsze dbać o osobistą higienę ciała, przestrzegać reguł prawidłowego obchodzenia się ze środkami spożywczymi i dbać o czystość miejsca pracy.

#### Higiena osobista

**Ciało zawsze czyste**  
Na skórze, w szczególności na skórze głowy, żyją liczne mikroorganizmy. Na świeżo utyłym ciele raczej trudno im się rozmnażać. Dlatego tak ważna jest higiena ciała. Systematyczne mycie włosów usuwa złuszczoną skórę głowy, która mikroorganizmom służy jako źródło pożywienia.

**Paznokcie czyste, krótko obcięte i nielakierowane**  
Szczególnie pod długimi paznokciami mogą gromadzić się mikroorganizmy. Dlatego paznokcie powinny być możliwie krótko obcięte. Porosty pod lakierem brud jest niewidoczny, a poza tym lakier może odpryskiwać, lakierowanie paznokci jest w pracy kuchennej stanowczo zakazane.

**Bezwzględna separacja odzieży prywatnej od roboczej**  
Na odzieży prywatnej mikroorganizmy mogą być wnoszone na teren kuchni. Dlatego obowiązują stosowna, czysta odzież robocza. Należy ją przechowywać w garderobie, oddzielając ją od odzieży prywatnej.

**Codziennie zmieniać odzież i rękawki do naczyń**  
Na odzieży roboczej i na rękawkach do naczyń gromadzą się mikroorganizmy, które mogą zanieczyszczać środki spożywcze. Dlatego należy codziennie zmieniać swoją odzież roboczą oraz ściereki i rękawki używane w kuchni. Tkaniny muszą być jasne i nadające się do wygotowania.

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### 餐饮业卫生规范

德国每年由于食品中的微生物，特别是细菌、病毒或寄生虫而导致的病例已超出 10 万例。而据专家估计，实际的数字还要高出许多。提供餐饮服务的人员必须具备高度责任感。食品必须安全卫生，质量无可挑剔。为此在日常工作中，厨房工作人员务必重视清洁和卫生。这包括个人身体和手部卫生、食物的妥善处理以及厨房和整个公司内的清洁卫生。厨房日常工作中需要注意的事项，我们得通过如下餐饮业工作人员卫生规范进行简洁说明。



餐饮业工作人员必须注意个人卫生、食物的妥善处理以及工作场所的清洁卫生。

#### 个人卫生

**保持身体清洁**  
人体的肌肤上，尤其是头皮上存活大量微生物。而在清洗干净的身体上微生物很难繁殖。因此个人卫生就显得尤为重要。定期清洗头发可以防止给微生物提供养分的头屑滋生。

**严格区分私人衣物和工作服**  
穿着私人衣物可能会将微生物带入厨房。因此必须穿着合理且干净的工作服。工作服必须在更衣间内和您的私人衣物分开保存。

**每日使用清洁的衣物和抹布**  
衣物和抹布上存活大量的会污染食物的微生物。因此需要每日更换工作服和厨房内使用的抹布。布料必须明亮且耐高温清洗。

**剪短指甲并保持清洁，不得染指甲**  
留长的指甲内尤其容易滋生微生物。因此应尽量剪短指甲。因为涂染指甲油后不易辨认脏垢，且指甲油可能会脱落，因此厨房工作人员禁止涂染指甲油。

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## Background

A certain proportion of the population probably reaches the tolerable intake level through food alone.



In the case of **additional long-term** use of cosmetic products containing aluminium, the tolerable weekly intake **may be** exceeded.

**High aluminium doses:** neurotoxic effects and teratogenic effects in animals. Some studies discuss a link between aluminium intake and the development of **Alzheimer's disease and breast cancer**.

