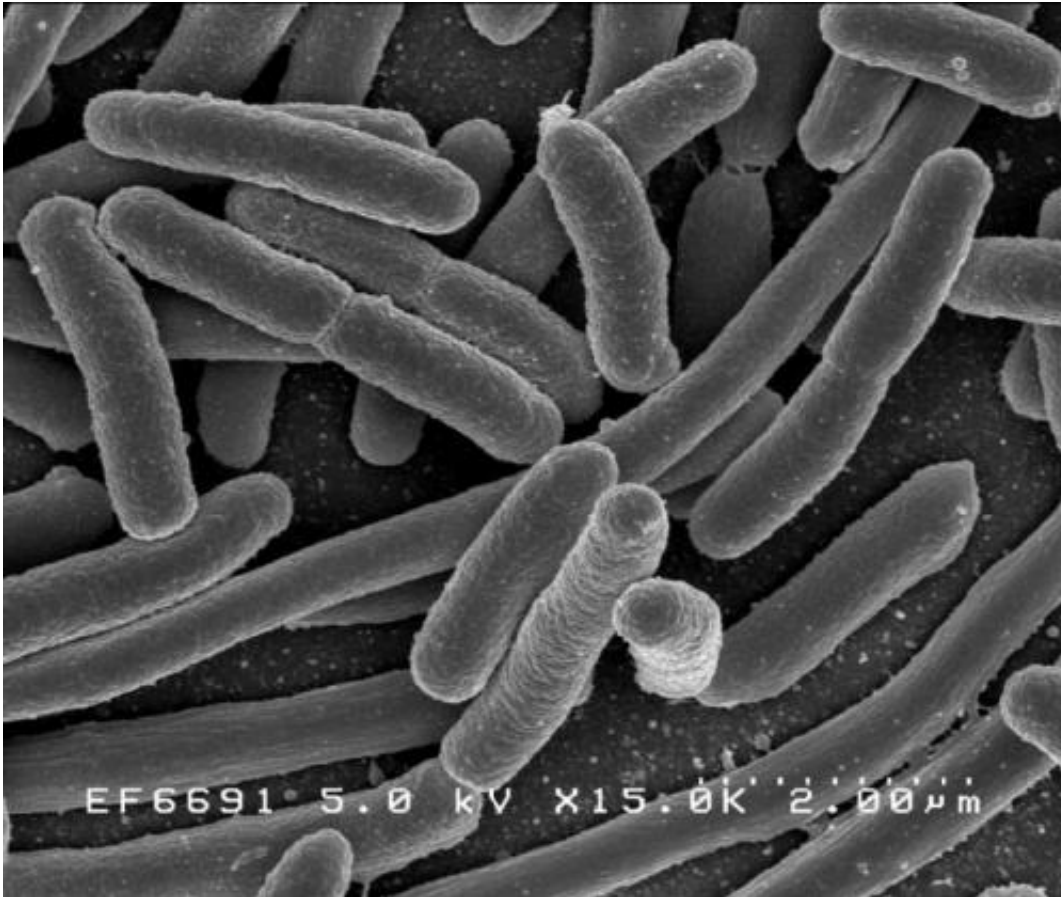


## **E. coli—are we measuring the wrong thing?**

April 25 2018

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Escherichia coli. Credit: Rocky Mountain Laboratories, NIAID, NIH

A sepsis awareness and management programme has demonstrated overall success in terms of improved sepsis detection, but has led to an increase in the number of *E. coli* blood stream infection cases presented, calling into question the targets used by Health Boards and set by the

Welsh Government.

Sepsis is a serious complication of an infection, which can lead to multiple organ failure or even death. Hywel Dda University Health Board has been proactive in its adoption of [sepsis](#) diagnosis measures, working closely with the Public Health Wales initiative 1000 Lives, led by RRAILS Lead Chris Hancock, to improve detection and management.

A Bevan Exemplar programme was established in the Hywel Dda University Health Board area with the goal to reduce healthcare-associated infections. The programme was rolled out in primary and secondary care institutions across West Wales in 2016 and was originally designed to address *E. coli* bacteraemia reduction targets. Bevan Exemplars, supported by the Bevan Commission, are provided with expert mentoring to pursue projects which improve NHS Wales' resource efficiency, [health](#) outcomes or patient experience.

The architects of the programme, Dr Mike Simmons and Mrs Sharon Daniels, found that positive interventions in sepsis management caused the *E. coli* bacteraemia increases.

The sepsis awareness team in Hywel Dda University Health Board was found to be succeeding in their early detection of sepsis and were taking more blood cultures than in previous years, giving an increase in presentations of *E. coli* bacteraemia and other organisms.

Fifteen years' worth of data (totalling 200,000 blood culture sets) was analysed, which showed a recent increase in the number of *E. coli* presentations, correlating with improved sepsis management compliance.

The team behind the programme has made recommendations to the bodies setting infection reduction targets. These recommendations

include that alternative metrics, such as the ratio of positive to negative samples and analysing urine samples, may provide a more accurate measure of success instead of the existing *E. coli* reduction target.

Dr Mike Simmons, Bevan Exemplar and Public Health Wales Microbiology, Carmarthen, said:

"It was immensely beneficial to have access to the Bevan Commission and our mentor and Bevan Commissioner Professor John Wyn Owen (former Director of the NHS in Wales), who was able to provide very valuable expertise, which helped us to develop our thinking.

Although our sensitive sepsis detection programme failed against the *E. coli* reduction target, it has contributed to improving sepsis diagnosis and management overall. This work led us to consider alternative measures which demonstrate an improvement in quality of services, leading to major waste reduction in the NHS."

Siôn Charles, Deputy Director, Bevan Commission, said:

"The Bevan Commission Academy has been designed to strengthen leadership and innovation in health, in Wales and beyond. This particular case study demonstrates the importance of providing the time and support needed for future health leaders to innovate, which often involves failing fast or finding new ways to frame challenges in the NHS.

In this case, an initial failure to meet *E. coli* reduction targets has opened up an important debate about the usefulness of these metrics, and points to success in other important areas such as sepsis detection."

The full findings have been published in the *Journal of Hospital Infection*.

The Bevan Commission, hosted and supported by Swansea University, brings together a group of internationally renowned experts to provide independent advice on health and care to the Welsh Government and leaders across Wales, the UK and worldwide.

Provided by Swansea University

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