

Thinking critically about the value and cost of drugs: an example from managing patients with invasive fungal disease

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Background

The current economic climate has intensified challenges for healthcare decision-makers and clinicians on how best to allocate funds across the healthcare system to maximise health gain. Such decisions should be made through rational consideration of the full evidence including the benefits, safety and costs of treatment. Local data to inform decisions are sparse and decisions about treatment choice do not always account for both outcomes and costs. Efficient decision-making processes based on the broader context of the whole service are complex due to the fractioning of the allocation of budgets, difficulty in obtaining all relevant information, and the lack of a framework to support decision making.

Aims

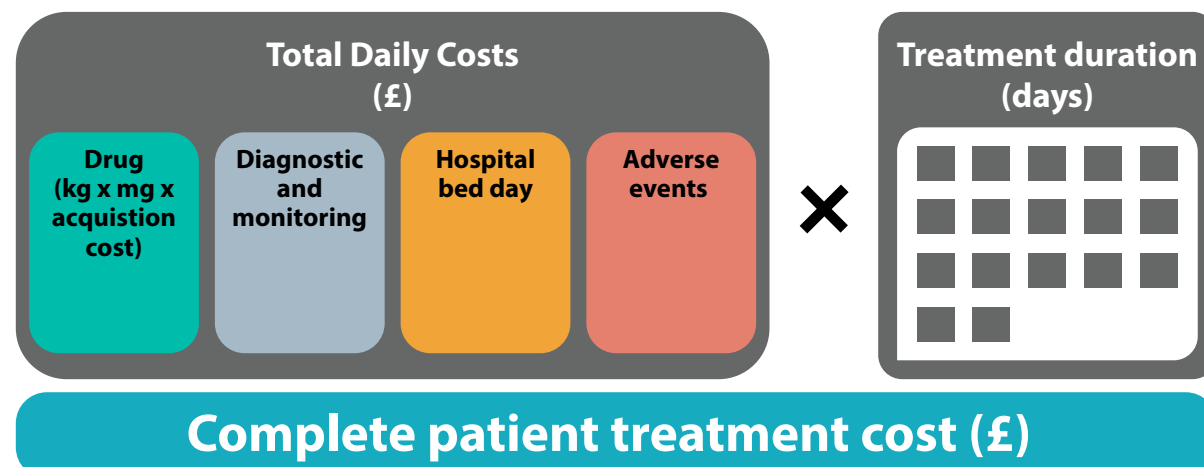
1. To create a framework to help clinicians and other decision-makers systematically explore patient management options whilst considering the complete costs to the healthcare provider, rather than focusing on acquisition costs of specific healthcare products alone.
2. To describe a toolkit that was developed based on this framework to understand the complete management costs of hospitalised patients with invasive fungal disease (IFD).

Methods

- A literature review was performed to assess available tools to help clinicians make decisions on patient care.
- We developed a holistic healthcare framework that can be used across different disease areas to account for all resource use within hospital admissions. This includes the total cost of each drug per treatment episode (based on daily dosage, treatment duration and unit acquisition costs including discounts), patient length of hospital stay and hotel cost (e.g. ward or intensive care unit bed), diagnostic and monitoring tests, and costs due to management of adverse drug reactions.

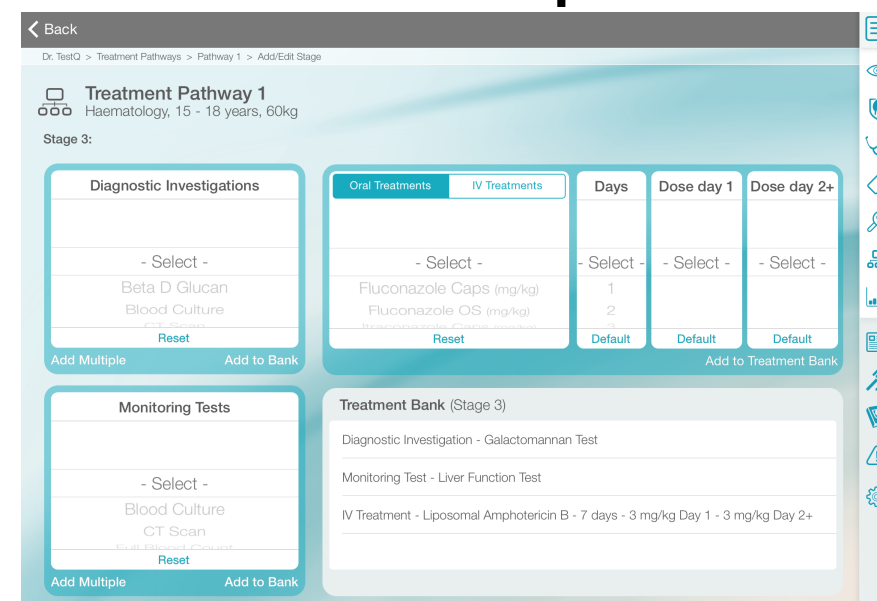
- We adapted this framework to explore the total average healthcare costs for patients with IFD treated in hospitals in the UK. This was done by creating a toolkit in Microsoft Excel which was later adapted to an iPad application. The toolkit captures all aspects of patient care, and allows comparisons of different treatments. It includes baseline national values for each of the variables used in the toolkit, alternatively users can input their local data.

Framework



- Daily dosage (based on age and weight) and acquisition costs of each treatment stage, including local discounts are used to calculate the drug costs
- Hospital, diagnostic investigations, monitoring tests and adverse drug reaction costs are estimated based on the unit cost of each multiplied by the frequency of each
- Each of the cost elements is used to estimate the daily cost per patient which is then multiplied by the treatment duration to get the complete patient treatment cost per admission

Toolkit description



- The screenshot from the IFD toolkit shows how users choose all components of the treatment pathway, either by using the baseline estimates in the toolkit or by specifying their local resource use and cost.
- This builds up a picture of the total patient costs, based on all resources used for a given treatment duration, broken down by each type of cost.

Toolkit output



- The results illustrate the total patient costs for an adult weighing 60kg in hospital for 15 days total, broken down into three stages of treatment each with a different drug, diagnostic and monitoring regimen.
- The results are given for each stage of treatment, and also show the relative contribution of each type of cost to the total cost.

Discussion

- This framework gives decision makers a more comprehensive understanding about the broader costs of managing patients, rather than focusing just on the acquisition cost of drugs.
- The framework and toolkit allow clinicians to evaluate the best treatment options for their patients whilst providing insight on the true costs.
- Anecdotal evidence suggests the toolkit facilitated discussions and communication between clinicians, budget holders and commissioners.

- The toolkit can be used with baseline national data, but having the option to include local data has prompted clinicians to collect it and use it in the toolkit, thereby refining the results for their specific patient population and local costs and motivating local data collection efforts.
- The framework and toolkit can be used by clinicians, pharmacists, service and finance managers, and commissioners.

"The antifungal treatment planner is a useful tool that challenged our way of thinking about anti-fungals. The tool is simple to use and may alter our decision making in the future." - Director of Clinical Haematology

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