

BfR Risk Communication in Practice



Imprint

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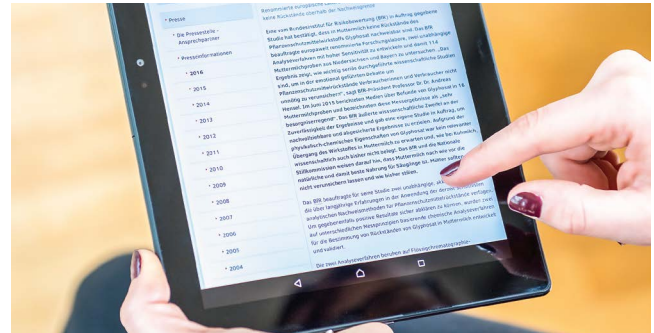
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Principles of Risk Communication at the German Federal Institute for Risk Assessment



The German Federal Institute for Risk Assessment (BfR) has the legal mandate to perform risk communication and inform the public about potential health risks in the areas of food safety, chemicals safety and product safety. For this purpose, the BfR engages in dialogue with various contact partners from science, industry, politics, the media, associations, non-governmental organisations and consumers. In addition to press and public relations, these communication processes entail the active involvement of different interest groups with diverse communication measures and dialogue formats which take place in multiple languages in many cases due to the international outlook of the BfR.

In a democratic society, the public expects that decisions that affect their lives and health be subject to public legitimation. This is not possible without two-way communication. The aim here cannot be to convince the other side that a risk is acceptable or unacceptable. Rather, the offering of relevant information (one-way communication) and dialogue (two-way communication) should be used to enable the public to make a personal assessment of the risks in question based on knowledge of the verifiable consequences of events or activities involving risk, the remaining uncertainties and other factors relevant to the risk.

The institutional independence of the Institute accounts for the high standard of transparency in risk communication. One of the BfR's key duties is target group-specific risk communication within which the necessary basis for communication is set up, maintained and invited to participate in dialogue.

Prompt notification of the public about possible health-related risks, new findings and work results provides the basis for dialogue measures with the following BfR stakeholders:

- > Governmental institutions (particularly federal government and federal state ministries and agencies on the municipal, regional and federal levels)
- > Scientific institutions
- > Consumer institutions
- > Non-governmental organisations (NGOs)
- > Business and trade associations
- > Media
- > Citizens

In the course of risk communication, different value concepts, subjective risk perception and acceptance of risks for society and the individual target groups must be taken into consideration.

In the context of communication with citizens, the BfR takes on an important transfer activity by translating scientific findings into generally understandable guidelines.

The results of risk assessment, among other aspects, form the foundation for risk communication. On the basis of scientific considerations, these results enable statements to be made on the potential risk posed by a substance, the dose/effect relationship, and the duration and intensity of the exposure of a group of the population to this substance. However, the assessment results represent only one factor in the communication. In addition to the varying degrees of uncertainty in risk assessment, different normative and evaluative points of view can give rise to controversy and debate.

One unique aspect of the BfR's risk communication is that it goes well beyond informing all involved and interested parties about the Institute's assessment work and the results of this work. In addition to risk assessment, risk communication represents the main part of the BfR's work and comprises more than simply press and public relations. The duties in the area of risk communication are performed by a dedicated, interdisciplinary department staffed by specialists from a variety of disciplines including science, sociology, psychology, politics and communication studies.



Information from the BfR

In order to guarantee that risk-relevant information is quickly passed on to the general public and not initially to specific target groups, the BfR mainly uses the following tools for one-way communication:

BfR website

A key instrument for BfR risk communication is the website www.bfr.bund.de/en. All results from the Institute's work that are relevant to the public are published here. This also includes the results from a large number of dialogue formats described in this brochure and results of risk perception research. In this way, the BfR fulfils its mandate of reporting on its work in a transparent manner.

A newsletter and different RSS feeds, to which you can subscribe at www.bfr.bund.de/en, provide up-to-date information daily on newly published articles on the homepage.



BfR opinions


The BfR has the mandate to publicly disclose the results of risk assessments that are of public interest as long as confidentiality issues are not compromised.

The result of a BfR risk assessment is an assessment report which is officially referred to as a BfR opinion and can be used in scientific discourse as well as in legal or political arenas. The report includes the elements of a risk assessment, describes uncertainties and the reasons for them, and formulates aims and, where applicable, strategies for preventing or reducing the risk. In addition, it provides information on which data still needs to be acquired and/or which studies are necessary to be able to perform a final assessment. The BfR compiles around 3,000 opinions per year. Of these, about 70 % are compiled in the context of mandatory legal procedures, 20 % outside of mandatory legal procedures for authorities, associations, companies, citizens, non-governmental organisations and international groups, and 10 % for supervisory federal ministries.

