ROBERT KOCH INSTITUT





FEDERAL HEALTH REPORTING JOINT SERVICE BY RKI AND DESTATIS

Health in Germany – the most important developments



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Focus on health

How healthy are people in Germany? This central question guides the Robert Koch Institute's third health report 'Health in Germany' (www.rki.de/gesundheitsbericht, in German), which was published in December 2015. The report provides an in-depth description of the health of children, adolescents, women and men, people in employment, the unemployed and pensioners in Germany. How does physical and mental health relate to health risks and prospects, as well as to regional and social factors? These questions outline one of the central tasks for the RKI in federal health reporting: providing a comprehensive and reliable overview of health in Germany based on multiple health data sources, as well as recognising and analysing health trends and developments.

Health reporting is based on RKI's health monitoring. The Department for Epidemiology and Health Monitoring continually collects data on diseases, health and risk behaviour, healthcare and living conditions of the German population. At the heart of monitoring are the three major German health studies: the combined German Health Interview and Examination Survey for Children and Adolescents (KiGGS) and the German Health Interview and Examination Survey for Adults (DEGS), as well as the German Health Update health interview survey (GEDA). Further epidemiological studies, official statistics, as well as data from epidemiological registers and social insurers, further inform our health reporting analysis. This broad statistical, demographic, psychosocial and medical data provide a comprehensive assessment of health and health trends in Germany and allows for an outlook to future developments. These data yield reliable and quality-assured information, which provides a working basis for scientists, politicians and other health sector actors.

Health reporting focuses on the developments that pose a challenge for our health system. Today, these include the ageing of society – a development which is set to accelerate over the coming decades both in absolute figures as well as in the relative number of old and very old people in the overall population – and socially determined health inequality. Demographic and social factors have an important impact on all of the areas covered by



Life course concept: Focuses of prevention and care across the life course

health reporting – from the range of diseases to the distribution of risk factors and prevention and care. This involves a shift in the spectrum of diseases. Non-communicable diseases such as cardiovascular diseases, cancer, diabetes, lung diseases and diseases of the musculoskeletal system are on the rise. They are an important factor in the loss of quality of life and shortening of lifespans, and represent great challenges for prevention and health promotion because the causes of these diseases are linked intimately to lifestyle, health behaviour and social status. Establishing health promoting framework conditions throughout society – from nurseries to the places where people live and work to senior-friendly housing conditions are challenges for the whole of society, which only a harmonization of all relevant policies can ever hope to satisfactorily tackle.

This brochure presents a selection of the results from the 'Health in Germany' (2015) report. First, we describe the fundamental impact social conditions like working conditions or unemployment may have on health. The following chapter focuses on the health behaviour of people in Germany. The next chapter demonstrates the influence of childhood on individual health biographies. Chapter four provides information on the changes to the disease spectrum in the face of the ageing of society, and chapter five focuses on mental health. The final chapter offers an outlook for the resulting challenges facing health monitoring and health reporting at the Robert Koch Institute.

Social status and health



Mainly two developments characterise health and healthcare in Germany: the dynamics of demographic change and the powerful impact of social status on health.

Living conditions and health behaviour represent key defining factors for the overall health of the population. Within this context, the health and disease risks are distributed unevenly throughout society. People with a lower social status face higher rates of chronic diseases, health problems and/or disability, and often consider their health to be poorer. Frequently, this relation evidences a clear social gradient, which is visible across all age groups, whereby lower social status translates into greater health issues and disease risks.

The life expectancy of men and women from low-income groups, with lower levels of education and with poor working conditions is lower than the life expectancy of people of higher social standing. Differences in life expectancy (at birth) between the lowest and highest income groups in Germany are 8.4 years for women and 10.8 years for men. Substantial differences also exist for life expectancy post-retirement at 65. Family social status affects the health of children and adolescents. Social differences manifest themselves as early as during pregnancy and a baby's first months: The percentage of mothers who smoke during pregnancy drops with increasing social status, whereas the proportion of women who drink alcohol during pregnancy increases with rising social status.



People of low social status also rate their health to be poorer

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Further factors that influence individual health risks are housing conditions, environmental conditions and migrant status.

People of low social status less frequently use preventive care than people of higher social status.

Regular health checks provided through the statutory health insurance, preventive health examinations and cancer screenings are still taken up less often by people of lower social status than those of higher social status. Social differences are also reflected in the knowledge individuals have concerning the symptoms of specific diseases such as heart attacks and strokes, and in their ability to cope with illness. Diabetes patients with lower levels of education, for example, are less likely to participate in diabetes education courses and report greater difficulties in adapting to their condition on a day-to-day basis. The most promising approaches to prevention and health promotion therefore take socioeconomic and cultural living, working and environmental conditions into account and, as the following chapter will show, help reduce inequalities.





5. Years

11 Years

The proportion of people with migrant background is increasing. Ensuring appropriate healthcare for this heterogeneous population remains challenging.

People with migrant background in Germany make up a socio-culturally diverse group, and this is also reflected in their health. The first people in a population who migrate are usually those who are younger and healthier. The health of immigrants is better than the non-immigrant population and mortality rates for younger and medium age groups are lower. This has led scientists to coin the term *healthy migrant effect*. There are also differences in risk behaviour. People with migrant background drink less alcohol and smoke less tobacco on average. They also, however, do less sport and their diets are less healthy. Due to the greater burden of infectious diseases in their countries of origin, people with migrant background have a greater risk of contracting such diseases.

The available health data for people with migrant background, however, is incomplete. They form a very heterogeneous group and great differences exist with regard to the situation in their countries of origin, their reasons for migration and their length of stay in Germany. Improving health monitoring of the migrant population therefore is a high priority.





15.9 million

People with **migrant background** lived in Germany in 2013. This number has increased due to the rise in applications for asylum (476,000 applications in 2015).



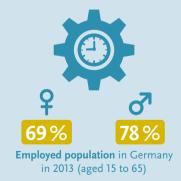
Employment status

For a large percentage of the population, employment remains their primary source of income. Additionally, employment ensures social contact, generates respect and structures people's days. As a social sphere, the working environment reflects social differences particularly clearly and translates these differences into better or worse working conditions, employment prospects and income.

The risk of accidents or injuries at work has decreased. Over the last decades, the number of fatal occupational accidents has decreased, as have absences due to accidents or sickness. Whether this positive trend will continue remains an open question, because absences also always reflect economic cycles and at the same time the average age of employees is increasing, which means they are also more liable to get sick.

Less favourable working conditions, limited employment prospects and an overall lower income are all factors negatively affecting health. Employees with a lower professional status face greater health impacts and risks than those with a higher professional status.

Gainful employment is a key field for health prevention, because more people can be reached at the workplace than in other contexts. Expanding programmes to promote health at the workplace is a promising approach to reach lower social status groups. During the last years, nearly one in two businesses in Germany have implemented at least one health promotion measure. Industry, the public sector and large companies have been particularly active in health promotion. Many smaller companies still lag behind considerably.





Average incapacity for work for those covered by statutory health insurance

Insufficient work can, however, also impact health. Unemployment is a condition that exposes people to increased psychosocial pressures. Even the threat of losing one's job can cause stress and negatively affect health. Overall, health problems are particularly frequent among unemployed adults, and those working in precarious employment conditions. They face a greater risk of developing mental and physical diseases, and their average life expectancy is lower. Correspondingly, due to their worse health unemployed adults more frequently claim incapacity to work and make greater use of the healthcare system.

