Research cooperation with India for better wound management

Fraunhofer ENAS shows the project MIDARDI together with BiFlow Systems GmbH at COMPAMED 2017 from November 13 until 16 in Düsseldorf, Germany. Within the project a point-of-care test to determine pathogens and their antibiotic resistances was developed.

Europe and India face a steady increase in type 2 diabetes. Besides the actual symptoms several associated diseases like diabetic foot ulcer (DFU) may occur. The damage of nerve cells leads to the reduction of pain sensation and thus to an increased number of ulcers and delayed wound healing at the feet. The wounds are often rapidly colonized by bacteria and the severe infection delays the wound healing even further. For a proper wound management the fast determination of pathogens and their antibiotic resistances in the wound is needed.

In the project MIDARDI (support code: 01DQ15017A), funded by BMBF (Federal Ministry of Education and Research) and IGSTC (Indo-German Science & Technology Centre), experts from India and Germany develop a new tool for rapid Point-of-Care diagnostics within a project term from December 1, 2015, until November 30, 2018. Using molecular diagnostic procedure the determination of pathogen species and antibiotic resistances is much faster (<1 hour) than the established microbiological testing by cell culture. In order to use the complex procedures of molecular biology for the Point-of-Care testing the procedures need to be automated and miniaturized.
The Fraunhofer Institute for Electronic Nanosystems ENAS is developing microfluidic systems which are capable to transfer macroscopic liquid handling steps into small integrated systems. By simplifying the handling of these systems and eliminating work intensive manual handling steps the tests can be even run by less qualified personnel. In cooperation with experts in biochemistry (Fraunhofer IZI-BB in Potsdam-Golm, Germany, and Manipal University in Manipal, India), medical product developers (BiFlow Systems GmbH in Chemnitz, Germany, and Achira Labs, Ltd. in Bangalore, India) and surgeons from the Manipal University Hospital (India) a robust diagnostic device is being developed for the clinical routine.