



Considered judgement on quality of evidence

S I G N

Key question: Do blood cultures results change the antibiotic prescription?

1. Volume of evidence

Comment here on any issues concerning the quantity of evidence available on this topic and its methodological quality.

Up to end of 2006

5 cohort studies (1 prospective) published since the 2004 revision of the BTS Guidelines.

2007-10

Two systematic reviews (Afshar, Nazarian) and a retrospective observational cohort study (Abe, Japan).

2. Applicability

Comment here on the extent to which the evidence is directly applicable to the NHS in Scotland.

Studies are from North America (4 USA and one Canada) or Japan.

3. Generalisability

Comment here on how reasonable it is to generalise from the results of the studies used as evidence to the target population for this guideline.

The studies enrolled adult patients presenting to A&E or to medical admissions so it is reasonable to generalise to the NHS in Scotland.

4. Consistency

Comment here on the degree of consistency demonstrated by the available of evidence. Where there are conflicting results, indicate how the group formed a judgement as to the overall direction of the evidence

All of the studies reported that blood cultures were only positive in <10% of patients so rarely influenced antibiotic treatment of patients. All studies identified problems with distinguishing between true positive and false positive blood cultures and one study (Corbo) reported that treatment was changed inappropriately in 6 of 26 patients with false positive cultures.

The systematic review concluded that routine blood cultures should not be recommended for all patients presenting to hospital with pneumonia.

5. Clinical impact

Comment here on the potential clinical impact that the intervention in question might have – e.g. size of patient population; magnitude of effect; relative benefit over other management options; resource implications; balance of risk and benefit.

Blood cultures provide important epidemiological information but in CAP they are unlikely to have a major impact on the management of individual patients. They might help to streamline antibiotic treatment for a few patients with severe pneumonia. However, the evidence suggests that any positive association between blood cultures and outcome is likely to be due to confounding (good clinical teams take more blood cultures and also achieve better clinical outcomes but there is no direct causal relationship between taking blood cultures and outcome).

<p>6. Other factors <i>Indicate here any other factors that you took into account when assessing the evidence base.</i></p>
<p>The recommendation in the BTS Guideline is “Blood cultures are recommended for all patients with severe CAP and most other patients admitted with CAP, preferably before antibiotic therapy is commenced. However, if a diagnosis of CAP has been definitely confirmed, and a patient has no severity indicators or co-morbid disease, then blood cultures may be omitted [A-] IDSA 2006: Blood cultures are optional for all hospitalized patients with CAP but should be performed selectively (table 5). The strongest indication for blood cultures is severe CAP.</p>

Key question: Do blood cultures have a direct impact on outcome?	
1. Volume of evidence <i>Comment here on any issues concerning the quantity of evidence available on this topic and its methodological quality.</i>	
2 retrospective cohort studies and one Cluster RCT published since the 2004 revision of the BTS Guidelines.	
2. Applicability <i>Comment here on the extent to which the evidence is directly applicable to the NHS in Scotland.</i>	
All studies are from acute hospital care in the USA and Japan.	
3. Generalisability <i>Comment here on how reasonable it is to generalise from the results of the studies used as evidence to the target population for this guideline.</i>	
The studies enrolled adult patients presenting to A&E or to medical admissions so it is reasonable to generalise to the NHS in Scotland. The studies do not provide data stratified by severity of pneumonia.	
4. Consistency <i>Comment here on the degree of consistency demonstrated by the available of evidence. Where there are conflicting results, indicate how the group formed a judgement as to the overall direction of the evidence</i>	
All of the studies are consistent in their findings and recommendations	
5. Clinical impact <i>Comment here on the potential clinical impact that the intervention in question might have – e.g. size of patient population; magnitude of effect; relative benefit over other management options; resource implications; balance of risk and benefit.</i>	
No clinical impact demonstrated.	
6. Other factors <i>Indicate here any other factors that you took into account when assessing the evidence base.</i>	
The recommendation in the BTS Guideline is “Blood cultures are recommended for all patients with severe CAP and most other patients admitted with CAP, preferably before antibiotic therapy is commenced. However, if a diagnosis of CAP has been definitely confirmed, and a patient has no severity indicators or co-morbid disease, then blood cultures may be omitted [A-] IDSA 2006: Blood cultures are optional for all hospitalized patients with CAP but should be performed selectively (table 5). The strongest indication for blood cultures is severe CAP. Biological plausibility: blood cultures can help in adapting antibiotic treatment but the evidence shows that in CAP this will not occur in >90% of patients	
7. Evidence statement	Evidence level

<i>Please summarise the development group's synthesis of the evidence relating to this key question, taking all the above factors into account, and indicate the evidence level which applies.</i>	
Any association between blood cultures and clinical outcome in patients with CAP is likely to be due to confounding.	2⁺
8. Recommendation <i>What recommendation(s) does the guideline development group draw from this evidence? Please indicate the grade of recommendation(s) and any dissenting opinion within the group.</i>	Grade of recommendation
Blood cultures should not be part of the Care Bundle but the recommendation in the BTS guideline should continue to be supported as a statement of good practice.	B