ARK-Hospital

Feasibility of a complex behaviour change intervention in secondary care to safely and substantially reduce antibiotic use

Elizabeth Cross, Jasmin Islam, Fiona Mowbray, Tim Peto, Marta Santillo, Katy Sivyer, Sarah Walker, Lucy Yardley, Martin Llewelyn
“we will cut inappropriate prescribing in the UK by half by 2020...” Dave
2016/17 CQUIN – AMR

• By Q4 90% antibiotic prescriptions reviewed within 72 hours
• Reduction of total, piperacillin/tazobactam and carbapenem antibiotic usage by 1%

2017/19 CQUIN – Reducing the impact of serious infections:

• Antibiotic usage reduced by at least 1-2%
ARK-Hospital
(Antibiotic Review Kit – Hospital)

A 5-year applied research programme funded by NIHR
The ARK-Hospital Team

Nationally

- Gavin Barlow Consultant Infectious Diseases and General Medicine Physician Hull
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Locally

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- Martin Llewelyn
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- Lizzie Cross
- Will Hamilton
- Catherine Sargent
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- Nelson Barbon

The AMS team

Mix of professions and grades
The overarching aim of ARK is to reduce the incidence of serious infections caused by antibiotic-resistant bacteria in the future, through substantially and safely reducing antibiotic use in hospitals now.

- Complex behaviour change approaches
- Based on similar successful approaches in primary care
- Aimed at whether to stop antibiotics or not at review and revise
ARK-Hospital timeline

Spring 2016
Pre-trial work

Spring 2017
Feasibility study

Autumn 2017
3 pilot sites

Winter 2017-19
33 further sites
ARK-Hospital provides:

1. Information for prescribers about Review & Revise decision making
2. A decision aid applied to antibiotic prescriptions
3. Information for nurses and pharmacists
4. Information for patients
5. A structure for team meetings
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Online learning tool
- Website/App
- Info about R&R
- Evidence of harms of Abxs
- Endorsed by specialist societies

ARK-Hospital provides:
122 clinicians completed the tool!
ARK-Hospital provides:

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**Modified antibiotic prescriptions**
- Acknowledges uncertainty
- Helps person reviewing Abx
- Prompts 72hr review
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Face-to-face education + online tool
- Confirm use of decision aid
- Alert doctors to review Abx
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4. Information for patients

A patient leaflet

**About Antibiotics**

The ARK Antibiotics Review Kit

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**Taking antibiotics when you don’t need to or taking them for too long can be unsafe for the future. This leaflet explains why.**

**When do we use antibiotics?**

- Antibiotics fight infections caused by bacteria, but not all infections are caused by bacteria.
- When you first come to hospital, often it’s too early to be sure of what is causing your illness, so doctors may give you antibiotics “just in case”.

**What are the risks of taking antibiotics?**

Taking antibiotics kills natural ‘good’ bacteria in your body, which help keep you healthy. Taking antibiotics causes the bacteria that your body carries to become “resistant” to antibiotics, meaning that common antibiotics don’t work anymore.

The more antibiotics you take the more likely you are:

- to carry antibiotic resistant bacteria and to spread them to other people such as your family, friends and pets;
- to have antibiotic resistant infections in the future. When this happens, antibiotics will work less well or not at all.

Antibiotics can cause side effects (such as diarrhoea, rashes, feeling sick), which in rare cases can be very severe (spasm of the airways or collapse).

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**What will my doctor do?**

When doctors prescribe antibiotics “just in case”, they will “review” your response to treatment carefully.

- If you are on review and your doctors decide that the illness isn’t caused by bacteria, they will stop antibiotics.
- When your doctors have your test results they can decide how long you need antibiotics for and which ones you need.
- Your doctors may also decide that you can carry on with the antibiotics you had before.

Regular review of antibiotic prescriptions helps to make sure that you only take the antibiotics you need to make you better.

**What should I do when the antibiotics stop?**

Tell your doctor if:

- your fever goes up again;
- your symptoms come back.

They can always restart your treatment if needed.
ARK-Hospital provides:

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2. A decision aid applied to antibiotic prescriptions

3. Information for nurses and pharmacists

4. Information for patients

5. A structure for team meetings, monitoring and feedback

**Total of 30 cross-sectional audits and 20 feedback sessions**

**Kick-off meetings**

**Monitoring** of Abx prescriptions

**Feedback** to clinical teams
Feasibility study quantitative data
Quantitative data

• 3 months from April to July 2017
• 588 antibiotic prescriptions
• Point prevalence surveys
  • Weeks 1, 2, 3, 4, 6, 8 and 12

• Medical specialties:
  • Acute medicine, respiratory, elderly care, endocrine, gastroenterology
Prescriptions r/vd within 72 Hours

Week 1  Week 2  Week 3  Week 4  Week 6  Week 8  Week 12
CQUIN Target
Prescriptions using decision aid

Week 1  Week 2  Week 3  Week 4  Week 6  Week 8  Week 12

ARK Target
Prescriptions stopped within 72hr r/v
Feasibility study qualitative data
"I agree with how it’s done...continue or discontinue, you’ve got to wait for the results and I think that’s what happened with me. They got the results in and then it was discontinued and that’s fine, I’m happy with that.”

Brighton, Patient 1

"I thought it was very informative, concise and straightforward and in nice, easy terms, that most people could understand. It looks nice and neat and easy to read.”

Brighton, Patient 6
“It has been enormously rewarding to do ARK...It has felt like a very good use of my time, in terms of making positive impact on patients in the hospital...The idea of capturing diagnostic uncertainty at the time you write an antibiotic prescription appears to have tremendous resonance to people.”

Brighton, ARK Champion
Wider clinical team focus groups

Feedback

• Benefits of the Decision Aid
• Support from the core team
• Challenges
• Involvement of different professional groups
• Use of the ARK website and ARK patient leaflet

“I think everybody in AMU found it [the feedback] quite helpful...I suppose getting, seeing the data can then change what we’re doing... there was one week and I think that we did very well, in terms of stopping the antibiotics, so then everybody the next week was stopping all the antibiotics.”

Brighton, Junior Doctor
Interested?

Visit: [http://www.arkstudy.ox.ac.uk/](http://www.arkstudy.ox.ac.uk/)

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