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Workshop Summary

PerspektivForum "Grand Challenges"

Bill & Melinda Gates Foundation and Stiftung Jugend forscht e. V.

October 14–16, 2018 Berlin

Title: "How digital natives impact healthcare systems - Innovative ways to resolve infrastructural challenges"

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Summary:

In our workshop we discussed several aspects of infrastructural challenges in the medical field and recent innovations to resolve those, e.g. the delivery of medical supplies and blood transfusions by drone or mobile 3d printing for orthotics. Our main topics were the provision of medical care in rural areas in Germany as well as in sub-Saharan Africa. Our focus was on resolving the problems that already exist or that are probable to arise in the future considering the demographic changes within these regions.

Lack of sufficient coverage concerning specialised medical professionals and fast transportation becomes an increasing issue even in rural areas in Germany. In emergency situations, the ambulance sometimes takes too long to reach its patient, even though a law exists to ensure prompt arrival. We propose a mandatory app for all smartphones that gives advice in emergency situations and instructions on what to do if first aid for children or cardiopulmonary resuscitation (CRP) is required. The person that needs to perform CPR is most likely a member of the household or a close relative. Easy instructions, vocal guidance and pictograms could help to counter panic, and enable people to actually help their family member and cause any harm. This could increase the percentage of patients who have received CPR prior to the arrival of the ambulance, which could save countless lives. Another proposal would be the introduction of an app that gives further access to the patient's own data and other medical information as a sort of further developed electronic health record potentially combined with fitness tracker data and epidemiologic information. This would include data about the diagnosis and recent scientific developments regarding the patient's diagnosis and symptoms. It could guide the patient through the countless information available online and could avert unnecessary fears and frustrations. It further could support doctors to provide a medical report for the patient to explain the diagnosis and the procedure in an easily understandable way to ensure better understanding of the situation and empower the patient with knowledge. Thus, empowering him or her to make informed decisions on their own. The downside with this app would include an increased workload for doctors and problems with data security as well as data quality/relevance for the specific case and thus, potentially causing more fear for the patients as they are losing personal contact to medical staff.

Problems in rural Germany are sometimes not so different from those that can be encountered in sub-Saharan Africa. In principal, the apps mentioned above could help alleviate the issues in these regions as well. However, smartphones are not used there as much, making an application as the above only a vision of the future. Until then, problems need to be addressed in a more direct way. Technologies and globalisation could help to train medical staff within their respective communities via e-learning programs – virtually bringing the teacher to the student instead of physically moving the student to the teacher. This could make education cheaper and easier accessible.

Looking into possible future of medical care, we discussed the idea of a cyborg-human. This human would have many bio-technological senses, e.g. measuring pulse, blood pressure or blood sugar. These devices would transfer all their information online, enabling easy access and real-time monitoring of body functions. The data could not only be used for patient care but also for instantaneous empirical research. Big developments would still be necessary before this could become reality. Digitalisation is a big opportunity for medicine in the future that should not be missed. We need to carefully ensure not to lose the personal relationship between patients and healthcare professionals but use modern technologies communication in a reasonable way to improve health literacy, healthcare access, quality care and communication at the relevant levels. It is a big challenge and key priority for both politics and civil society to ensure that no-one is left behind in times of digitalisation and constant change, but also a responsibility for digital natives to foster cross-generational dialogue and development to improve and to facilitate access to medicine and recent research.