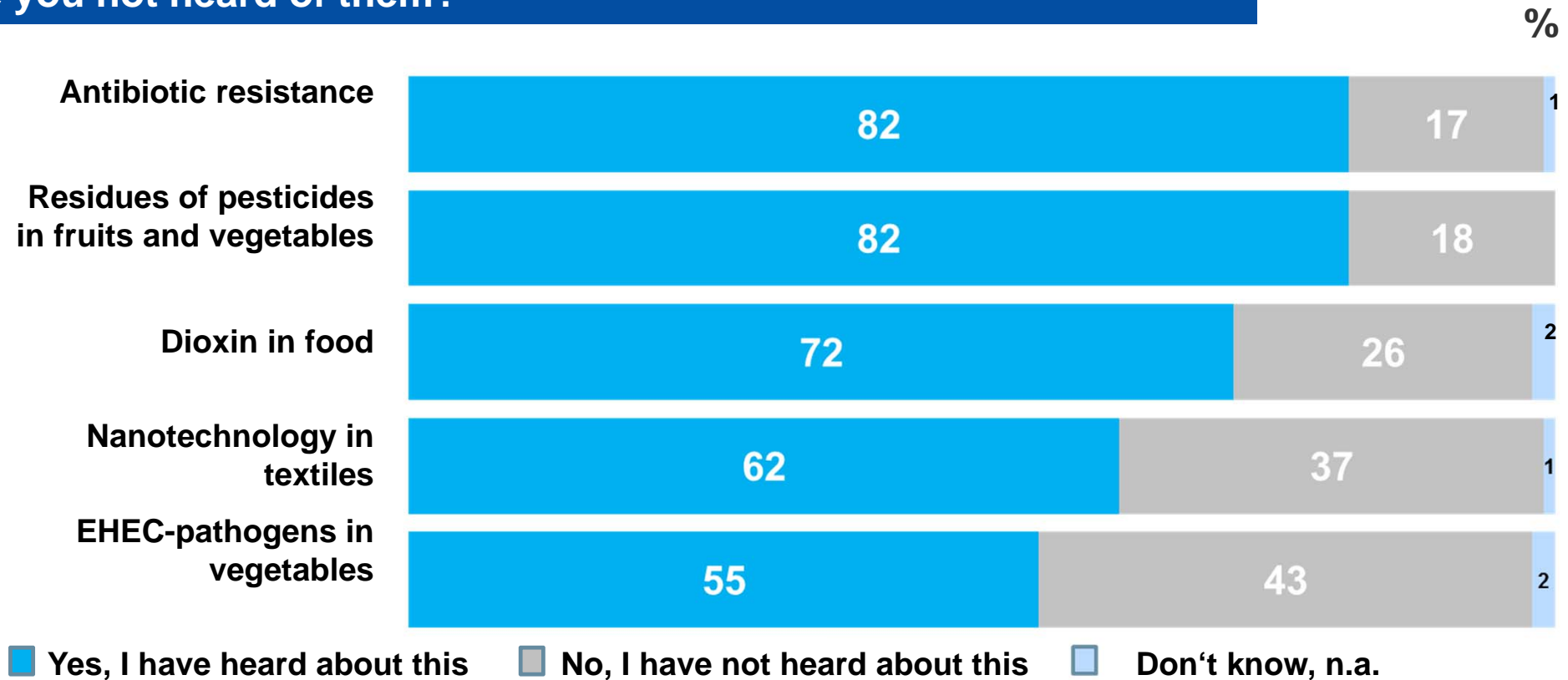
**Uncertainties:** long-term effects, skin permeation

**But:** No scientific evidence **proving an unequivocal link** between increased aluminium intake and Alzheimer's disease or breast cancer has so far been presented.

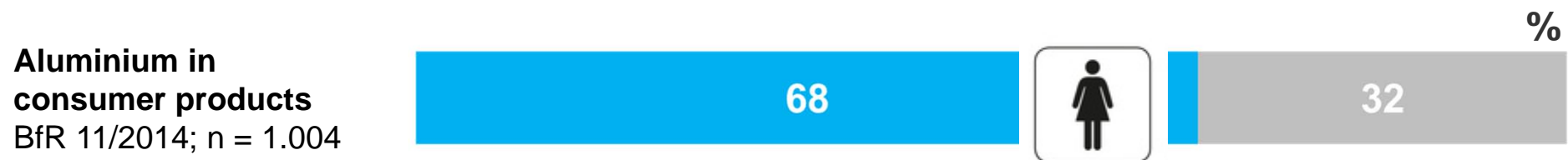


# Representative Flash Survey: Awareness of Health and Consumer issues

Have you heard of the following health and consumer issues or have you not heard of them?