Unemployment can lead to, but also be the result of, health issues. Unemployed people with chronic diseases are less likely to find gainful employment and people with health issues are more likely to lose their jobs than healthy people.





Lifestyle: risks and side-effects



A balanced diet, abstaining from smoking, moderate alcohol consumption and participating in exercise all contribute to a healthy lifestyle. Together these factors can help prevent obesity and hypertension and therefore reduce the risk of diseases.

Numerous factors such as individual living conditions, which we look at in the last chapter, biological factors and individual behaviour all influence health. A balanced diet, sufficient exercise, moderate alcohol consumption, not smoking and good stress management all help prevent diseases like diabetes mellitus, cardiovascular diseases, cancer, chronic respiratory diseases or mental-health conditions and disorders. Unhealthy behaviour in turn increases the risk of contracting diseases. Promoting a healthy behaviour and reducing health risks are therefore challenges for society as a whole and necessarily fields of action for health policy.

Diet is a key factor in wellbeing. Dietary choices fundamentally influence physical fitness and overall health. Due to our varied and affordable supply of food the impact of deficiency diseases has diminished. On average, all age groups have sufficient levels of most vitamins and minerals. Generally, people eat too little fish, milk and dairy products, bread, cereals and vegetables. Frequently, meat plays too prominent a role in the diet of children and adults alike.



Smoking, too much alcohol, not eating enough fruit and vegetables, lack of exercise, being overweight, high cholesterol and hypertension are the seven most important health risk factors.

Exercise has positive effects for physical and mental health across all age groups.

Diverse physical activity during childhood is an important factor for the healthy development of children, just as physical exercise contributes to maintaining the functional independence of older people for as long as possible and helps prevent falls. Promoting physical exercise is therefore a key public health challenge.

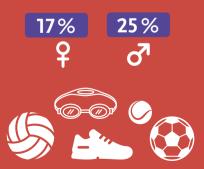
Regular physical activity and sport help protect people from numerous noncommunicable diseases and lowers mortality risks. Adequate activity can, for example, reduce the risk of developing diabetes. Beyond these positive preventive effects, physical activity is also prescribed as a treatment, for example in patients with cardiovascular diseases or depression. For adults, the World Health Organisation (WHO) recommends 75 minutes of vigorous-intensity physical activity per week, or alternatively 2.5 hours of moderate physical activity, e.g. cycling to work or taking brisk walks.

One in four adults is obese

Being overweight can already imply a health risk. Being severely overweight is referred to as 'obese'. In Germany around 53% of women and 67% of men are overweight, while 24% of women and 23% of men are obese. During the last ten years, the proportion of overweight adults has remained stable at a high level; obesity rates, however, have increased, particularly among young men. The greater the percentage of body fat the more serious the health consequences that can be expected. Obesity places a greater strain on the musculoskeletal system and promotes dyslipidaemia and hypertension, which in turn





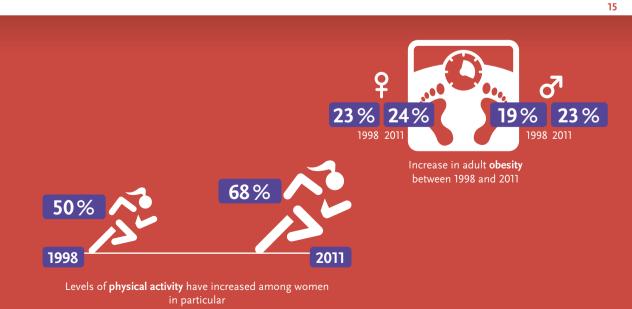


can increase the risk of developing diabetes mellitus and cardiovascular diseases. Rates of certain cancers are also higher among obese adults.

Hypertension is the most frequent and important risk factor for cardiovascular diseases and renal insufficiency. Hypertension is estimated to affect one third of all adults in Germany.

Much like in many other industrialised nations, cardiovascular diseases are the most frequent cause of death in Germany. Hypertension, the greatest risk factor, is today considered a widespread disease and is the cause of more than half of all strokes and nearly half of all coronary heart diseases.

Genes, age, sex, an unhealthy diet and unfavourable living conditions are among the factors that contribute to hypertension. One in three people in Germany between the ages of 18 and 79 suffer from hypertension – roughly 20 million people.





Building health: prevention and health promotion

Noncommunicable diseases are the most frequent causes of illness and death in Germany and are caused by and develop due to numerous factors such as age, sex, genetic disposition, behaviour and lifestyle, social environment, living and working conditions, as well as access to institutions and services, but also an individual's economic, cultural and physical environment.

Correspondingly, the factors influencing health and sickness permeate all areas of society. Whilst nearly all of these factors can be changed, they are also mutually related to each other. Prevention and health promotion, therefore, are seen as cross-cutting issues demanding the contribution of actors from all spheres of society.

The goal of prevention is to prevent, slow the onset of or reduce the incidence of diseases. Health promotion aims to bolster the personal, social and material resources for health and create social framework conditions that promote health. Prevention can aim to achieve positive behavioural changes among individuals and groups (behavioural prevention), or changes to schools, workplaces or neighbourhoods (structural prevention). Behavioural change programmes teach behavioural patterns that promote health that can be integrated into people's daily routines to provide long-term positive health effects. Typical behavioural prevention measures include the provision of information, counselling and training by statutory health insurers, public adult education centres (*Volkshochschulen*), sports clubs, companies as well as private sector providers.

The overall distribution of health risk factors reveals a strikingly high influence of social factors. Poor dietary habits, lack of exercise and smoking are more widespread among people of a lower social status than those of a higher social status. Establishing equal health opportunities then becomes a central focus of prevention and health promotion through measures that are centred on individual responsibility but that also position health as a task for society as a whole.

Actively involving people locally creates opportunities to contact those who so far have shown little interest in health considerations. Health promotion activities in settings such as neighbourhoods or companies are considered particularly apt for reducing health inequalities and increasing health opportunities for the entire population. In response to this, the German government adopted the Preventive Healthcare Act in June 2015, which aims to ensure adequate measures and services in key settings such as nurseries, schools, municipalities, the workplace and nursing homes. The Act obliges statutory health insurers to increase their expenditure on prevention and health promotion. During initial planning stages, these measures are required to take into account national health goals, i.e. 'Growing up healthy', 'Remaining healthy in old age', 'Reducing tobacco consumption', 'Reducing alcohol consumption'. The Act considers prevention and health promotion as cross-cutting challenges for society. In particular the goal expressed in article 20 SGB V should strengthen prevention and health promotion. This goal involves reducing health inequality and also takes gender considerations into account and expands the settings approach to all stages from nursery to nursing care.



The degree of hypertension, the presence of further risk factors and possible concomitant and secondary diseases will determine whether hypertension ultimately develops into a cardiovascular disease. Hypertension offers great potential for prevention. There are wellknown lifestyle factors that can reduce hypertension. Beneficial factors include physical activity, a healthy diet (reducing salt and eating more fruit and vegetables), and avoiding becoming overweight and stress. Combined with medical treatment, lifestyle changes can successfully reduce a patient's high blood pressure.

Smoking is the single most important health risk in industrialised nations and the leading cause of premature death.

