



Corporate Summary

Presymptom Health is a pioneering medtech company that creates diagnostic tests to detect illnesses earlier to help save lives. Established in 2019, it was founded to exploit a ground-breaking innovation to detect sepsis in patients up to three days before symptoms appear. Our sepsis tests:

- Can detect sepsis up to **three days** before symptoms appear.
- Are up to **90% accurate**.
- Have been developed from the largest study of its kind which involved **4,385 elective surgery patients**.
- Are directly applicable to **COVID-19** as most patients who succumb develop organ failure/sepsis.

What is Sepsis?

Sepsis is the immune system's overreaction to an infection or injury and can result in life-threatening organ dysfunction. The challenge with treating patients with sepsis is that by the time symptoms appear the patient is already very ill and mortality rates can exceed 50%.

Sepsis is also a major public health challenge and associated treatment costs are considerable.

- Direct NHS cost of up to **£2 Billion**.
- Annually, **49 Million** people affected with 11 Million deaths.
- Sepsis and organ failure are the primary cause of death for **COVID-19** patients. In the ISARIC outcomes study of 20,000 patients, **18% required HDU/ICU** admission of which 33% died.

Diagnostic Tests

Presymptom Health has initiated the development of its test portfolio with a seed investment of £200k from Ploughshare Innovations. This funding will, over six months, enable the development of the company's first pre-commercial diagnostic test prototypes and will deliver proof of concept clinical testing in COVID-19 patients.

- Presymptom Health is seeking funding of up to £2M over two years to develop its test portfolio.
- First regulatory approval is anticipated in 2021.

History

The technology behind the presymptomatic sepsis tests started more than 10 years ago at the Defence Science and Technology Laboratory (Dstl) and included the largest patient study of its kind.

The study recruited a total of 4,385 patients and was designed to identify and predict those likely to develop sepsis. From the 72,734 patient samples taken, a unique clinical biobank and database was generated and then mined using machine learning to identify biomarker signatures that could predict the onset of sepsis. Both protein and molecular signatures were identified and were shown to be able to provide an early warning of sepsis up to three days ahead of illness with accuracy of up to 90%.

Key People

Dr Iain Miller is the CEO and has extensive experience in the commercialisation of medical technologies. He previously worked for GE as Global Head, Precision Medicine Strategy & Partnerships and, also with diagnostic leader Biomerieux, where he led the strategy and business development for the precision medicine business unit. Within the UK Department of Health, Iain has also sat on the NICE Technology Appraisal Committee and, on an ongoing basis, serves as an assessor and panellist for Innovate UK. Iain holds a PhD in Biomedical Engineering from the University of Strathclyde and an MBA from Edinburgh's Heriot-Watt Business School.



Dr Roman Lukaszewski is a Dstl Fellow with responsibility for the Diagnostic research programme. He has published work on the pathogenesis, diagnosis and treatment of a number of viral and bacterial ACDP category III and IV agents as well as on the presymptomatic diagnosis of sepsis in patient populations. Dr Lukaszewski was the PI for the DTRA- funded project referred to in the current BAA, "Correlating Pre-Symptomatic Biomarkers for Sepsis" (HDTRA1-12-D-0003-0011). Roman holds a BSc (Hons) in Zoology from the University of Nottingham and a PhD in Immunology from the University of Manchester.



Awards

The Dstl scientists involved in this work were recipients in 2018 of The Sun's "Millie" Innovation Award.

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