

# Largest national UK study into adult meningitis treatment reveals little adherence to clinical guidelines

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New research involving University of Liverpool academics has revealed a lack of adherence to existing clinical guidelines on the management of

adult bacterial meningitis cases in U.K. and Irish hospitals.

Published in *BMJ Open*, the largest study into the management of meningitis in the U.K. and Ireland has found that, across 64 hospitals and in 1,400+ cases, none of the clinical standards assessed were met in all cases. Of the 30 standards evaluated, two thirds were followed in only 50% of cases or less. In the majority of cases there were delays in use of diagnostic tools including lumbar punctures, administration of antibiotics and steroids, and public health authority notification (vital in infectious disease control).

There have been guidelines since 2016 but this study shows that:

- Only 19% of patients who were treated with antibiotics received them within the first hour, with the median time from [hospital](#) admission to first dose of antibiotics over three hours. Previous studies have shown a delay of over three hours on antibiotic administration for [bacterial meningitis](#) has been linked with a 14-fold increase in risk of death.
- Whilst a lumbar puncture should be performed within one hour of arrival at hospital, this only happened for 0.6% of patients (8 of the 1,379 cases analyzed). This means the cause of meningitis is less likely to be identified, leading to less targeted treatment with antibiotics, and potential exposure to unnecessary antibiotics, if the cause is not bacterial. It can also have implications for wider outbreak detection.
- Only 16% of cases were documented to have been reported to the relevant public health authority; a critical step in infection control.

The retrospective study analyzed data from cases aged 16 and above presenting in 2017, from 64 hospitals of all sizes (from small district hospitals to large teaching ones). It assessed the entire clinical pathway

from admission for those with possible bacterial meningitis.

Recent UKHSA data has shown a rise in Meningococcal Group B cases (a strain of bacterial meningitis commonly known as MenB) among [young adults](#) in England and a lack of adherence in the critical areas of diagnosis and administration of antibiotics has serious implications. Thanks to routine immunization, cases of bacterial meningitis are relatively rare in the U.K., meaning that when cases do present at hospitals (usually within A&E departments) doctors may have had little experience of meningitis management. This is why adherence to existing evidence-based guidelines is essential, with early recognition, the right investigation, and appropriate treatment (within hours) well-evidenced to save lives.

Dr. Fiona McGill, honorary senior lecturer at the University of Liverpool and consultant in infection, senior author of the study and lead author of the national guidelines said: "These findings are of concern and it is vital that we understand exactly what the barriers are to implementing evidence-based guidelines. New NICE guidelines are expected soon but we must understand what stops people following the advice, in order to improve patient care."

Claire Wright, head of evidence and policy at the Meningitis Research Foundation, says: "Every hour matters in treating meningitis, with heart-breaking implications when the appropriate clinical care is not given. With new National Institute for Clinical Excellence (NICE) guidelines on the diagnosis and treatment of meningitis in development, these findings must inform them. It's not enough to have evidence-based guidelines, we must also understand what makes the right environment, including training and support, for those doctors and nurses on the front line, to ensure everyone who gets meningitis has the best possible outcome. This would be an important study in any year but is particularly timely now, with the recent rise in cases amongst young adults, as

reported by the UKHSA in January, and a very recent cluster of cases in Yorkshire."

**More information:** Jayne Ellis et al, Clinical management of community-acquired meningitis in adults in the UK and Ireland in 2017: a retrospective cohort study on behalf of the National Infection Trainees Collaborative for Audit and Research (NITCAR), *BMJ Open* (2022).

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