Because the risk communication of the BfR places great importance on clearly explaining situations, the BfR opinions include a generally understandable summary and a risk profile in most cases. Using the risk profile, users can quickly comprehend the issues and the central characteristics of the risk assessed in the BfR opinion. The graphic is in the form of a table and includes the following five characteristics:

- > Affected groups of persons
- > The probability of health impairment in the event of exposure
- > The severity of health impairment in the event of exposure
- > The validity of the available data
- > The possibilities for consumers to control the risk through such measures as avoidance or caution

Sample risk profile of a BfR opinion on the topic of raw milk

	BfR Risk Profile: Raw milk: boiling protects against infection with <i>Campylobacter</i> (Opinion No. 008/2016)				
A Affected group	General population 				
B Probability of health Impairment due to consumption of raw milk	Practically impossible	Improbable	Possible	Probable	Certain
C Severity of health impairment due to consumption of raw milk	No impairment	Slight impairment [reversible/irreversible]	Moderate impairment [reversible]	Serious impairment [reversible/irreversible]	
D Validity of available data	High: the most important data is available and there are no contradictions		Medium: some important data is missing or contradictory	Low: much important data is missing or contradictory	
E Controllability by the consumer [1]	Control not necessary	Controllable through precautionary measures	Controllable through avoidance	Not controllable	

Boxes highlighted in dark blue indicate the properties of the risk assessed in this opinion (more detailed information on this is available in the text of BfR Opinion No. 008/2016 of the BfR dated 13 April 2016).

Explanations

The Risk Profile is designed to visualise the risk described in the BfR Opinion. It is not designed to permit risk comparisons. The Risk Profile should only be read together with the Opinion.

Line E: The risk of a *Campylobacter* infection can be minimised by boiling the raw milk prior to consumption.

[1] – Line E – Controllability by the consumer

The details in the line “Controllability by the consumer” are not designed to serve as a recommendation by the BfR but are of descriptive character.

BfR communications

In addition to the opinions, the BfR also provides information in short communications, for example about ongoing assessment processes, opinion procedures, research results or discussion events.

Press relations

For conveying messages that relate to public health, particularly acute health risks, for disseminating the latest findings from risk research and for announcing upcoming BfR dialogue measures, active media work is performed in the form of press releases, press conferences and interviews.

Twitter

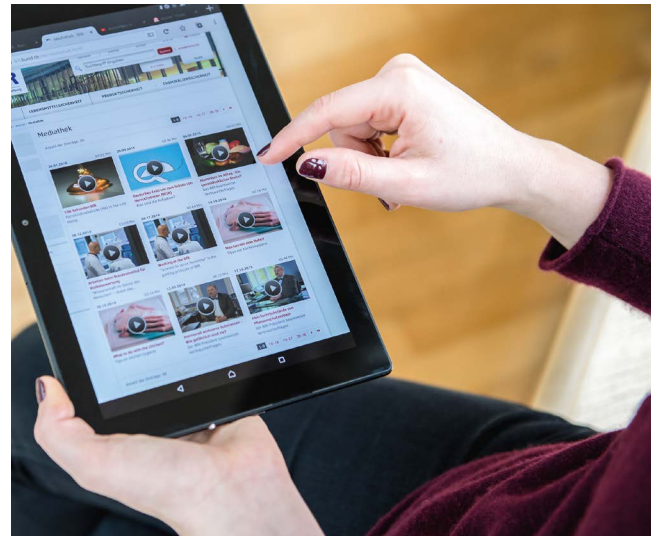
The BfR operates its own Twitter account (@BfRen) for quickly conveying topic-related messages with a maximum of 280 characters and for announcing publications and events.

Videos

Consumers can ask questions about consumer health protection on the BfR website and then vote on which questions the BfR should answer in a video. Following the voting phase, the video is created and published on the BfR website and on the BfR YouTube channel. Other videos explain scientific issues in a generally understandable and clear manner or report on BfR events.

FAQs

Frequently asked questions and the corresponding answers on a topic are collected and published on the BfR website in the FAQ section.



Leaflets and consumer tips

The BfR offers a range of leaflets for consumers, medical personnel and other occupational groups providing information on the spread, effects and prevention of foodborne illnesses and on preventing poisoning. These can be viewed and downloaded on the BfR website.

Science magazine “BfR2GO”

Twice a year since autumn of 2017, the BfR provides information in a compact and understandable magazine format on the latest developments in assessment and research in the area of consumer health protection.

Brochures and flyers

The BfR has put together a concise description of results of risk assessment and recommendations for action derived from these results in a large variety of brochures and flyers. With this information, the BfR targets interested consumers as well as specialists who wish to learn more about the BfR's work and research results. Brochures and flyers can be viewed and downloaded on the BfR website. Printed copies can be sent on request at no charge.

