

Press release**Friedrich-Alexander-Universität Erlangen-Nürnberg****Dr. Susanne Langer**

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<http://idw-online.de/en/news731491>Research projects
Information technology, Medicine
transregional, national**Smart pregnancy**

Wouldn't it be handy if you were able to record your baby's heartbeat or even take an ultrasound scan just using a smartphone app at home, without having to make an appointment to visit your obstetrician or go to the hospital, with all the additional travel and waiting time that entails? Technology is currently being developed which ought to make this possible in the near future. Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) and Universitätsklinikum Erlangen (UKER) are investigating what would be needed in order to offer a service like this to expectant parents.

They have received funding of approximately 3.2 million euros over the next two and a half years from the Federal Ministry of Health within the context of the SMART Start project.

'Funded projects such as these allow us to make a significant impact on encouraging the digitalisation of healthcare in Germany,' says Prof. Dr. Bjoern Eskofier, one of the coordinators of the project and holder of the Chair of Computer Science 14 (Machine Learning and Data Analytics Lab). At the current time, antenatal care is entirely analogue. All maternity notes listing the results of the various tests are printed out and entered in a physical booklet or antenatal folder. According to Stefan Gradl, a doctoral candidate at Prof. Eskofier's lab, the disadvantages are that 'this mound of paper is liable to get lost or damaged and important results can be easily overlooked or forgotten.'

The days of noting everything down on slips of paper belong to the past.

Help is now at hand thanks to a digital solution. In an ideal scenario, the programme will be able in future to derive sensible recommendations for action for all foreseeable situations during pregnancy based on a wide range of data. An initial clinical study with 500 test persons is planned at the Department of Obstetrics and Gynaecology at Universitätsklinikum Erlangen. Straightforward wearable devices such as smartwatches will be used as part of the study. The participants will also be given various devices to take home – a contraction monitor supplied by the start-up Bloomlife and portable ultrasound probes.

'The purpose of the study is to find out how we can make it as easy as possible for expectant mothers to carry out routine antenatal examinations themselves,' explains Dr. Hanna Hübner, who is responsible for managing the study at the Department of Obstetrics and Gynaecology. The aim of the research is to develop as user-friendly an app as possible.

The app should be able to record and analyse measurements and forward the data to obstetric specialists. The company Refinio has been commissioned with programming the app. It is hoped that the collected data can be used to develop measures aimed at improving mindfulness and stress reduction in antenatal care. The Chair of Psychiatry and Psychotherapy is currently researching how this can be done.

Taking the pressure off the health service

There is no doubt that steps have to be taken to improve prenatal care according to Dr. Patrick Stelzl. The deputy senior consultant is in charge of the medical aspects of the project at the Department of Obstetrics and Gynaecology at UKER. 'Our goal is not to replace personal contact to doctors and midwives and abandon expectant mothers to technology,' he explains. On the contrary – he would like to ease the pressure for all concerned. 'If we can reduce the time and effort required for routine examinations, we will then have more resources to deal intensively with complicated pregnancies,' explains Dr. Stelzl.

Digital options are also an important building block for ensuring antenatal care in areas with few specialist doctors. You only have to take a look at the facts and figures to realise that this is necessary: whilst there were still over one thousand maternity wards throughout Germany in 1991, today there are only approximately 700.

Interdisciplinary project

One of the central requirements of the study is to find out how to minimise mistakes during the use of the app. In this context, Prof. Dr. Peter A. Fasching, Professor of Translational Gynaecology and Obstetrics at Universitätsklinikum Erlangen, emphasises that 'in spite of all the advantages offered by the new technology we must still ensure that expectant mothers are in safe hands at all times.' Both data protection and ethical aspects have a major role to play in determining the extent to which the new digital service will be accepted. For this reason, the Chair of Systematic Theology II (Ethics) is also involved in the project, and the Chair of Health Management will investigate which organisational challenges and costs would be incurred for introducing the digital version of the antenatal folder.

Prof. Dr. Bjoern Eskofier is coordinating the interdisciplinary research project together with Prof. Dr. Matthias W. Beckmann and Prof. Dr. Peter A. Fasching from the Department of Obstetrics and Gynaecology at UKER. The Faculty of Humanities, Social Sciences, and Theology is also involved with Prof. Dr. Peter Dabrock and Dr. Matthias Braun, as well as Prof. Dr. Johannes Kornhuber and PD Dr. Bernd Lenz from the Chair of Psychiatry and Psychotherapy at Universitätsklinikum Erlangen and Prof. Dr. Oliver Schöffski from the Chair of Health Management at FAU.

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