

 Article Text

Medical devices

Original article

## From Malawi to Middlesex: the case of the Arbutus Drill Cover System as an example of the cost-saving potential of frugal innovations for the UK NHS

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### Abstract

**Background** Musculoskeletal disease is one of the leading clinical and economic burdens of the UK health system, and the resultant demand for orthopaedic care is only set to increase. One commonly used and one of the most expensive hardware in orthopaedic surgery is the surgical drill and saw. Given financial constraints, the National Health Service (NHS) needs an economic way to address this recurring cost. We share evidence of one frugal innovation with potential for contributing to the NHS' efficiency saving target of £22 billion by 2020.

**Methods** Exploratory case study methodology was used to develop insights and understanding of the innovations potential for application in the NHS. Following a global search for potential frugal innovations in surgery, the Arbutus Drill Cover System was identified as an innovation with potential to deliver significant cost savings for the NHS in the UK.

**Results** The Arbutus Drill Cover System is up to 94% cheaper than a standard surgical drill available in the UK. Clinical and laboratory tests show that performance, safety and usability are as good as current offerings in high-income countries and significantly better than hand drills typically used in low-and-middle-income countries. The innovation meets all regulatory requirements to be a medical device in the Europe and North America.

**Conclusions** The innovation holds promise in reducing upfront and life span costs for core equipment used in orthopaedic surgery without loss of effectiveness or safety benchmarks. However, the innovation needs to navigate complicated and decentralised procurement processes and clinicians and healthcare leaders need to overcome cognitive bias.

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<http://dx.doi.org/10.1136/bmjinnov-2017-000233>

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## Footnotes

MP, IA and YB contributed equally.

**Contributors:** All coauthors contributed equally to different aspects. of the study, including research, review and revision of paper. MP and IA conducted initial research. MP, AI and YB conducted field trip data collection. AD supported field trip and provided leadership and supported funding. IA wrote the first draft of case study. YB wrote the first draft of article followed by all coauthors. YB, MH and MP planned the overall study. YB was the principal investigator. MH was co-investigator.

**Funding:** This research was funded by the UK National Institute for Health Research (NIHR) Biomedical Research Centre based at Imperial College Healthcare NHS Trust and Imperial College London.

**Disclaimer:** The views expressed are those of the author(s) and not necessarily those of the UK National Health Service, the NIHR, the UK Department of Health or Arbutus Medical.

**Competing interests:** None declared.

**Patient consent:** Detail has been removed from this case description/these case descriptions to ensure anonymity. The editors and reviewers have seen the detailed information available and are satisfied that the information backs up the case the authors are making.

**Provenance and peer review:** Not commissioned; externally peer reviewed.

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