BfR annual report

Since 2004, the BfR has been publishing annual reports containing information on the scope of its work. The reports also include a range of key figures, for example on staffing and on the Institute's national and international cooperations.



“BfR-Wissenschaft” publication series

This series focuses on some of the Institute's scientific work and covers current topics from consumer health protection, results of research projects, and the annual report “Zoonotic Pathogens in Germany”. Issues of “BfR-Wissenschaft” are published at irregular intervals, some of them in English. The publications can be viewed and downloaded on the BfR website. Printed copies can be obtained at a charge from the BfR Press Office.

Infographics

To explain an issue in a clear and understandable manner, general contexts of a risk topic are illustrated in a graphic. Infographics mainly visualise information such as proportions, probabilities, limit values and technical, biological or chemical ways of functioning. The graphics can be viewed and downloaded on the BfR website.

Example of a BfR infographic on the topic of e-cigarettes

E-cigarette: Structure, function, risks

When e-cigarettes are “smoked”, liquids stored in cartridges are vaporised. The liquid is heated by means of a battery-operated mechanism so that the vapour can be inhaled. Users of e-cigarettes can replace the liquid-filled cartridges or fill the cartridges themselves. Little is known about the constituents of the liquids. You can find more information in Opinion No. 016/2012 of the German Federal Institute for Risk Assessment.

www.bfr.bund.de/en

The risks of cartridges

- ▶ **Lack of information and/or declaration** regarding the constituents of allegedly nicotine-free products, for example
- ▶ **Possible poisoning risk** on swallowing liquid cartridges containing nicotine (particularly for children)

... of vapor

- ▶ Risk of **nicotine addiction or overdose of nicotine** in the case of home-mixed liquids containing nicotine
- ▶ Possible **irritation, intolerances or allergies** due to flavours, additives or contaminations
- ▶ Indicators of **carcinogenic substances** such as formaldehyde and acrolein that can be created by overheating in the vaporizer

... of the liquid

- ▶ **High risk of poisoning** in the case of liquids containing nicotine, especially for children, through swallowing or absorption through the skin if spilled
- ▶ **Lack of information and/or declaration** regarding the constituents of allegedly nicotine-free products, for example

Apps for smartphones and tablet PCs

To make use of the advantages and large range of possibilities of interactive provision of information, the BfR develops mobile applications for smartphones and tablet PCs. For example, an app on accidental poisoning cases in children was developed containing information on the constituents of chemicals, drugs, plants and mushrooms, the signs of poisoning and first aid measures. The app allows the nearest German Poison Information Centre to be selected directly at any time so that medical advice can be obtained quickly if poisoning occurs.

The “Opinion app” (“Stellungnahmen-App”) provides information on all BfR health assessments and opinions. In addition to current publications, opinions going back to and including the year 2002 can be viewed. The “Opinion app” is primarily a tool for political representatives who are involved in legislative procedures for professional reasons.



i The free apps can be downloaded from the corresponding stores for smartphones with Android and iOS operating systems.
www.bfr.bund.de > Presse > BfR-Apps (in German)



The BfR in dialogue

The BfR sees it as its duty to address different evaluations and risk perceptions, verify the plausibility of the resulting assumptions, investigate how interests and value considerations can be made universal, and thus come up with legitimate recommendations for action. External scientific expertise is also called upon in this process. Reasoned debate is in the foreground when handling general questions of technology assessment not related to specific areas, e. g. the opportunities and risks of nanotechnology or genome editing. The aim here is to solve problems in decision-making arising from conflicting scientific data, or issues in normative evaluation in dialogue, or at least to explain the causes and form of the dissent and improve the normative and cognitive basis of the decision-making.



Different forms of dialogue are necessary depending on the situation, type of risk and stage of the assessment process. In principle, all those who will be directly or indirectly affected by the consequences of the decision – i. e. anyone whose interests or values will be positively or negatively affected – should be involved in the dialogue.

The course of the discussion and the results thereof are made available to the general public by publishing minutes of meetings, conference transcripts or documentation of the events on the BfR webpages. This means that, in addition to the actual event, the results enter the discourse on consumer health protection in a permanent and sustainable manner. A new method of illustrating lines of arguments is known as argument mapping. Important discussion points, arguments, criticisms and open questions are represented graphically on a poster. A board is created from individual items of information which represents the entire spectrum of data and refines and condenses the course of the discussion.