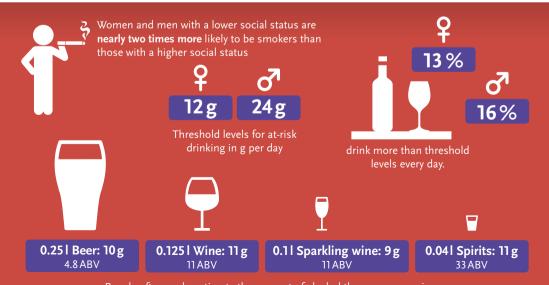
In 2013, around 20% of women and 29% of men in Germany were smokers. Since the beginning of the 2000s, the percentage of smokers in the population has been decreasing. However, this trend stagnated for women around 2009. The percentage of adolescent smokers has fallen continuously since 2004. Smoking is most prevalent in young and middle-aged adults. At about age 60, this number drops sharply, which is most likely linked to the increase in tobacco-related diseases and deaths at this age. Annually, there are around 100,000 to 120,000 smoking-related deaths in Germany.

Excessive and regular alcohol consumption are preventable health risks. Although alcohol consumption statistics show a continuous decrease since the 1980s, Germany's yearly per capita consumption of 9.7 litres of pure alcohol unfortunately remains the highest in international comparisons. On the up side, however, the proportion of people with excessive and hazardous drinking habits has decreased over the last 20 years.

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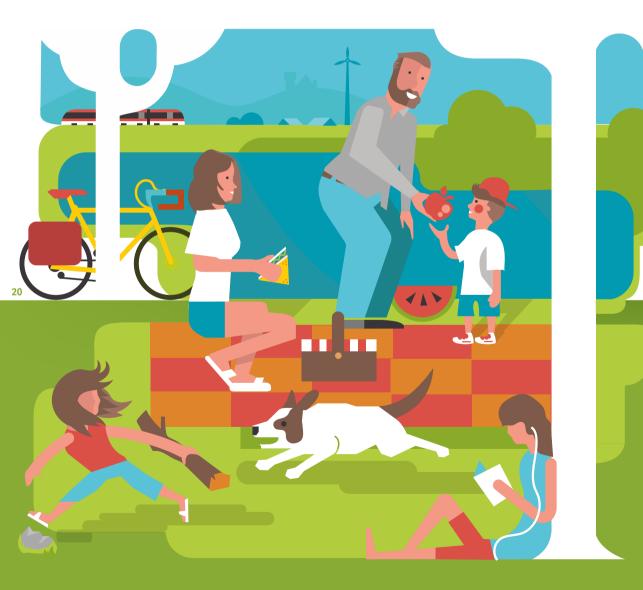


Liver cirrhosis, tumours in the mouth and throat, colon and breast cancers are among the diseases related to excessive alcohol consumption. Alcohol can lead to addiction. The risk of suffering accidents, injuries and becoming involved in brawls increases when someone is under the influence of alcohol. According to estimates, drinking too much alcohol annually leads to somewhere between 42,000 and 74,000 deaths. About one quarter of these deaths is related purely to alcohol consumption, the remaining three quarters to the combined effects of alcohol and tobacco. The average life expectancy for people with alcohol-related diseases is 61 years, which is 17 years less than the average life expectancy.



People often underestimate the amount of alcohol they are consuming

Healthy from the outset



Childhood has a lasting influence on our health biography. This makes learning positive health behaviour at an early age all the more important.

Individual health behaviour is learned in families, nurseries, schools and from friends. These competencies provide the foundation for a healthy life. Childhood health problems are mostly infectious diseases, mental disorders, allergies, accidents, or due to a lack of exercise and malnutrition.

Strengthening children's mental health

The resources and risk factors children encounter at the individual level, in the family and society can influence their health development. Based on these resources children acquire fundamental psychosocial competencies and, if schools support such learning, this can positively influence health up to a very old age.

An important factor contributing to health is psychological resilience, which experts define as a dynamic process of adaptation and development. Psychological resilience, hence, is the opposite of vulnerability. Resilient children and adolescents are better equipped to cope with risk factors in their lives. This in turn increases the likelihood, even under unfavourable conditions, of an age-appropriate development. This includes good (academic) performance, adapted behaviour and the absence of mental disorders. In nurseries and schools, therefore, programmes to strengthen the resilience of children and adolescents are gaining importance in the context of prevention and health promotion.

94%

of parents in Germany assess their **children's health** to be good or very good.



- > Before and after birth: see page 23
- > Allergies: see page 25
- > Accidents: see page 28



In 2013 there were 13 million children and adolescents living in Germany

82 % of these lived with both their parents

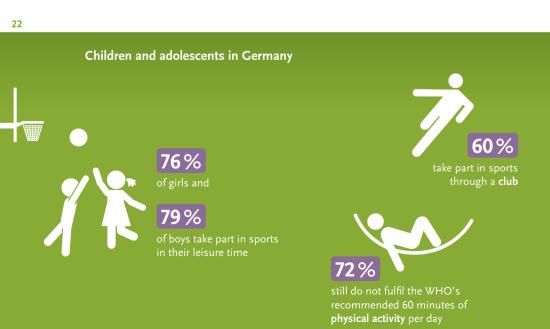
18% in single-parent households



Allowing children to experience successes in their social environment, for example at school, can strengthen a child's competencies. The focus, thereby, is on supporting the development of the appropriate competencies at a particular age to enhance a child's capacity to manage the relevant developmental steps, such as the competencies expected when starting school or at puberty. This includes reaching out to those adults the child or adolescent feels attached to and in particular to parents, teachers and nursery teachers.

The Robert Koch Institute's KiGGS survey (German Health Interview and Examination Survey for Children and Adolescents) highlights the importance of psychological support. One fifth of this age group risk developing mental disorders, boys (23%) more frequently than girls (17%). Children and adolescents from families with a lower social status (33%) are affected more than three times as often as those from families with a high social status (10%).

Attention deficit hyperactivity disorder (ADHD) is one of the most frequently diagnosed behavioural disorders among children. The condition is diagnosed most frequently at the age in primary school age and entails serious psychosocial problems for children, adolescents and their families. Data from the KiGGS survey shows that according to the information provided by parents, 5% of all children and adolescents in Germany aged between 3 and 17 have at some point been diagnosed with ADHD. Boys (8%) are affected more than girls (2%). Cases of ADHD are twice as frequent (8%) among children from families of low social status than among those of high status (3%).





Before and after birth

The development of children's health is initiated already before and during pregnancy. A mother's health behaviour has a fundamental effect on the health of her unborn child.

- 21% of pregnant women are overweight when they become pregnant, 14% obese and 4% later develop gestational diabetes.
- In 2013 there were 682,069 live births in Germany. The average number of children per woman is 1.4.
- Around 62% of births are vaginal births. The share of Caesarean births (32%) has nearly doubled since 1994, but has since stagnated with marked regional differences.
- Around 82% of infants are breastfed in Germany, with this figure showing a slight upward trend.

Social factors and developments, such as longer years spent in education, training and study, as well as increased mobility and labour market flexibility, heavily influence the decision to have children in Germany. The average age when mothers have their first child has now gone up to 29.5 years.

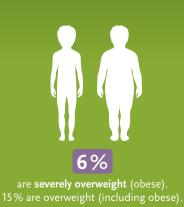


Healthy framework conditions

The family greatly influences the health behaviour and health of children and adolescents. Experts consider a good long-term relationship with primary attachment figures and secure attachment behaviour as the most important factors contributing to child health. The family atmosphere, parenting style and severe illness of one parent also affect child health. Around 82% of children and adolescents lived with both parents in 2013, with roughly 18% growing up in single-parent households. Most children and adolescents grow up healthy, regardless of their family situation.

