



DIGITIZATION AND HEALTH

MODULE SUMMARY

#DABEI-Geschichten – an initiative by Deutsche Telekom AG



LIFE IS FOR SHARING.

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FURTHER INFORMATION

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DIGITIZATION AND HEALTH

Introduction

Digitization influences our health. With it, numerous possibilities emerge, but also many questions arise. In this module you will learn how digitization helps you stay healthy and how illnesses can be treated by digital means.

Staying healthy

Sarah's (25) health has always been important to her. However, her new job leaves her little time for sports and healthy nutrition. That is why she downloaded a few health apps. With just a few clicks she can enter her data into these apps. This helps her keep track of her lifestyle even in stressful everyday life.

Mike (42) lives in a small town. One morning he discovers a strange looking mole on his left upper arm. He would like to have it checked by a doctor, but the closest dermatologist is 40 kilometers away. That is why he visits Dr. Reichert's video consultation hour and uses a webcam to show him the suspicious mole.

Future health

Michael (68) is on his way to the hospital. He is going to have a hip operation. What he finds there seems almost unthinkable: An operating room without a doctor. A robot that has been programmed especially for hip operations carries out his operation.

Digital Health Revolution

Scenarios like these make it clear: Our healthcare is changing and is being enhanced by the new possibilities that come with digitization. Health apps and applications are particularly popular. Almost every second person uses one on their smartphone. In the following chapter you will learn more about gadgets and applications for "health".

HEALTH APPS & CO.

Fitness-Wristbands as Healthcare-Guards

They count your steps, measure your heart rate, calculate your calorie consumption and record your sleep. The American researcher Michael Snyder started an experiment. He allowed himself to be continuously monitored over several years by seven different fitness wristbands. They recorded more than 250,000 pieces of data from him every day. One day he noticed an unusually high heart rate. He went to the doctor's to be examined. The doctor diagnosed Lyme disease. The fitness wristband actually contributed to a quick detection of the disease. Snyder was treated at an early stage and is convinced: "People still monitor their cars more than their own bodies. But someday, that is going to change."

Health-Apps: An Overview

- Arya
“ARYA” is an app used in the treatment of mental illness. Similar to a diary, patients record their daily mood there. But it has an advantage over the diary: The data is automatically transmitted to the therapist. In the near future, there will be a chat function in the app, which will make it possible to contact other patients. From time to time, the app will also be coming up with concrete suggestions that could help the patient in their current situation.
- VizWiz
The “VizWiz” app gives blind and visually impaired people virtual sight. With “VizWiz”, situations or objects can be photographed and are then described by online users.
- MySkinPal
Using the “MySkinPal” application, birthmarks can be observed over a longer period of time. It lets you track how they change over time. If you discover a conspicuous mole or birthmark, the app can send a photo of the affected area directly to a dermatologist near you.
- Colon Check
The “Darm Check” app from the umbrella organization of the Swiss Patients' Association helps decide whether or not a colonoscopy is necessary. It determines your own risk of developing colon cancer. Users also receive information on all aspects of intestinal health and preventive measures.
- Keep it down, please: The Noise App
The noise app from the German professional association of ear, nose and throat physicians checks how loud it is in your environment. It determines whether the existing noise level can be harmful to your health. So maybe earplugs are not such a bad idea for the next concert...
- Help for Allergy Sufferers
Your eyes burn and your nose is runny. The pollen season affects many people every year. The pollen app informs users about the current exposure to certain pollen at their location. In addition, the application offers a pollen count preview for a period of several days.
- Emergency App from the German Red Cross
Do you remember your last first aid course? This app helps you act correctly in an emergency. Step-by-step instructions in speech, text and graphics show which measures must be taken in the event of for example, an accident. In addition, the location of the accident can be entered and an emergency call can be made directly.

Criteria for Good Health Apps

- Data Protection
Read the app's privacy policy carefully before installing it. Untrustworthy apps often pass on your personal data to third parties. If you have doubts about its trustworthiness, look for alternatives.
- Up-To-Dateness
Make sure that the content of the app is up to date with the latest medical information. Especially in medicine, content can quickly become “obsolete” and become useless for you as a patient.
- Comprehensibility
The content of a good health app is written in simple, understandable language. Complex interrelationships are well explained and illustrated by pictures.
- Financing
Serious apps disclose their sources of funding. While some apps are funded by health insurance companies, for example, others are financed by a fee that you have to pay yourself. Sometimes only certain functions of an app can be used for free. Find out the exact cost of your license.
- Site Information
Check whether the app's site information is complete and states who is responsible for the app. Good and reliable apps often give you the opportunity to ask experts individual questions using the feedback function.
- Professional Qualifications
Check whether the authors of the content are professionally qualified personnel, such as doctors.

An App as Obstetrician in Papua New Guinea

Birth mortality is high in developing countries such as Papua New Guinea. Many houses there are cut off from the road system by the mountain ranges, the so-called "Highlands". The trip to a hospital for a birth takes much too long. Mothers are often only supported by volunteer midwives who have not received any training and know far too little about how a baby is born. In the case of complications, women and children often have no chance. Scientists from the University of Osnabrück and the Midwifery Schools have now developed an app that supports midwives in Papua New Guinea - the mobile network in Papua New Guinea is well developed.

