NICE National Institute for Health and Care Excellence

Putting NICE guidance into practice

Resource impact report:
Antimicrobial stewardship: changing risk-related behaviours in the general population (NG63)

Published: January 2017

Summary

This report looks at the resource impact of implementing NICE's guideline on antimicrobial stewardship in England.

Antimicrobial stewardship refers to an organisational or healthcare system-wide approach to promoting and monitoring judicious use of antimicrobials to preserve their future effectiveness.

The Annual report of the Chief Medical Officer 2011: volume two (Department of Health) highlights the high economic burden of infections and infectious diseases to the NHS each year and the importance of antimicrobial stewardship. The NICE guideline aims to reduce inappropriate antimicrobial demand and use, and to prevent infection.

Implementation of the guideline is therefore anticipated to be cost saving with a reduction in the inappropriate prescribing of antimicrobials, an increase in the most appropriate use of antimicrobials, a corresponding reduction in the prevalence of antimicrobial resistance and reduced infections.

This report focuses on the recommendations that we think will have the greatest resource impact nationally, and will need the most additional resources to implement or potentially generate the biggest savings.

We encourage organisations to evaluate their own practices against the recommendations in the NICE guideline and assess costs and savings locally. Organisations can input estimates into the local resource impact template to reflect local practice and estimate the impact of implementing the guideline.

Implementing NICE's guideline may result in the following additional costs:

- introducing approaches to reducing inappropriate antimicrobial demand and use (for example, providing resources on self-limiting infections)
- introducing approaches to prevent and limit the spread of infection (for example, providing information on hand washing)
- producing written information for prescribers, primary care and community pharmacy teams to share.

Implementing NICE's guideline may result in the following benefits and savings:

- reduced prescribing of antimicrobials
- reduced treatment costs as a result of:
  - fewer infections that are resistant to antimicrobials
  - fewer infections resistant to multiple drugs
- fewer infections requiring hospital admission.

Although associated savings for England cannot be accurately quantified, they are likely to be significant. For example, each non-elective admission for gastroenteritis costs the NHS between £760 and £8,240, and a non-elective admission for respiratory infection costs between £960 and £5,570.

Table 1 gives an indicative example of the savings possible from preventing 1% of future non-elective hospital admissions for these 2 common infections. Preventing 1% of admissions could save around £2.8 million a year.

Table 1 Example of potential annual savings as a result of preventing infections in England

Infection type	Number of non-elective admissions	Cost of non-elective admissions (£000)	Savings if 1% of admissions prevented (£000)
Acute lower respiratory infections[1]	127,000	147,000	1,470
Gastrointestinal infections[2]	110,000	134,000	1,340
Total	**237,000**	**281,000**	**2,810**

[1] Healthcare resource group DZ22, reference costs 2015/16

[2] Healthcare resource group FZ36, reference costs 2015/16

Services are commissioned by local authorities and clinical commissioning groups (CCGs). Providers are prescribers, primary care and community pharmacy teams, and childcare and education providers.

1 Introduction

1.1 NICE's guideline on antimicrobial stewardship: changing risk-related behaviours in the general population offers best practice advice on antimicrobial stewardship.

1.2 The guideline covers making people aware of how to correctly use antimicrobial medicines (including antibiotics) and the dangers associated with their overuse and misuse. It also includes measures to prevent and control infection that can stop people needing antimicrobials or spreading infection to others. It aims to change people's behaviour to reduce antimicrobial resistance and the spread of resistant microbes.

1.3 This report discusses the resource impact of implementing our guideline on antimicrobial stewardship: changing risk-related behaviours in the general population in England. It aims to help organisations plan for the financial implications of implementing this NICE guideline.

1.4 The guideline should be read in conjunction with NICE's guideline on antimicrobial stewardship: systems and processes for effective antimicrobial medicine use.

1.5 We encourage organisations to evaluate their own practices against the recommendations in the NICE guideline and assess costs and savings locally. Organisations can input estimates into the local resource impact template to reflect local practice and estimate the impact of implementing the guideline.

1.6 Services are commissioned by local authorities and clinical commissioning groups (CCGs). Providers are prescribers, primary care and community pharmacy teams, and childcare and education providers.

2 Background

2.1 Antimicrobial stewardship refers to an organisational or healthcare system-wide approach to promoting and monitoring judicious use of antimicrobials to preserve their future effectiveness.

2.2 Antimicrobial resistance may lead to standard treatments becoming ineffective, causing infections to persist and increasing the risk of them spreading.