Communication within and between authorities

This important type of communication involves experts within one authority or between authorities and/or between risk assessors and risk managers. As a rule, the parties involved come from all affected fields of expertise. The first draft of a scientific risk assessment provides the basis for the discussion. If a planned risk regulation will affect the areas of responsibility of multiple authorities, consultation between the authorities at an early stage is necessary. This consultation may take the form of interministerial working groups, cosigning or cross-authority committees. This form of communication also comprises “Marienfeld” discussions. These discussions are used for exchanging information within investigations offices, as well as communication and consultation between the BfR, the Federal Office of Consumer Protection and Food Safety (BVL) and the federal states in order to improve risk assessments and risk management.

Discourse with external experts

The opinions of qualified risk experts as well as external scientists and specialists stand in the foreground in this form of communication. Discourse with recognised experts aims to fully clarify assessment issues, particularly relating to areas of uncertainty, and to contribute to a well-balanced assessment.

Forms of dialogue used by the BfR

BfR committee meetings

The BfR committees are scientific panels of experts which advise the BfR on matters relating to the fields of food and feed safety as well as chemicals and product safety. The networks pool the expertise available in Germany at the highest scientific level and thus provide external quality assurance. The approximately 200 committee members are external, independent experts who support the work of the BfR on a voluntary basis. They come from universities and other research institutes, federal and state authorities, trade and consumer associations, private laboratories and industry.

Scientific Advisory Board

The Scientific Advisory Board of the BfR, which was established in 2005, is made up of scientists from different universities and non-university research institutes. The members are mainly experts in the fields of food chemistry and technology, food safety and hygiene, and toxicology. Representatives from the disciplines of occupational physiology, pharmacy and education research are also included. The members of the advisory board act on a voluntary basis. They are appointed for a period of four years, with the possibility of two further terms. The primary task of the Scientific Advisory Board is to advise the Institute on setting priorities in research. It also supports contact and cooperation between the BfR and other research institutes in Germany and abroad and advises the BfR on the appointment of respected scientists to its committees.



Scientific symposiums

The aim of these events is to provide a comprehensive view of the currently available scientific evidence on individual risk topics and to subject this evidence to critical discussion. For this purpose, national and international specialists are invited as speakers. Although it is possible for all interested parties to participate with registration in advance, the events are oriented more towards experts because specialist topics are dealt with.

BfR stakeholder conferences

Overarching socio-political issues are discussed at the BfR stakeholder conferences. Speakers from the fields of politics, industry and science adopt positions from different perspectives on topics of risk assessment, risk research and risk communication.

Year	Title of event
2016	Scientific political consulting in the area of conflict between politics, science and the general public
2014	Food Safety and Globalisation – Challenges and Chances
2012	European Stakeholder Conference – How Independent can Science be?
2011	Increased precaution, more safety? Necessity, feasibility and limitations of the pre-cautionary principle
2009	Safer than Safe? – Legislation, Perception and Reality in State Risk Prevention
2007	Do perceived risks justify state intervention?
2005	What does a crisis cost?



BfR Consumer Protection Forum

During this two-day event, the current state of knowledge on diverse topics relating to consumer protection is explored together with experts. On the second day, consumers take centre stage when representatives of all involved interest groups discuss possible conclusions with interested consumers.

Year	Title of event
2015	Pyrrrolizidine alkaloids in food – Challenges for agriculture and consumer protection
2014	Aluminium in everyday life: A health risk? Intake of aluminium from food, cosmetics and other consumer products
2012	Improvement of food hygiene through decontamination? – Assessment of the current situation and future perspectives
	Food chain control – Refined detection, improved assessment
2011	Food supplements
	Antimicrobial resistance – Current status and perspectives
2010	Protection of laboratory animals – The role of refinement
	When substances act like hormones – Possible health risks of endocrine disruptors (in cooperation with: AFSSA)
2009	Safe packaging of foods – Health risks of recycled materials?
2008	The child as a consumer
	Consumer products – Safety despite diversity
2007	Nanotechnology in the focus of consumer health protection
	Nutrient profiles – The precondition for health claims
2005	Between healthy and poisonous – Plant ingredients under close scrutiny
	EU chemicals legislation and consumer protection
	Multiple residues of pesticides in foods

Stakeholder-specific dialogue

In line with participative consumer protection, the BfR conducts issue-specific discussions with different stakeholder groups, e. g. from industry associations or civil society groups. As a part of the BfR's crisis prevention strategy, these talks are expanded in an open process and extended to include other stakeholders. The discussions serve the purpose of obtaining expert knowledge, increasing reciprocal awareness when dealing with risk assessments, and allowing advance planning and implementation of comprehensive consumer health protection. Due to its contacts with trade associations, it is possible for the BfR to access additional data and information, for example from internal company inspections, and use this for risk assessment or in the context of crisis management. Furthermore, contact with a large number of stakeholders enables a network of established structures to be built up and potential multipliers to be reached. Not only is this of fundamental importance in a crisis, it also strengthens communication of the BfR in general. The regular meetings, usually taking place once a year, have established themselves as an increasingly important platform. Influence of stakeholders on the BfR's risk assessments is excluded. The institutional independence of the BfR is anchored by law. In this way, it is ensured that the risk assessments produced by the BfR are not influenced by political, economic or social interests.