The Birthing App

- News
The university informs the midwives about current news in the News section.
- Forum
The forum is a place for communication and networking between the midwives. The forum allows the midwives to exchange their experiences in dealing with specific problems and to share positive successes for motivation.
- Wiki
The wiki contains prepared, structured information for midwives. The special thing about the wiki is that it is also available without an internet connection. With an update button the newest content can be downloaded as soon as the midwives have a good internet connection.
- Messages
The message function is used for direct communication between midwives. It is based on today's messenger services.
- Settings
Various settings can be selected within the app. From automatic file download when connected to the Internet to font and font size settings, the app can be adapted to the user's needs.

THE DIGITAL PATIENT

Have you ever googled your aches and pains? Have you ever attended a virtual doctor's consultation? Do you sometimes wonder which pieces of your data will be stored on the digital health card? Come with us on the following pages and visit one of the best known doctors - "Dr. Google". Join us for a virtual doctor's consultation and find out what information digital health cards contain.

A Consultation with Dr. Google

Do you know a doctor whose office is open 24 hours a day? Surely you have been to see him before: We are talking about Dr. Google. Millions of people trust him with their symptoms. Try to guess which symptoms people google the most.

Next, Please!

Long drives to the doctor's office and hours in the waiting room could soon be a thing of the past. More and more doctors are offering digital consultation hours. No diagnoses are made during these consultation hours. They can be seen as an initial consultation and do not replace a visit to the doctor.

The Electronic Health-Insurance Card

Suddenly, Mr. Wagner (57) becomes unconscious. Apart from his electronic health insurance card (also known as a digital health card) and his identity card, the German lawyer carries nothing with him. He is taken by an ambulance to the nearest hospital and treated locally by doctors.

Information on the Digital Health Card

- **Mandatory Health-Insurance Master Data**
With his health insurance master data, Mr. Wagner proves that he is currently insured. The master data includes, among other things, the insured person's name, date of birth, address, insurance status and health insurance number. A physician can also use the data to bill the patient for his or her services.
- **Voluntary Emergency Data**
The voluntary emergency data record contains all the data doctors need in the case of an emergency. This includes information about chronic illnesses, necessary medication and patient allergies. Personal declarations, such as living wills, can also be stored there. The emergency data record can be used to help Mr. Wagner directly. In the event of an emergency, doctors do not require his direct consent.
- **Voluntary Medication Plan**
The voluntary medication plan of Mr. Wagner helps doctors with further medical treatment. The plan offers physicians an overview of already prescribed medications. In addition, it helps to prevent side effects and any prescription that could harm the patients' health.
- **Voluntary Patient File**
The voluntary patient file facilitates the exchange between different specialists. They put everyone on the same level. The exchange of information with letters is no longer necessary.
- **Consent**
Mr. Wagner always has the control over his health data. All of his visits to the doctor are saved on the card. A PIN protects his data from being misused.

The Electronic Health-Insurance Card

On January 1st, 2015, the electronic health card replaced the classic health insurance card. It serves as proof of insurance. In addition to the holder's name and date of birth, the electronic health card also contains a photo of the insured person, for example. Today, everyone with statutory health insurance coverage uses the electronic health card. If you do not have one yet, you should ask your health insurance company for it.

Protecting your Health Data

What if electronic health card information falls into the wrong hands? What happens if your employer or a life insurance company representative has access to your health data?

E-Health-Law

Legislation is needed to prevent the misuse of your health data. An important step is the German "Statute for Secure Digital Communication and Applications in the Health Sector" (short form: "[E-Health Law](#)") In addition to the introduction of video consultation hours, the law also provides for electronic access to patient-related data (such as medication plans and emergency data) in the future.

THE FUTURE OF DIGITAL HEALTHCARE

What will the future of digital healthcare look like? Digital technologies such as augmented and virtual reality, operating robots or 3-D printing will change healthcare.

“Pokémon Go” in the Operating Room

In games such as “POKÉMON GO”, augmented reality (AR) or virtual reality (VR) is used to create the most realistic gaming experiences possible. AR offers great potential, especially in medicine. With the help of data glasses, a doctor can constantly keep an eye on the patient during an operation. All necessary data such as x-rays is displayed on the screen in the glasses. They augment the reality in the operating room and thus, support the doctor.

Printed Organs

It almost sounds too good to be true. A fully functional organ, manufactured by a machine - the 3-D printer. Dental crowns, hearing aids and even arm or leg prostheses are already produced by 3-D printers. Substances such as titanium, plastics or ceramics are fused layer by layer using lasers or infrared light. However, it will take some time before organs can actually be produced in this way.

Operation via Video Chat

Imagine you need a complicated operation that only a few surgeons in the world can perform. What if you do not have to travel thousands of kilometers, but only go to the nearest hospital? This is already possible today with the aid of operating robots. The robots are remote controlled by surgeons. The first transatlantic operation of this kind took place in 2001. New York surgeons operated on a patient in France.