BfR-Verbrauchermonitor (10/2014), n = 1.012





# Availability for questions/remarks

## 15<sup>th</sup> BfR Consumer Protection Forum



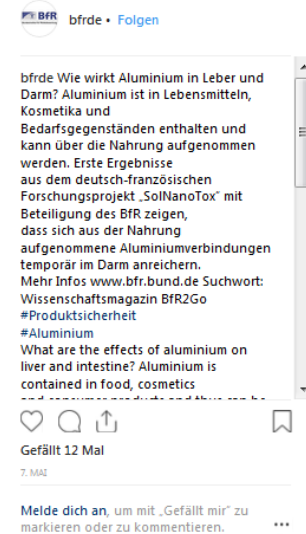
Are there any indications of a causal connection between aluminium exposure and Morbus Alzheimer?

Are there any indications of a possible causal connection between aluminium and breast cancer?

## Interactive online forum "Consumers Ask Questions – the BfR Provides Answers"



## Social Media



## Health assessment of individual measurements of fipronil levels detected in foods of animal origin in Belgium

### BfR Opinion No. 016/2017 of 30 July 2017

In the case of fipronil, calculations were performed with the highest measured value of the levels of fipronil in eggs (1.2 mg fipronil per kg eggs) as the **worst case**.

On the basis of this level and the health reference values, the BfR arrives at the conclusion that under consideration of European consumption data, **the ARfD for children is exceeded by chicken eggs**.

This **does not necessarily mean** that the consumption of chicken eggs poses a concrete health risk, but it indicates that, in line with the current level of available knowledge, **a health risk is possible for children** with the required margin of safety after consuming these contaminated chicken eggs.

# Clear and simple messages: How many eggs containing fipronil can a person eat?

How many eggs containing fipronil can a person eat in one meal or within one day without exceeding the health-based limit value (acute reference dose)?

By way of example, using the highest level measured to date in Belgium of 1.2 mg of fipronil per kg of eggs, **purely mathematically** a child with a body weight of 16.5 kg could eat 1.7 eggs (each with an individual weight of 70 g) and an **adult** with a body weight of 65 kg

## 7 eggs

in one day (once only or within 24 hours) without exceeding the health-based limit value expressed as the acute reference dose (ARfD).

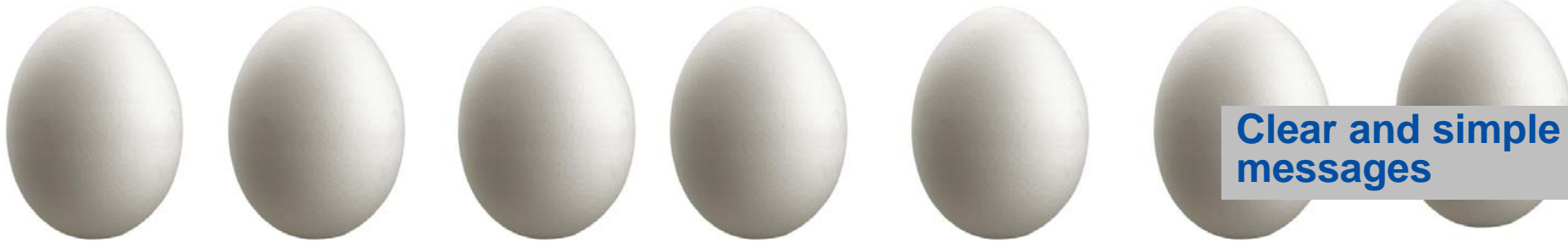


Accordingly, **a child** with a body weight of 10 kg, which corresponds with an age of approximately one year, can eat

## 1 egg

per day (once only or within 24 hours) without exceeding the health-based limit value expressed as the acute reference dose (ARfD).

# How many eggs containing fipronil can a person eat?



3. August 2017

**Süddeutsche Zeitung**

“A person weighing 65 kilograms would have to consume more than **7** eggs a day to reach the critical value.” (translation BfR)

14. August 2017

help  ORF.at

“If one assumes the highest value measured in an egg, then a daily intake of **7** eggs for adults or **1** egg for a child with ten kilograms of body weight would be tolerable.” (translation BfR)

11. August 2017

**theguardian**

“The German Federal Institute for Risk Assessment (BfR) calculates that an adult (...) would be able to eat up to **7** eggs within 24 hours and still be within the safe range.”