2.3 Infections and infectious diseases in England cost the NHS an estimated £30 billion per year. Many of these costs are caused by respiratory or gastrointestinal infections (Annual report of the Chief Medical Officer 2011: volume two Department of Health). The Annual report highlights the importance of antimicrobial stewardship in promoting and monitoring judicious use of antimicrobials to preserve their future effectiveness, and the future costs which may be prevented as a result.

2.4 The economic costs of antimicrobial resistance are largely unknown (Antimicrobial resistance: global report on surveillance 2014 World Health Organization). Extremely large economic losses would almost certainly occur if all antimicrobials were rendered ineffective in the future, even without taking into account the impact on health (Review on Antimicrobial Resistance, 2016).

2.5 National campaigns to raise public and professional awareness of antibiotic resistance may reduce antibiotic prescribing and demand (European antibiotic awareness day 2013 evaluation report Department of Health). The Department of Health also published the UK 5-year antimicrobial resistance strategy 2013 to 2018.

2.6 The guideline aims to reduce inappropriate antimicrobial demand and use, and to prevent infection. Implementation of the guideline is anticipated to be cost saving with a reduction in the inappropriate prescribing of antimicrobials, an increase in the most appropriate

use of antimicrobials, a corresponding reduction in the prevalence of antimicrobial resistance and reduced infections. Implementing the guideline will therefore help to prevent future costs of antimicrobial resistance to the NHS each year.

3 Recommendations with potential resource impact

3.1 The recommendations that relate to to local system-wide approaches to reducing inappropriate antimicrobial demand and use (section 1.2) and preventing and limiting the spread of infection (section 1.3) may need additional investment to implement. Local costs will vary depending on current initiatives and can be minimised by using existing resources (see recommendations 1.2.1 – 1.2.4 and 1.3.1 – 1.3.6 for further details and links to existing resources).

3.2 The recommendations for childcare and education providers (section 1.4) may also need additional investment to implement. Local costs will vary depending on current initiatives for each provider and can be minimised by using existing available resources (see recommendations 1.4.1, 1.4.2, 1.4.4, 1.4.5, 1.4.6, 1.4.8, 1.4.9, 1.4.10, 1.4.11, 1.4.14, 1.4.15 and 1.4.16).

3.3 The recommendations for prescribers, primary care and community pharmacy teams (recommendations 1.5.1, 1.5.3, 1.5.5 and 1.5.6) may also lead to additional costs. Costs may be incurred in providing written information, and potentially for additional staff time to give the recommended advice. The number of practitioners is not expected to increase as a result of the guidance. Use of existing resources mentioned in the recommendations will help minimise any additional investment.

4 Benefits and savings

4.1 Implementing NICE's guideline may result in a number of benefits and savings.

Benefits and savings from reducing inappropriate antimicrobial demand and use

4.2 Implementation may cause a reduction in the number of antimicrobials prescribed and an increase in appropriate use of antimicrobials. This may result in a corresponding reduction in the prevalence of antimicrobial resistance.

4.3 Together these two benefits could generate savings as a result of treating less infections that are resistant to antimicrobials. Data reported in Antimicrobial resistance: global report on surveillance 2014 (World Health Organization) indicate that the costs of treating infections resistant to antimicrobials are significantly higher than the costs of treating infections susceptible to antimicrobials.

4.4 These benefits could also lead to a reduction in the number of infections resistant to multiple drugs. If large numbers of infections were resistant to multiple drugs, routine surgery would bring with it a high likelihood of infection that would be untreatable and potentially life threatening (UK 5-year antimicrobial resistance strategy impact assessment Department of Health).

4.5 A reduction in the number of adverse events associated with use of antimicrobials, for example, a reduction in the number of cases of Clostridium difficile infection (CDI). The cost to the NHS of a CDI has been estimated at around £10,000 (Health Protection Agency, 2012).

Benefits and savings from preventing and limiting the spread of infection

4.6 Implementation may also cause a reduction in the number of infections.

4.7 Although associated savings cannot be accurately quantified, they are likely to be significant. For example, each non-elective admission for gastroenteritis costs the NHS between £760 and £8,240 (healthcare resource group FZ36, 2017-18 national tariff), and non-elective admissions for respiratory infections can cost the NHS between £960 and £5,570 (healthcare resource group DZ22, 2017-18 national tariff). Preventing 1% of non-elective hospital admissions for these two 2 common infections could save around £2.8 million a year in England.

4.8 Other wider benefits such as reduced transmission of acute respiratory infections to family members and reduced medical consultations are also likely (Little et.al. The Lancet 2015, Francis et al. The BMJ, 2009).

About this resource impact report

This resource impact report accompanies the NICE guideline on antimicrobial stewardship: changing risk-related behaviours in the general population and should be read in conjunction with it. See terms and conditions on the NICE website.