For children and adolescents a healthy diet is doubly important. Their bodies and physical functions are still developing, which means that they have higher energy and nutritional requirements in relation to their body weight. Moreover, once learnt, a child will keep up both positive and negative dietary habits and these will therefore continue to have an influence into adulthood. It is hardly surprising to learn that sweets and fizzy drinks are very popular. However, the majority of children and adolescents consume far more than the recommended maximum amounts of sweets, sweet spreads, biscuits, snacks, fizzy drinks and (sweetened) breakfast cereals. Moreover, only the group of under-twoyear-olds eat the recommended amounts of fruit. Most children and adolescents also eat too little fish and plant-based foods such as fruit, vegetables, bread, grains and potatoes.

Most age groups drink the recommended amount of liquid. Younger children drink mostly water (50%), followed by fruit juices. With age, however, the amount of sugary fizzy drinks that children drink increases rapidly. Overweight and obesity among children and adolescents is a particularly serious health concern because, beside the immediate physical and psychosocial consequences, these young people face an increased risk of





of children and adolescents suffer from eating disorders.



Allergies

Allergies belong to the most common diseases affecting children and adolescents. According to the KiGGS survey, 26% of children and adolescents have been diagnosed with asthma, hay fever or neurodermatitis.

- 14% of children and adolescents have been diagnosed with neurodermatitis.
- Compared with girls, boys more frequently develop asthma and hay fever.

Allergies are most prevalent during puberty. Allergies, however, frequently develop during childhood and adolescence and then either worsen or disappear in adulthood. This is particularly true for neurodermatitis, a condition that predominantly affects people during early childhood and then tends to disappear at a later age. Many children with hay fever, in contrast, additionally develop asthma at school age.

Both environmental and genetic factors can lead to allergic reactions. When genetic factors are involved, the risk of a child developing an allergy nearly doubles. Children whose parents work in farming, have older siblings or go to nursery at an early age have a lower risk of developing hay fever. The urban environment and having family members who smoke are risk factors for children to develop asthma.

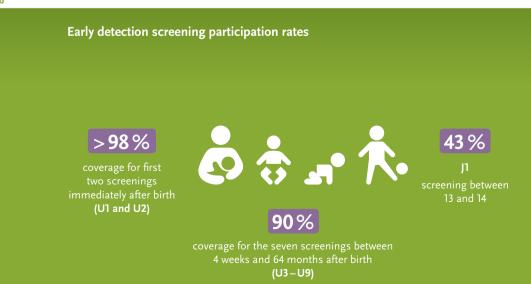


being overweight or obese as adults. Around 15% of German children and adolescents (between the ages of 3 and 17) are overweight (or obese). The amount of children who are overweight or obese increases from childhood to adolescence.

Social status

A strong correlation between social status and health can already be seen during childhood. For instance, children and adolescents from families with a low social status are more likely to be diagnosed with behavioural disorders and obesity, take part in less sport and have poorer dietary habits. Various studies indicate that children and adolescents from families with a low social status have poorer dietary habits than those from families with a higher social status. Children from families of a lower social status eat less fruit, vegetables, whole grain products and raw food, and instead consume more fizzy drinks, sweets, ham, processed meats, and fast food than their counterparts from families with a higher social status.

In many ways, these health inequalities are a special challenge for health promotion and prevention both in general and in nurseries and schools in particular. Social status is also a significant factor in adult health behaviour. Statistics reveal significant differences in the amount of physical activity and dietary habits that continue into old age.



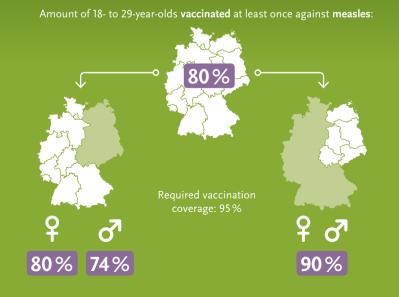
Health protection: immunisation

The eradication of polio in Europe, declared by the World Health Organisation in 2002, was a milestone for medicine and health prevention. The high uptake of polio immunisation among the population provided the basis for this success. Unable to ensure a vaccination coverage rate of 95%, Germany, however, missed the WHO's goal to also eradicate measles in Europe by 2015. In fact, in 2013 the number of reported cases of measles actually reached its highest level since the introduction of Germany's Protection against Infection Act, which designates measles, mumps, varicella, cholera and diphtheria to be notifiable diseases. Hardly a harmless 'childhood disease', measles are a highly infectious viral disease that potentially entails severe complications.

The most effective individual-level protection against measles is complete immunisation through two vaccinations between birth and a child's second birthday. According to the KiGGS survey, currently around 40% of 2 year olds have not received the sufficient protection offered by these two vaccinations. Nonetheless, the increase in vaccination rates among children entering school is a positive sign. In 2013, around 92% of children from this group were fully immunised. By comparison, in 2002, only 33% of children starting school were vaccinated against measles.

For measles, data from the KiGGS survey reveal two peculiarities: First, parents more frequently oppose measles vaccinations than for example tetanus vaccinations, and, second, the uptake of measles vaccinations falls with increasing social status. Measles immunisation coverage is also low among children who immigrate to Germany after birth and among children with many siblings.







FOCUS

14% of girls and 17% of boys suffer injuries from accidents at least once per year that require medical treatment. Accidents also frequently lead to hospitalisation. For 1- to 4-yearolds, injuries are the second most frequent reason for hospitalisation, and the most frequent reason for 5- to 19-year-olds. In recent years, fatal accidents have decreased considerably; in particular the number of fatal accidents involving children on their way to school. Accidents remain the most frequent cause of death for children and adolescents.

- **85**% of accidents involving 1- to 2-year-old children happen at home.
- 61% of accidents involving children and adolescents happen at home or during leisure time.
- 24% of accidents happen in educational or care institutions and 8% on the way to school.
- In 2013, 112,225 children, adolescents and young adults were involved in accidents on their way to school, including 37 fatal accidents.





children and adolescents with at least one unintentional injury in the past year

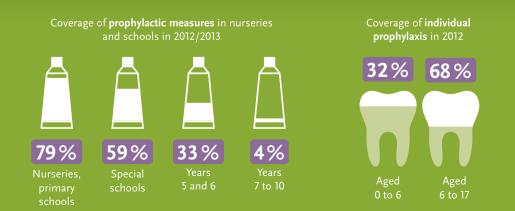
Since 2010, Germany's Standing Committee on Vaccination (Ständige Impfkommission, STIKO) has recommended that young adults who are not vaccinated against measles, who have been vaccinated only once or whose vaccination status is unclear, to vaccinate themselves. Vaccination coverage rates in the 18-to-29 age group show that much still remains to be done. Numerous causes are behind the lack of acceptance of vaccination uptake and behind vaccination gaps. Within this context, paediatric doctors play a particularly important role, because they can provide information on the benefits and necessity of vaccinations as well as on the possible side effects and their frequency.

In general, immunisation is one of the most effective and cost-efficient preventive measures medicine can offer. Vaccinations provide protection against severe infectious diseases, as well as the related complications and severe courses of diseases. Beyond individual health benefits, however, the overall population value of immunisation depends fundamentally on high vaccination coverage rates. High coverage alone provides the benefits of so-called herd immunity that effectively protects all individuals from a disease, even those who are too young or too ill to be vaccinated. High vaccination coverage rates alone guarantee that we reap the full health and economic benefits of immunisation.

