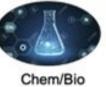
Sector: Smart Manufacturing

Insight 🥯



Human Performance

Deu



Sensors

SWAB – Smart Wound Analysis of Bacterial Volatiles

A novel method for rapid non-invasive characterisation

of bacterial infections in wounds

Executive Summary What Insight Challenges Impact Delivered Comprehensive volatile screening of wound swabs achieved using gas chromatography-mass spectrometry analysis. Unsupervised learning techniques allow microbial volatile trends Insight delivered a across non-infected and non-invasive wound The challenge was to infected populations be monitoring approach find a way of analysing identified. with a rapid turnover of open wounds in a Identification of such data that will ultimately clinical setting in both a trends will allow accelerate clinical non-invasive and infection-associated workflows. time-sensitive fashion. biomarkers to be subsequently identified. In the future, infection-associated biomarkers can then be targeted in hospitals. Close collaboration with clinical partners established for the project. UCC

Linky College I University College I College I College I College I

LIMERICK

FUNDED BY:

0

Sfl.

European Union European Regional



In a clinical setting, open wounds are a common source of infection. This project aims to explore and investigate novel and potentially non-invasive measures to detect and identify these infections. Any new technique or assessment must also be cognisant of the time sensitive nature of a hospital setting, and should seek to increase the speed at which infections are identified, in order to facilitate timely intervention.

Solution and Outcome

Using Insight's expertise in wearable technology, sensing and detection, and materials chemistry, the Smart Wound Analysis of Bacterial Volatiles (SWAB) was envisaged. SWAB is a novel method for rapid characterisation of bacterial infections in wounds that exploits the 'smell of infection' to profile the microbial environment of the wound. The method provides a comprehensive volatile screening of wound swabs using solid-phase microextraction and gas chromatography-mass spectrometry. Unsupervised learning techniques allow microbial volatile trends across non-infected and infected populations be identified, which will allow infection-associated biomarkers be subsequently identified. Crucially, this method of wound monitoring is rapid and has a fast turnover of data that will ultimately accelerate clinical workflows.

Heynoch ETyndall

LIMERICK

0

Contact: Dr. Breda Kiernan, Centre Manager

Contact: business@insight-centre.org www.insight-centre.org