Regular discussions take place at least once a year between the BfR and the following organisations, foundations, associations and interest groups:

- > Association of the German Confectionery Industry (*Bundesverband der deutschen Süßwarenindustrie e. V., BDSI*)
 - > Federal Committee on Fruit and Vegetables (*Bundesausschuss Obst und Gemüse e. V., BOG*)
 - > Federation of German Consumer Organisations (*Bundesverband der Verbraucherzentralen und Verbraucherverbände e. V., VZBV*)
 - > German Fruit Trade Association (*Deutscher Fruchthandelsverband e. V., DFHV*)
 - > German Hunting Association (*Deutscher Jagdverband e. V., DJV*)
 - > German Raiffeisen Association (*Deutscher Raiffeisenverband e. V., DRV*)
 - > German Animal Feed Association (*Deutscher Verband Tiernahrung e. V., DVT*)
 - > German Crop Protection Association (*Industrieverband Agrar e. V., IVA*)
 - > Association of the German Dairy Industry (*Milchindustrie-Verband e. V., MIV*)
 - > Association of German Millers (*Verband deutscher Mühlen e. V., VDM*)
 - > German Poultry Association (*Zentralverband der deutschen Geflügelwirtschaft e. V., ZDG*)
 - > German Horticultural Association (*Zentralverband Gartenbau e. V., ZVG*)
- Occasion-related discussions** have taken place between the BfR and the following organisations, foundations, associations and interest groups:
- > German Federal Association of State-employed Veterinarians (*Bundesverband der beamteten Tierärzte e. V., BbT*)
 - > Federal Association of the German Meat Industry (*Bundesverband der deutschen Fleischwarenindustrie e. V., BVDF*)
 - > Federal Association of the German Spirits Industry and Importers (*Bundesverband der deutschen Spirituosen-Industrie und -importeure e. V., BSI*)
 - > German Association of Practising Veterinary Surgeons (*Bundesverband der praktizierenden Tierärzte e. V., BPT*)
 - > German Federation for Food Law and Food Science (*Bund für Lebensmittelrecht und Lebensmittelkunde e. V., BLL*)
 - > German Agricultural Society (*Deutsche Landwirtschafts-Gesellschaft e. V., DLG*)
 - > German Farmers' Association (*Deutscher Bauernverband, DBV*)
 - > German Butchers' Association (*Deutscher Fleischer-Verband e. V., DFV*)
 - > German Housewives' Association – Household Network/ Professional Association of Household Managers (*Deutscher Hausfrauen-Bund, DHB – Netzwerk Haushalt/Berufsverband der Haushaltsführenden e. V.*)
 - > German Tea Association (*Deutscher Teeverband e. V.*)
 - > German Association of the Toy Industry (*Deutscher Verband der Spielwarenindustrie e. V., DVSI*)

- > German Frozen Food Institute
(*Deutsches Tiefkühlinstitut, DTI*)
- > General Association of the Aluminium Industry
(*Gesamtverband der Aluminiumindustrie, GDA*)
- > German Retail Association
(*Handelsverband Deutschland, HDE*)
- > German Association of the Meat Industry
(*Verband der Fleischwirtschaft e. V., VDF*)
- > German Association of the Oilseed-Processing Industry
(*Verband der ölsaatenverarbeitenden Industrie in Deutschland e. V., OVID*)
- > Sugar Industry Association
(*Wirtschaftliche Vereinigung Zucker/Verein der Zuckerindustrie, WVZ/VDZ*)
- > Association of the Alcohol-Free Beverage Industry
(*Wirtschaftsvereinigung Alkoholfreie Getränke e.V., wafg*)

Consumer dialogue measures

It is a central concern of the BfR to further increase consumers' state of knowledge with respect to possible health risks posed by food, cosmetics, textiles, toys and other products, as well as to obtain feedback on consumers' information and communication requirements. For this reason, certain dialogue measures at the BfR are specifically designed for communication with consumers. In addition to the dialogue formats already described, these include:

International Green Week (IGW)

International Green Week in Berlin is an international exhibition of food, agriculture and horticulture which takes place every January. The BfR informs interested consumers about

specific topics during the IGW each year. Scientists are invited to give short talks and speak to the consumers.

