Antifungal agents for preventing fungal infections in non-neutropenic critically ill patients

Introduction

The aim of the HTA programme is to ensure that high quality research information on the costs, effectiveness and broader impact of health technologies is produced in the most efficient way for those who use, manage, provide care in or develop policy for the NHS. Topics for research are identified and prioritised to meet the needs of the NHS. Health technology assessment forms the largest portfolio of work in the NHS Research and Development Programme and each year about fifty new studies are commissioned to help answer questions of direct importance to the NHS. The studies include both primary research and evidence synthesis.

Question

In non-neutropenic critically ill patients, which are the risk factors indicating which patients would most benefit from anti-fungal prophylaxis? What is the clinical and cost effectiveness of such prophylaxis?

1. **Technology:** Risk prediction algorithms to predict which patients would most benefit from anti-fungal prophylaxis.
2. **Patient group:** Adult patients (aged 18 years or over) classified as critically ill (such as those admitted to an ICU or having recently undergone an abdominal or other major surgical procedure).
3. **Setting:** Secondary care.
4. **Control or comparator treatment:** Usual care.
5. **Design:** Primary research to (i) review existing patient risk algorithms (ii) undertake a patient based audit to identify 'risk characteristics' (iii) develop a new risk prediction algorithm for treatment of patients who might require antifungal prophylaxis (iv) measure the performance of the algorithm in relation to its ability to target patients (e.g. sensitivity, specificity, NPV, PPV etc) (v) make recommendations on future research in this area. Recommendations should be accompanied by value of information analysis and estimates of necessary sample size.
6. **Primary outcomes:** Reduction in number of proven invasive fungal infections (IFI). Secondary outcomes, cost effectiveness, length of time in ICU, mortality from IFI and duration of mechanical ventilation.
7. **Minimum duration of follow-up:** 30 days.
8. **Is the research question concerned with a licensed or unlicensed indication for the drug in question?** Fluconazole is licensed for this indication.

Background to commissioning brief:

Invasive fungal infections (IFIs) are important causes of morbidity and mortality in critically ill patients. Once established, such infections are difficult to treat and result in a high mortality. The infections may be preventable with the prophylactic administration of antifungal agents.

Primary research is required to identify risk factors, and develop algorithms for the prospective identification of critically ill patients at increased risk, who may most benefit from antifungal prophylaxis.