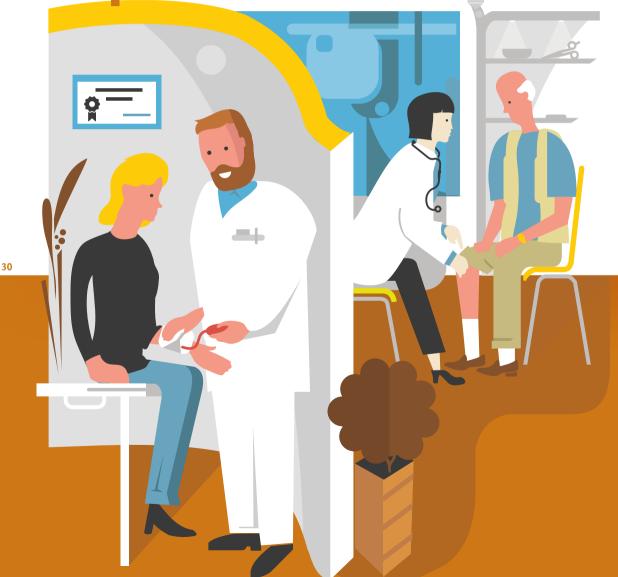
Health protection: Cavity prophylaxis

Children aged between 3 and 6 are legally entitled to dental, oral and orthodontic early detection screening. Children and adolescents aged 6 to 18 are entitled to two cavity screenings and in 2012 attended these screenings twice as frequently as the group of under-6-year-olds. Dropping cavity rates are the general trend among children and adolescents.





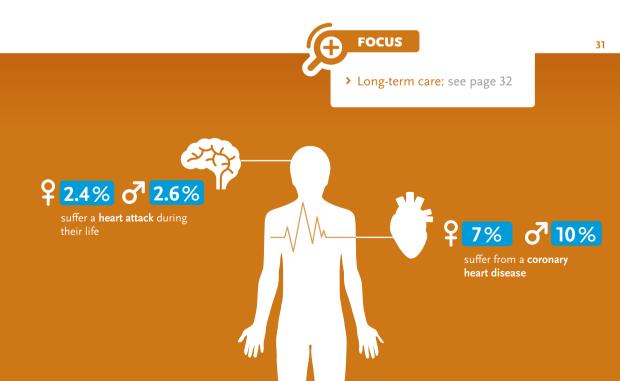
A changing disease spectrum



Dropping infectious disease incidence rates and improved therapies have increased life expectancy significantly. This has increased the importance of chronic diseases.

The majority of Germans feel healthy. Around three quarters of all adults consider their health to be good or very good. Less than 3% consider their health to be poor or very poor. Taking the last two decades as a reference period, subjective perception of health has increased in particular among the older age groups.

Cardiovascular diseases show a positive trend: incidence rates for heart attacks and strokes have declined. Mortality rates for coronary heart diseases, heart attacks and strokes have also decreased significantly. Beside positive changes in health behaviour – the decreasing number of smokers, for example – this trend is probably owed to better prevention, advancements in treatment and improved treatment of hypertension and dyslip-idaemia. Notwithstanding, in 2013, hospitals treated over 950,000 adults for coronary heart diseases, including 220,000 heart attack patients. Overall, cardiovascular diseases remain the most frequent cause of death for adults in Germany. High incidence rates mean these diseases continue to present great challenges for prevention and healthcare. Moreover, compared with all other disease groups, cardiovascular diseases continue to incur the greatest costs.



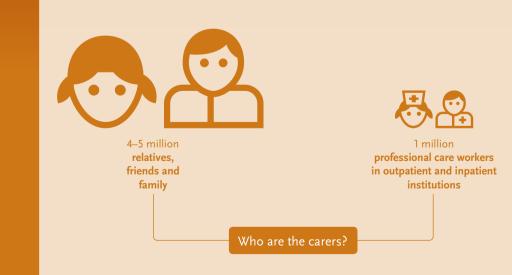


Long-term Care

In our ageing society, caring for the needy and sick is becoming an increasingly important factor in healthcare. Although people today are living ever more of their increased lifespans in good health, a growing number of people nonetheless suffer from age- and sickness-related restrictions. This comprises the growing group of people who temporarily or permanently depend on support and care.

- In Germany, an estimated 4.5 million people is permanently in need for support. In 2013, around 2.6 million were recognised as needing long-term care. Family and friends provide the bulk of care work, where required with the support of outpatient or inpatient nursing services.
- 56% of those in need of long-term care are care level 1, 32% care level 2, and 12% are care level 3.
- Concerning care at older ages, women more frequently rely on their long-term care insurance because more women than men live alone.
- The share of people requiring care is not distributed evenly among Germany's regions, with structurally weak regions having the highest long-term care rates.

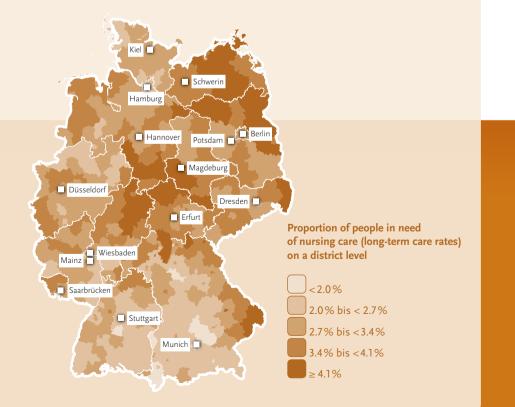
The kind of long-term care people receive is closely related to their age. Family and friends almost always take care of younger patients in need of long-term care who receive care allowances.



The older care patients become, the greater the share of these people that require outpatient services or inpatient care. Nonetheless, the majority of 90-year-olds (55%) are still cared for in their homes.

The increasing number of older and elderly people places a greater demand on the longterm care services. This has an impact on social security systems and healthcare structures. Structurally weak regions in particular face great challenges because the outflow of young people exacerbates the impacts of demographic ageing.

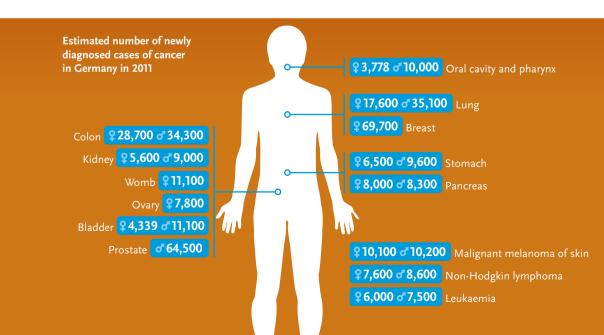
Demographic ageing means that the potential number of carers for older relatives will drop, as will the potential number of professional nurses. Foreign care workers could alleviate a certain amount of this pressure. More decisive, however, would be to kindle the interest of young people in the nursing and caring professions. Creating new incentive structures that increase the attractiveness of nursing jobs will be key here.



Cancer incidence rates are set to increase because of demographic developments. In absolute figures, the costs for treatment and to cover care needs can be expected to rise.

According to estimates by the German Centre for Cancer Registry Data (*Zentrum für Krebsregisterdaten*, ZfKD) around 228,000 women and 255,000 men developed cancer in 2011, around 65,000 more than ten years before. As the risk for nearly all types of cancer increases significantly with age, the demographic ageing of the German population is a decisive factor. Age standardisation, which accounts for this effect, shows that male cancer incidence rates have remained nearly constant over the last decade. The slight increase in cancer rates in women mainly reflects changes related to breast cancer. Mammography screening (x-ray examination of the breast) has seen a greater number of tumours detected in the early stages, which initially led incidence rates to rise.

In 2013 around 102,000 women and 122,000 men died of cancer. This makes cancer, after cardiovascular diseases, the second most frequent cause of death in Germany. Factoring in the population age structure, mortality rates for most cancers have decreased significantly since the mid-1990s. One of the few exceptions is lung cancer incidence among women. Due to the steady increase in female smokers up to the year 2000, incidence rates have increased continuously since about 1980.