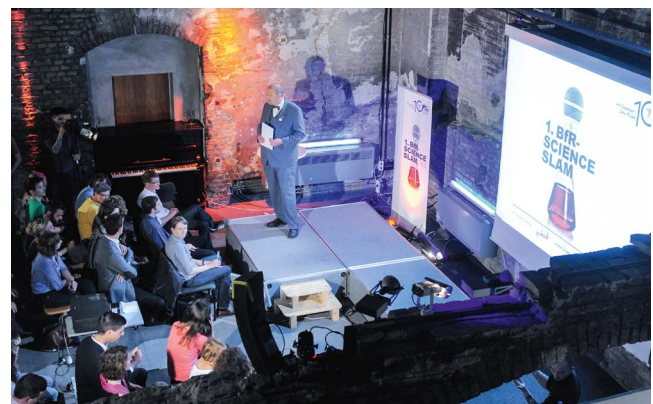
Open day/campaign days

The BfR reaches out to consumers on one weekend a year with offerings for all age groups, e. g. interactive games, surveys and a wheel of fortune, as well as a great deal of information. Visitors have the possibility to speak directly to BfR experts about different topics. Campaign days also take place outside the BfR. For example, BfR President Professor Hensel acted as sponsor of the campaign day "Sustainable washing" in 2012 and visited a Berlin school in order to raise awareness among the students of the topic of sustainable (dish)washing as well as kitchen and household hygiene. For this event format, BfR-specific topics that are tailored to the audience in question are selected in each case.

Public talks by BfR employees

Experts from all BfR departments are available as speakers and debaters for public events concerning topics of consumer health protection.

The BfR also uses unusual presentation formats to fulfil its legal mandate of transparency and easily understandable communication on the risks of food, cosmetics, toys, packaging and chemicals. On the occasion of the Institute's 10-year anniversary, the BfR held the first Science Slam in 2012. BfR employees described their work in an entertaining manner with a scientific verbal exchange in front of a wide audience.



Training Courses in Risk Assessment and Risk Communication

Different training formats are offered by the BfR academy for target group-specific knowledge transfer in the area of consumer health protection in a national and international context.

Further training events for the public health service

These events are aimed at employees of health authorities, the medical, veterinary and chemical investigations offices, hygiene officers in hospitals, and employees of other state institutions.

BfR user conference

The procedure for reporting product data for emergency medical advice was introduced in Germany in 1990 within the scope of Art 16e of the German Chemicals Act in consultation with the reporting manufacturers, distributors and chemicals offices. It has been subject to continuous further development since this time. In particular companies reporting for the first time may require advice. They often have questions that could be useful for other users.

The user conference is not only aimed at those employed in industry, but also expressly targets employees of responsible state authorities and national and international poison information centres. The user conference is a public event.

Further education courses to qualify as Toxicology Specialist

In the context of the “Toxicology Specialist” further education programme of the German Society for Pharmacology and Toxicology (Deutsche Gesellschaft für Pharmakologie und Toxikologie, DGPT), courses on the subjects of reproductive toxicology, clinical toxicology, risk assessment and risk communication take place regularly at the BfR.



Lectures in the Master of Toxicology course at the Charité University Hospital

In the context of a dedicated module on “Regulatory toxicology”, the BfR is involved in toxicological subjects in the Toxicology Master programme with presentations and lectures. This Master programme is offered by the Charité University Hospital in cooperation with the University of Potsdam.



BfR Summer Academy

The annual two-week BfR Summer Academy (formerly known as BfR Summer School) is an international exchange for risk assessment and risk communication in the field of food safety. In line with the slogan “By experts for experts”, scientists from all over the world deal with the subjects of risk assessment and risk communication relating to food safety.

The BfR Summer Academy aims to enable participants not only to conduct risk assessments and risk communication themselves, but also to pass on this knowledge in their

home countries. During the first week, basic information on evaluating risks is conveyed and an insight into German and European legal frameworks is provided. The participants learn how to communicate the magnitude and relevance of a risk in a consumer-friendly manner. One topic block is dedicated to toxicological characterisation, which is essential for the assessment of chemicals. In another course section, workshops on the assessment of residues, contaminants and microbiological agents as well as aspects of risk communication are on the curriculum.

Methods for Measuring Risk Perception

To obtain information on how the public or specific social groups assess an issue, the BfR studies the risk perception and risk behaviour of different target groups. The results of this can then be used to design risk communication processes effectively and thus to counteract misunderstandings or false assessments that may exist among the public. The following methods are used:

Delphi method

Focus groups

Scenario method

Media analysis

Consumer conference

Population survey

Population survey

The standardised population survey is used for questions and selected risk topics for which quantification is possible and informative.

The BfR uses the population survey to clarify basic facts, such as:

- > How well-known is a risk topic?
- > Which channels are significant in the dissemination of information?
- > How is the relationship between risk and benefits perceived?
- > What strategies for minimising or avoiding the risk are practised?

