



Supporting antimicrobial stewardship by enabling the early diagnosis of infection and sepsis

Presymptom Health was founded in 2019 to develop a novel technology that addresses two growing global healthcare challenges: early infection diagnosis and antimicrobial resistance (AMR). We provide a **rule-out test** for infection sooner than current diagnostic tests, based entirely on the **host immune response**. Clear results inform decisions for **managing infection** within **clinical guidelines**, while **optimising antibiotic use**.

Presymptom Health was established to address the urgent need for....

... **early infection diagnosis**. Current techniques are centred on pathogen-focused microbial cultures – which are slow – or molecular panels that can yield uncertain aetiology, leading to:

- **unsure diagnoses** and unnecessary antibiotic administration;
- **diagnostic delays for patients** with presumed infection who are at risk of developing sepsis – representing up to 38 % of UK emergency department admissions.¹

... **strategies to combat AMR**. The WHO recognises AMR as one of the top 10 global public health threats facing humanity.⁵ AMR was directly responsible for nearly 1.3 million deaths globally in 2019, and associated with a further five million.⁶ In addition to loss of life, AMR is projected to result in up to USD 3.4 trillion of GDP losses per year by 2030.⁷ Already, more than 2.8 million antibiotic-resistant infections occur in the United States each year, a number that could worsen with microbes continuing to develop new types of resistance.⁸



Top 10 global public health threats facing humanity



Directly responsible for nearly 1.3 million deaths globally in 2019



Up to USD 3.4 trillion of GDP losses per year by 2030

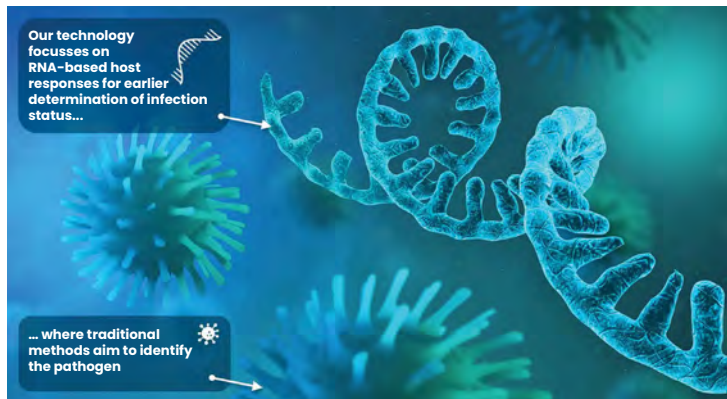
Estimates on the overuse of antibiotics vary. One study found that **79 % antimicrobial prescriptions** in surgical units, and 64 % in ICUs, **were inappropriate**.² Another found this number was 28 % in US physician offices and emergency departments.³

In patients with septic shock, **each hour of delay** before starting antibiotic treatment is associated with **an average decrease in survival of 7.6 %**.⁴

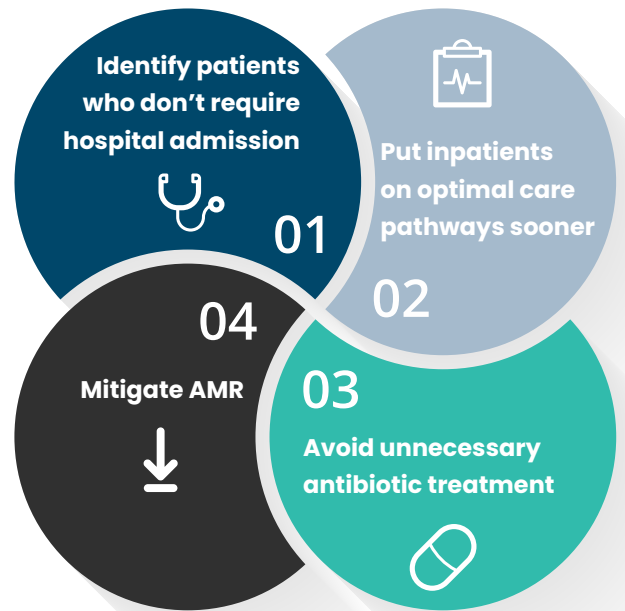
// Ruling out the presence of infection is as important as antibiotic development to address antimicrobial resistance.

The offering

Our technology focusses on the **patient's immune response** to the presence of pathogens, allowing the absence of infection or sepsis to be confirmed before symptoms would appear. This is in contrast to most current diagnostic tests, which aim to detect the pathogen itself.



This approach helps to:



The science

Our technology is based on a **10-year foundational discovery study** comprised of **100,000 samples** with longitudinal clinical metadata. Using machine learning and AI, we have identified a number of biomarkers that could predict the onset of infection and sepsis up to three days ahead of current diagnostic techniques. We have used this data to develop a number of tests that deliver valuable insights on disease progression, which have been verified in a further **seven clinical studies** involving 12 hospitals across the UK and Europe.



10-year foundational discovery study



100,000 samples



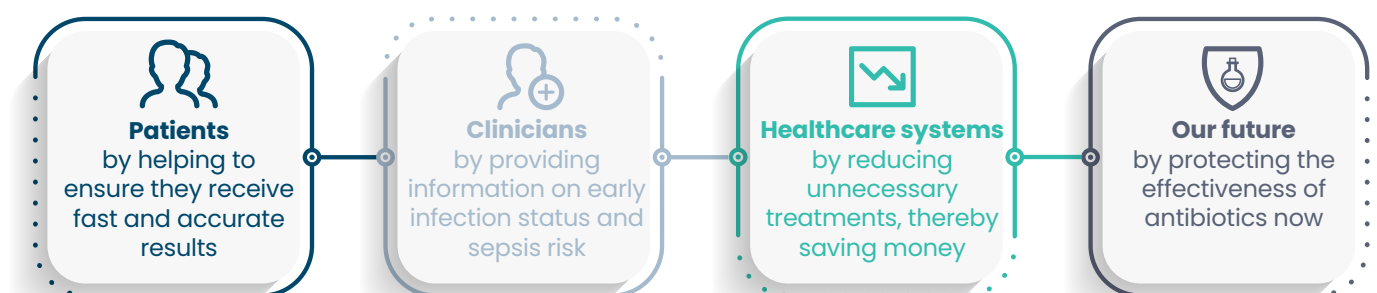
7 clinical studies; 5,500 patients



12 hospitals across the UK and Europe

The impact

Our tests can make a difference with multiple stakeholders, including:





Our first product – **InfectiClear** – is designed to rule out infection up to three days before current methods, and is planned to be available in 2025. This will help clinicians to save time, save lives and save money.

Key benefits:

- ✓ 95 % accuracy in ruling out infection up to three days before current methods
- ✓ High specificity
- ✓ High negative predictive value
- ✓ No capital investment required
- ✓ Can be run on any lab-based PCR system
- ✓ Point-of-care format in development

InfectiClear is one of eight technologies selected for the Innovative Devices Access Pathway (IDAP) pilot, an initiative to accelerate the development of new medical devices that address unmet clinical needs in the NHS.

Visit www.presymptom.com for more information.



References

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Our products are still in development and not approved for clinical use yet.



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