These positive developments are attributed mainly to improved treatments. Earlier detection also plays a role for some types of cancer. Germany's changing demographics, however, probably implies a further increase in cancer incidence rates. This will require measures and structures for early detection and improved care for cancer patients. In 2008, Germany initiated its National Cancer Plan. The plan's recommendations underlie the Cancer Screening and Cancer Registries Act (*Krebsfrüherkennungs- und registergesetz*, KFRG), which was adopted in April 2013 and laid the foundations to improve care for cancer patients in Germany and further develop the existing early detection programmes. Systematic and quality-assured screening programmes for cervical and colon cancers will replace the current early detection examinations and the plan is to develop national clinical cancer registries to ensure the quality of cancer treatment nationwide.

Spread of diabetes mellitus is a cause for concern.

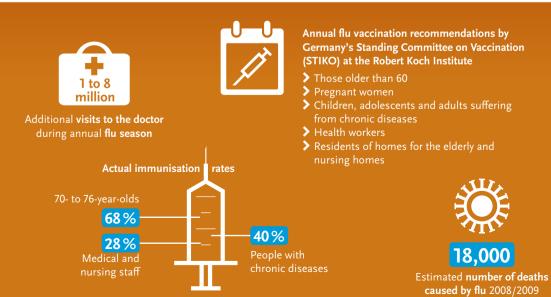
The spread of diabetes mellitus, a chronic metabolic disease, is a cause for concern and currently affects nearly one in ten adults. 7% of 18- to 79-year-olds have been diagnosed with diabetes. A further 2% from this age group do not know that they suffer from diabetes. Since the end of the 1990s the number of people diagnosed with diabetes has increased steadily. One third of this increase can be attributed to demographic ageing. Another factor is probably improved screening because diabetes is now diagnosed more frequently, resulting in a decrease in the number of unrecognised cases.



Regionally, the incidence of diabetes is greatest in the northeast and lowest in the southwest of Germany. This spread is analogous to the regional patterns of risk factors such as being overweight. Cases of diabetes-related complications such as blindness and amputations are decreasing. The diabetes type 1 and type 2 disease management programmes, as well as the implementation of the German National Disease Management Guidelines on Type 2 Diabetes, probably contributed to this development.

Diseases of the musculoskeletal system are the leading cause of chronic pain, physical impairment and loss of quality of life.

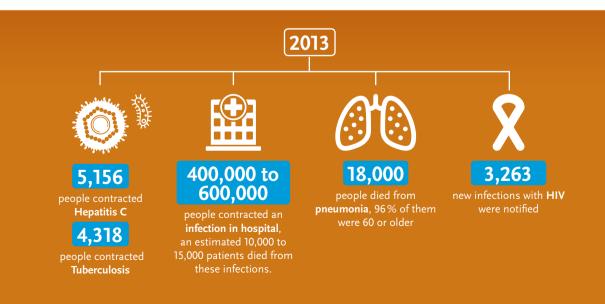
In Germany, musculoskeletal diseases are some of the most frequent chronic diseases. They are a significant burden for patients and their relatives because they strongly restrict physical capabilities and participation in daily activities. Arthrosis, osteoporosis, and rheumatoid arthritis are the most common diseases in this group, and also entail the highest costs. Incidence rates increase very clearly with age. A large proportion of the older and elderly population suffer from one or more musculoskeletal diseases. Chronic back pain, which affects around 25 % of women and 17 % of men in Germany, already affects people at younger ages who are still of working age. Musculoskeletal diseases are the largest single reason for absences from work. They are also the most frequent diagnosis in preventative care and rehabilitation centres and the second most frequent reason for health-related early retirement.



Improved living conditions, hygiene and immunisation have led to a decrease in infectious diseases.

In 2013, pneumonia was the only infectious disease ranking in the top ten list of causes of death in Germany. Infectious diseases are caused by microorganisms entering a human or animal organism and then multiplying. These pathogens can be transmitted through excretions or direct contact with other humans and/or animals. Bacteria and viruses are the most frequent causes of infectious diseases, but single-cell organisms, fungi and worms can also cause them. Infections pose a threat to children, the elderly, as well as immunosuppressed patients.

Until 50 years ago, experts believed they could completely eradicate infectious diseases. Yet, since the end of the 1970s, new pathogens such as the Human Immunodeficiency Virus (HIV) have appeared. Moreover, known pathogens have returned in changed forms. International travel, migration and the global trade in food have all increased the speed at which pathogens can spread. The 2009 flu pandemic impressively showed the speed at which an infectious disease can spread across the world in a matter of weeks. A further concern is the increasing resistances to antibiotics that numerous pathogens are developing and that make treatment considerably more difficult. Tuberculosis and nosocomial diseases, i.e. infections contracted in hospitals or through medical care, are good examples.



The ageing society

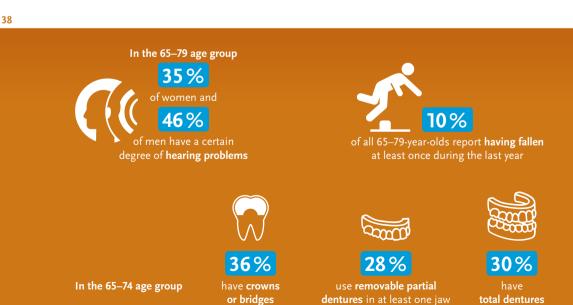
Germany is facing highly challenging demographic changes: increasing life expectancy is leading to an increase in the amount of old people, whilst the decreasing number of young people means that the overall population is contracting.

- Over one third of the population will be over 60 in 2030.
- This will include 6.5 million people aged over 80.
- In 1970, 30% of people were in the 0–20 age group; this figure will drop to 16% by 2030.

The growing imbalance between the decreasing number of people of working age and the increasing number of elderly people who require care and support has consequences for the social security and health systems. The spectrum of diseases is shifting: age-related, noncommunicable and frequently chronic diseases are set to feature more prominently.

The overall trend is that age-related impairments in daily living are decreasing among the elderly. Non-severe impairments however are on the rise.

Over half of the over-60-year-olds in Germany believe they are in either good or very good health. Given the high incidence of chronic diseases in this age group, this positive self-assessment does not reflect the real picture. With increasing age, subjective and objective health tend to diverge. The assessment of health-related quality of life offers more differ-



entiated information on the different aspects of subjective health. Interviews consider the physical, emotional, mental, social and behavioural factors for wellbeing and the ability of people to cope in everyday life from a subjective point of view. Age leads the quality of life of women and men to deteriorate at the physical level. These changes, however, are not always reflected in mental health, and the perceived quality of life can even improve.

Positive or negative health self-assessments have, however, shown to be an important factor for prognosis, allowing conclusions on future functional impairments, chronic diseases, demands on the health system and life expectancy. Whether an increased life expectancy will shorten or rather prolong the phase in life characterised by physical impairments (compression or expansion) remains to be seen. The same is true for the consequences of this development on our health system. We may see a differentiated development of both scenarios according to social status, regional inequalities (deprivation), or migrant background.

The risk of simultaneously contracting two or more chronic diseases (multimorbidity) increases with age. Multimorbidity affects 76% of women and 68% of men aged 65–74 and these figures increase to 82% and 74% respectively in the 75–79 age group.