Based on the results obtained, conclusions can be drawn on the state of knowledge, the information needs and requirements, and the subjective risk perception of the public. Combined with sociodemographic data or other individualised characteristics, target groups can be defined and specifically approached.

Of the various survey methods used by the BfR, the telephone interview and the online questionnaire – either as one-subject surveys or as part of an omnibus survey¹ – are the most frequently used.

a) Computer-assisted telephone interview

The computer-assisted telephone interview (CATI) is the method of choice to collect representative population data. The survey is representative when a subgroup – based on selected characteristics such as age, gender or location – corresponds to its distribution in the entire group of people (e.g. the entire population of Germany). In this case, it is possible to extrapolate the results of the surveyed subgroup to the entire population. To achieve this goal, the participants for the subgroup are selected randomly from the entire group

¹ An omnibus survey is a survey covering several subjects. The survey gives multiple interested parties the possibility of contributing questions to a standard questionnaire of a market research institute ("get on the omnibus"). This option, which is a widely used market research practise, makes particular sense when the number and scope of the questions to be included is relatively low. Surveying a person on multiple subjects allows different topics to be mixed, which leads to a pleasant speaking atmosphere with the respondents displaying fewer signs of fatigue.

of people. The random selection is performed according to the guidelines of the Working Group of German Market and Social Research Institutes (Arbeitskreis Deutscher Markt- und Sozialforschungsinstitute e. V., ADM) and also includes unlisted telephone numbers (so-called Gabler-Häder method). Participants are chosen at random within the selected households. Because more and more people use only mobile phones, a sample of landline telephones no longer fully represents the population, so mobile phone numbers are included in addition to landline numbers (dual frame approach).

b) Online survey

One alternative to telephone interviews is the online survey. This refers to surveys for which participants complete a questionnaire saved on a server online and return it per email, or receive questionnaires by email and send them back. However, with online questionnaires, representativeness can generally only be achieved with respect to internet users as a whole, specific groups of internet users or users of specific websites as target groups of the study.

The BfR regularly records data on public perception of selected topics from consumer health protection and publishes the results as the "BfR Consumer Monitor". For this purpose, computer-assisted telephone interviews in the context of omnibus surveys are conducted. The findings are incorporated into the development of risk communication strategies at the BfR, because the information and communication needs of consumers can be specifically addressed based on the survey results. The BfR Consumer Monitor therefore serves to optimise science-based risk communication and to allow prioritisation of projects in risk perception research.

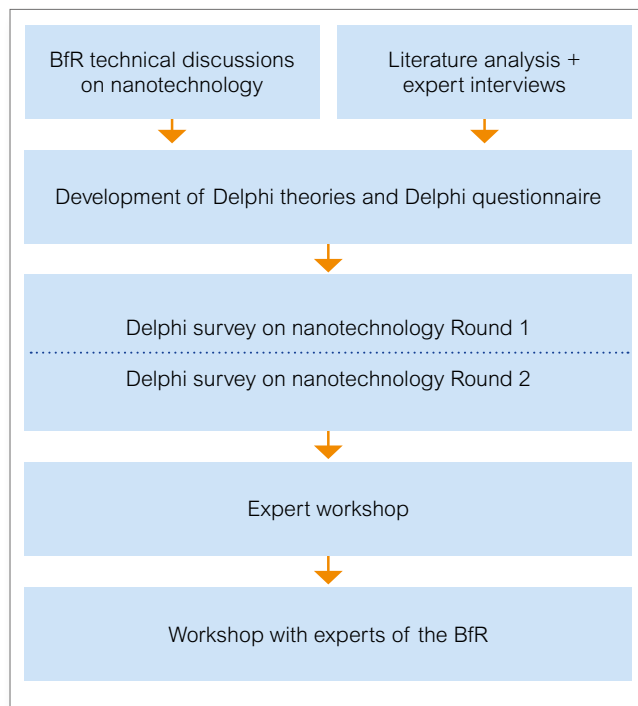
Consensus conference (also known as citizens' conference, PubliForum, consumer conference)

The consensus conference originated in the USA, Denmark and the UK and is similar to the planning cell method developed in Germany. A consensus conference is an event during which a specific situation is assessed by laypeople. In addition to the laypeople, experts also take part in consensus conferences. They act primarily as "knowledge suppliers", while the laypeople take on a central role in the assessment process. The laypeople (usually between 10 and 30 people) are chosen at random. The experts are not selected at random because all positions represented in the specialist field should be included. The process includes a moderator who introduces the laypeople to the material under discussion. The formulation of a decision by the lay group regarding the situation for assessment constitutes the result of a consensus conference. The consensus conference as a dialogue process has the main aim of providing insights into the (public) assessment of a specific situation to the institution organising the conference. An additional aim is to facilitate communication between laypeople and experts and to stimulate public debate on a specific topic. An informed citizens' opinion can be created on the part of the laypeople in the context of a consensus conference. Focal topics of consensus conferences lie in the field of technology. One well-known example is the GenFood consensus conference, which was carried out by the Danish Board of Technology in 1999. The BfR also conducted a consumer conference on the perception of nanotechnology in the food, cosmetics and textiles areas which was based on the consensus conference model.