- One of the most widely used active substances in pesticides
  - A European Risk Assessment
  - Germany: Designated Rapporteur Member State (RMS)
  - Exceptionally high media attention, public debate
- 
- High Risk Perception, “Zero Tolerance”,  
Linked with GMO and “Agroindustry”
  - Discussion about missing transparency and  
independence
  - Different stakeholders with different interests: Media, Politics,  
NGOs
  - Diverging Expert Opinions

# To what extent are you personally concerned or unconcerned about reports on the pesticidal active substance glyphosate?

## Concern About Reports on Glyphosate



Shown: Percentages "concerned" (4 + 5 on the scale)

Basis: 1,004; figures given as percentages

Date of the survey: 2nd and 3rd February 2016



## Question from the media 25.06.2015 18:12 Uhr

Dear Sir or Madam,

I would like to seek your assessment / opinion on the new glyphosate study on **breast milk** (See details below).

**No single sample was free of glyphosate.**

Detected values of glyphosate in breast milk samples were **all above the drinking water maximum residue level of 0.1 ng / ml** - sometimes significantly.

# Unfounded claims of glyphosate accumulation in breast milk

**According to media reports**, a study has been conducted in which 16 samples of breast milk and 16 samples of urine were tested for glyphosate residues.

The BfR has seen neither the original study nor sufficient methodological information on the analytical methods and sampling procedures used. For this reason, **only a preliminary statement** can be made with regard to the currently available data.

The data on glyphosate in the urine from seven other studies assessed by the BfR to date have shown that the levels measured are usually in the single-digit microgram per litre range and hence consistently **well below any levels that would raise health concerns**.

**BfR communication No 019/2015,  
26 June 2015**

# The National Breastfeeding Committee and the BfR recommend that mothers continue to breastfeed 16/2015, 30.06.2015

The Federal Institute for Risk Assessment (BfR) and the National Breastfeeding Committee regard the measured values of up to 0.43 nanograms (ng) per millilitre (ml) as **safe from a health point of view.**

The published levels would lead to glyphosate intake levels in newborn babies which are lower by a factor of **over 4000 than the EU reference value defined as posing no health risk.**

Moreover, there are **significant doubts regarding the methodology of the tests.**

Source: Fotolia

**Mothers should not be put off and continue to breastfeed their children as before.**

# Media Reports 2015 Examples

## Agrarpoison in breast milk

25. Juni 2015, 18:52 Uhr

**SZ Landwirtschaft Ackergift in der Muttermilch**

(translation BfR)

## Is breastfeeding now dangerous for the child ? No!

Bild 27. Juni.2015

**Ist Stillen jetzt gefährlich fürs Kind?**

**Nein! Zwar hat eine Untersuchung der Partei der Grünen Spuren des Pflanzengiftes Glyphosat in Muttermilch-Proben nachgewiesen, aber viele Studien zeigen, dass Muttermilch am gesündesten für Säuglinge ist.**

# BfR study confirms: no glyphosate detectable in breast milk

08/2016, 11.02.2016

The BfR commissioned renowned research laboratories in Europe to develop **two independent analytical methods with high sensitivity in order to test 114 breast milk samples** from Lower Saxony and Bavaria.

The BfR and the National Breastfeeding Committee remind consumers that breast milk is still the natural and hence best nutrition for infants.

Mothers should not be confused by unfounded claims and should continue to breastfeed as before.

# Poisoning accidents among children: New App Facilitates First Aid and Prevention





# New Scientific Magazine



The Science Magazine of the  
German Federal Institute for Risk Assessment  
Issue 1/2017



Food authenticity  
**Tracking  
down the food  
fraudsters**

BfR Consumer Monitor  
**Keeping an eye on  
perceived risks**

Pyrolizidine Alkaloids  
**Undesirable  
in food**

Multiple residues  
**The mixture  
is all important**



The Science Magazine of the  
German Federal Institute for Risk Assessment  
Issue 1/2018



*Tattoo Inks*  
**A risk  
that gets under  
your skin**

Cooking shows & germs  
**Kitchen hygiene  
in the spotlight**

Magnesium & Co.  
**Food supplements  
in sports**

Animal experiments  
**Database shows  
purpose of research**

# Thank you!

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break through



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# Thank you for your attention

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