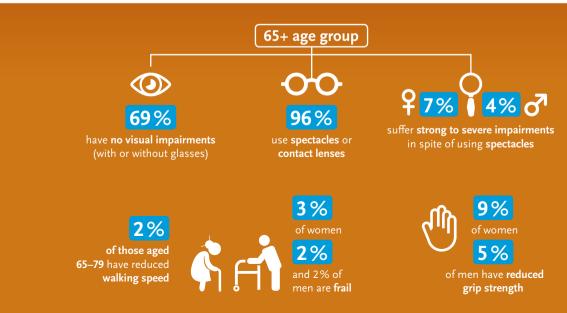
As a consequence, one third of those aged over 65 take at least five different medicines regularly (polypharmacy), which increases the risk of unwanted side effects and drug interactions.

For patients, contracting or developing multiple chronic diseases leads to a significant loss of health and functions, and results in a loss of quality of life and autonomy. The demand they place on the health system increases and they become more liable to require care.

Older age brings a rising number of functional impairments related to the sensory organs, muscles and joints. Hearing and sight, muscle mass and strength slowly decrease, as do endurance and performance. Patients often experience the loss of physical functions as far more burdening than diseases. Many get used to living with (chronic) diseases, in particular if effective treatments are available. Maintaining a person's physical and cognitive functions in old age is therefore of great importance and ensures the autonomy of patients and their participation in everyday life.

Cases of dementia are rare among the under-65-year-olds and sharply increase from age 75 onwards.

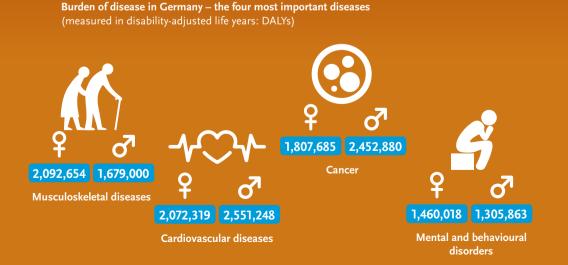
For patients, their relatives and society, dementia represents a considerable burden. In Germany, an estimated 1.4 million people suffer from dementia (2012). Because there are more women in the very old age group, incidence rates among women and the number



of new cases detected are significantly higher than for men. The ageing of society will most likely lead to an increasing number of patients with dementia over the coming decades. In Germany, the extent of this increase will depend on how the risk of developing the condition progresses. Data from other countries appear to show a drop in the number of new dementia cases. Experts mainly explain this development with higher overall levels of education, improvements in health behaviour, such as improved dietary habits and more exercise, as well as a decline in cardiovascular diseases. Depending on the successes in prevention and how incidence rates evolve in Germany, the number of dementia patients could rise to 2–3 million by 2050.

A small number of diseases and preventable risk factors impact people across all age groups.

Four groups of noncommunicable diseases account for the greatest proportion of the overall burden of disease: cardiovascular diseases, musculoskeletal diseases, diabetes and cancer. With its Action Plan for implementation of the European Strategy for the Prevention and Control of Noncommunicable Diseases 2012–2016, the World Health Organisation defined these diseases, which are to a certain extent preventable, as a central field of action. These diseases are related closely to lifestyle, and factors such as tobacco and alcohol, lack of exercise and an unhealthy diet all play in. One such factor is the sharp increase in obesity, which is related to diet and lack of exercise and significantly increases the burden of disease.



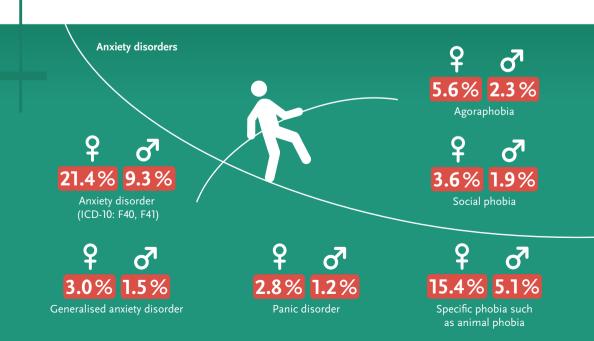
Increasingly relevant



Mental and physical health are important factors for wellbeing and a precondition for a good quality of life and fitness. The constantly changing framework of labour and social conditions permanently forces all of us to adapt. Social and communicative competencies are gaining in importance.

Within this context, the importance of mental stress and disorders is increasing. They are frequently being recognised as diseases in their own right, with a clear impact on people's capacity to work. The increasing attention we pay to mental stress and disorders is seen as one of the reasons why the number of people diagnosed with such disorders and undergoing treatment is rising. In Germany, the available data is contradictory. Whilst population studies indicate no increase in these disorders, mental issues are nonetheless becoming increasingly relevant to society and the health system. For 20 years, mental stress and disorders have increasingly been a reason for sick leave. People with a diagnosed mental illness are far more frequently absent from work than people with other illnesses. Whilst overall early retirement rates are decreasing, early retirement rates due to mental disorders are on the rise.

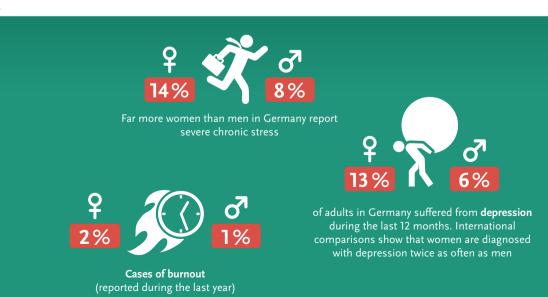
The most frequent mental disorders are anxiety disorders, depression, sleep disorders and alcoholism. Anxiety disorders are widespread and during any single year affect up to 15% of the population, with women affected significantly more frequently than men. In severe cases they can have an impact on daily activities and render sufferers incapable of work-



ing. Around 2% of the population suffer from panic disorders and around 3% from social phobia. Frequently, patients with these disorders also suffer from depression, alcoholism, or drug addiction.

Depressive symptoms and depression are of particular importance because they often occur in combination with other mental disorders, physical illnesses or chronic stress and life-changing events.

In middle and high-income countries, depression is the most common reason for absence from work. People suffering from depressive disorders take sick days twice as often as other people. In Germany, the number of people who retire early due to these disorders has more than doubled between 2000 and 2013. Last year, 13 % of women and 6 % of men in the 18–64 age group reported depressive disorders. The social status of individuals has a decisive influence on incidence rates of depressive symptoms: 16% of women of low social status experience depressive symptoms, whereas this figure drops to 10% and 5% respectively for women of medium and high social status. 11% of men of low social status group. These differences play out particularly clearly in the age group of the 30- to 44-year-olds. Depressive disorders and addictions.



Chronic stress, burnout and sleeping disorders can contribute to mental disorders.

Chronic stress occurs when individuals experience stress at levels of frequency and intensity that go beyond their capacity to cope. Around 14% of women and 8% of men aged 18–64 report being heavily affected by chronic stress. Chronic stress is often related to further disorders such as depressive symptoms or – mostly in middle-aged and medium to high social status groups – with burnout. Burnout can put the sufferer at risk of further mental disorders or physical illnesses at a later point, for example anxiety disorders or hypertension.

Mental disorders as an individual fate are increasingly becoming an issue for society as a whole and an important challenge for health prevention at the workplace and in education (see Strengthening the psyche of children, page 21). In 2010, the Joint German Occupational Safety and Health Strategy considered the issue of mental health in its chapter titled 'Protection and strengthening of health in the case of work-related mental load (PSYCH)'. Mental stress has been anchored in occupational health and safety legislation since 2013, the same year the WHO adopted its European Mental Health Action Plan 2013–2020. Children and adolescents are an important target group for preventive mental health measures. The early recognition of negative developments can help to decrease the risk of chronification and attenuate the course of the disease.