Delphi method (also known as Delphi process, Delphi study or Delphi survey)

The Delphi method is a structured, multi-step survey of a specific group. The participants are usually specialists, although Delphi studies in which members of other social groups take part have also become established in recent times. The structured survey process aims to effectively combine the existing individual knowledge (or estimations) of the group members into a collective opinion. This method is used mainly as a prognosis tool for estimating the risks of new technologies and has the aim of reducing uncertainties with respect to knowledge and knowledge assessments, probabilities of occurrence and options for action by surveying a relatively large community of experts. Within the scope of the traditional Delphi method, the participants are selected in advance and then sent a standardised questionnaire to fill out. The survey can be repeated several times, with anonymous feedback informing the participants about the group opinions of the preceding rounds. In this way, the experts are given the opportunity to use the group opinion as an additional source of information and to critically examine individual assessments. Modern Delphi processes are generally performed in two rounds without personal contact within the group. The Delphi method is based on the assumption that experts assess risks based on information that can be of varying quality (their own research, primary and secondary literature, media reports, experiences etc.) and have different assessment contexts (scientific discipline, interests, values, attitudes, etc.). The exchange of knowledge over multiple rounds has the advantage that feedback processes are possible that promote a review of one's own assessment. Usually, the spectrum of assessments becomes narrower and the trends become more apparent. Some Delphi surveys aim to achieve a consensus in the assessment of the issue over multiple rounds. The BfR has already conducted Delphi studies on the use of nanomaterials in food and consumer products as well as on the topic of "Risk ranking – Prioritising risks from the field of consumer health protection".

Sequence of a BfR Delphi study on the topic of nanotechnology



Scenario method

The scenario method was developed based on the idea of "future workshops". During this process or beforehand, scenarios are developed, then evaluated in groups with respect to their feasibility and modified if necessary. Different groups take part in a scenario method: laypeople, experts, representatives of interest groups and political representatives (policy makers). While laypeople and the representatives of interest groups are involved in the method as affected persons, experts and politicians are called in according to criteria of representativeness. All groups involved in the method participate as equals. As compared to a consensus conference, the number of participants is rather high at between 60 and 90. The aim of the method is to initiate a joint planning process if possible and thereby enable a dialogue between all participating groups. Aside from the planning process, this is intended to improve understanding of the involved groups for the other perspectives, which is why

the method also uses communication-oriented dialogue. Local and urban issues (e. g. traffic planning) are the focal topics, but the method is not limited to such matters. It can be used for all issues for which future processes need to be designed. Well documented examples include the Urban Ecology scenario workshop, which was held in 1992/93, and the Future Search Conference on Traffic in Big Cities in 1998. Both scenario workshops were organised by the Danish Board of Technology. The BfR also conducted a scenario workshop on the forms and consequences of official risk communication.

Focus groups

Focus groups were developed from “focused interviews” as a sociological method in the 1950s and are also referred to as structured group interviews. Focus groups are used for a variety of purposes including generating ideas, explorative probing (e. g. of a public opinion), testing and evaluating information and other materials, and the selective evaluation of communication and/or crisis management strategies. In principle, private individuals, experts and representatives of other interest groups are possible participants, depending on the question or objective. Focus groups allow information on views and values relating to a specific topic to be gained quickly, new ideas (e. g. on information channels and/or sources) to be developed during discussions, or the quality of informational material to be tested with selected target groups. To date, the BfR has organised focus groups for such purposes as collecting data on the public attitude towards nanotechnology, veganism and genome editing, as well as towards the use of food supplements.

Media analysis

Due to the widespread use of mass media as primary source of information, media reporting should always be considered in the development of communication strategies.

A media content analysis or media response analysis investigates which messages and contents relating to a risk topic have been communicated to the public so far. In concrete terms, it involves answering typical questions (who reports on a risk topic, what, when, why and in which media category?). It is an empirical method which systematically records the properties and characteristics of reports. Frequency, contingency and assessment analyses represent three typi-



cal analysis forms within content analysis. A frequency analysis investigates the frequency of particular characteristics (e. g. topics) and compares this with the frequency of other characteristics. Contingency analyses deal with the question of how often specific characteristics occur together in an article. Assessment analyses aim to measure the perspective and/or intensity of assessments that are expressed regarding an object in a report.

Media analysis can also be extended to online and social media. For example, the BfR performed an online discourse analysis on the perception of nanotechnology in web-based discussions.

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