Improving health through monitoring

The data and information provided in this brochure are a summary of our Health in Germany report (www.rki.de/gesundheitsbericht), produced by the Department for Epidemiology and Health Monitoring at the Robert Koch Institute and published in December 2015. Numerous researchers at the RKI and at other institutions contributed to the report. Our data highlight important developments underlying all of the areas considered, for example the spread of risk factors such as smoking or noise pollution, the spectrum of diseases such as heart attacks or depression and the provision of healthcare services. The report focuses on two main issues: demographic changes and social conditions.

Among Germany's (ageing) population, certain chronic diseases such as cardiovascular diseases, cancer, musculoskeletal diseases and diabetes are now the dominant illnesses. The number of people suffering from mental disorders too is rising. The spectrum of diseases is closely related to demographic developments, which in turn are characterised



by an increasing life expectancy. Mortality rates associated with previously fatal diseases are decreasing, leading to an increasing number of people who suffer from chronic diseases. In spite of this rise in chronic disease incidence, an increasing number of people today grow old in relatively good health. The amount of elderly people is also increasing because a very populous generation (the so-called baby boomers) is now entering old age. This is presenting important healthcare challenges. The overall disease burden is increasing, as is the need for care. At the same time, the number of people of working age, i.e. those who could potentially be carers, is set to decline.

The health data presented and discussed in this brochure highlight significant health inequities in Germany resulting from social, gender and migration status, as well as from regional differences. Social status strongly influences many risk factors and diseases, a fact particularly true for cardiovascular diseases and diabetes, which over proportionately affect both women and men of low social status. For the 'toughest' health criterion, life expectancy, large regional and social differences remain. The medium and long-term life expectancy at birth for low-income women is nearly 8 years lower than for women with higher incomes; the difference for men is about ten years.

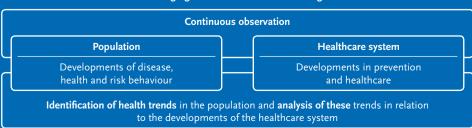
Cross-sectional and longitudinal studies as the two parts of the German health monitoring

Cross-sectional studies

Observational study of a representative crosssection of the population at a particular moment (repeated at certain intervals with changing survey participants)

Longitudinal studies

Observational study of a representative population over a longer timespan (repeated at intervals with the same participants)



Bridging function of health monitoring

Our studies

Data on the distribution and impacts of, and risk factors for, diseases, as well as the corresponding indicators for healthcare quality, provide a basis to assess the overall health of the population and the available healthcare services. The same applies to data on the social and economic situation, which it must always be possible to associate with health data. Health monitoring by the Robert Koch Institute continuously monitors the developments of diseases, as well as health and risk behaviour, in Germany.

The Robert Koch Institute has been carrying out representative surveys on adult health for over 20 years. In 2008, the institute reorganised these various surveys, turning them into the building blocks of its health monitoring. Regular interview and examination surveys cover a broad range of issues. Additional modules, for example, the DEGS1 adult mental health module, supplement the core components. Medical examination programmes, an element of certain surveys, provide further valuable data, with which researchers can for example calculate body mass indexes and access laboratory findings from blood samples. Representative cross-sectional studies of the 0–17 age group (KiGGS) is also part of health monitoring. Researchers continue to monitor the initial group of children and adolescents that they interviewed and medically examined between 2003 and 2006, the so-called KiGGS cohort. A special focus is on transitional phases (i.e. from childhood to adolescence or from adolescence to young adulthood) and their impacts on health. This longitudinal data is of particular interest to epidemiological research. The intervals between and scheduling of surveys, as well as the methods and content of monitoring, are permanently adapted according to needs.

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The surveys of the German health monitoring - an overview







German Health Interview and Examination Survey for Children and Adolescents

- ① Children, adolescents and young adults
- 2 Cross-sectional and longitudinal studies
- 3 Interviews and medical examinations

German Health Interview and Examination Survey for Adults

- 1 Adults
- ② Cross-sectional and longitudinal study
- ③ Interviews and medical examinations

German health update

- 1 Adults
- ② Repeated cross-sectional studies
- ③ Interviews

① Study population ② Study type ③ Methods of data collection

In the future, the overall health of elderly people will become a particular focus. To achieve this conclusively requires going beyond merely recording individual chronic diseases. Researchers are testing new approaches, such as interviewing people who live in nursing homes. At present, people with migrant background are becoming a new focus. So far there is little data (and knowledge) on the health of this group of women, men and children. Progress in this field is planned. RKI health monitoring surveys offer and will continue to offer numerous opportunities for data collection – on general population health as much as more specific social groups.

At the European level, the demand for health data from interview surveys is increasing too and surveys are compulsory in EU countries. In the context of increasing European collaboration, the European Health Interview Survey was integrated into the current GEDA survey wave (GEDA 2014/2015-EHIS).

Besides monitoring noncommunicable diseases, RKI also continuously monitors the epidemiology of infectious diseases in Germany. The focus thereby is on notifiable diseases, such as measles, HIV, tuberculosis and influenza. Surveillance data also serves the early detection of outbreaks.

Survey	Year	Participants	Age range
GEDA 2014/2015-EHIS	2014–2015	approx. 25,000	15 – 79+
GEDA 2012	2012–2013	19,294	18–79+
GEDA 2010	2009 - 2010	22.050	18–79+
GEDA 2009	2008 – 2009	21,262	18–79+
KiGGS wave 2	2014–2017	approx. 23,000	0-29
KiGGS wave 1	2009–2012	12,368	0-24
KiGGS Baseline Survey	2003 – 2006	17,460	0–17
DEGS1	2009–2011	7,987	18–79
Federal German Health Survey (BGS98)	1998 – 1999	7,124	18–79

Our output

We use different channels to make the results from our health monitoring activities available to the scientific community and the broader public. The institute's publications in German-language and international journals, which are based on our data, are directed at researchers. We also make our data freely available in the form of Public Use Files to researchers and cooperate with external researchers in numerous data analysis projects. Health reporting (GBE) at the RKI brings together the results from health monitoring and diverse further sources of data in GBE publications. GBE publications are directed as much at an expert audience with a background in science, medicine and politics as at the broader public.

GBE therefore represents a bridge between academic public health research, political decision-makers and public health actors. Health reporting identifies trends and changes in health, and reveals data gaps. Moreover, GBE takes into account public health information requirements, for example, to develop and implement health policy measures or processes.

Health monitoring and GBE are expanding their role in the advancement of international public health monitoring (at WHO and European levels). The goal is to improve and consolidate the monitoring of noncommunicable diseases and their determinants at the international level.



Our team

Since the integration of the Institute for Social Medicine and Epidemiology (SozEp) in 1994 and the transfer of federal health reporting to the RKI in 1999, the Robert Koch Institute's Department for Epidemiology and Health Monitoring has consistently developed and expanded its expertise in health survey development, cancer registration and epidemiological data collection. Our team comprises over 200 scientists from different disciplines, administrative staff, under- and postgraduate and PhD students. For many scientists, politicians and healthcare experts, our department is a reliable partner and source of quality information, analyses and trend indicators for public health in Germany.

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How healthy are people in Germany? This brochure uses plain language to describe the most important developments in Germany based on data and results from the third health report 'Health in Germany' (2015). The focus is on the currently most relevant issues for public health: health behaviour, living conditions, and physical and mental health.