

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Scope of guidelines

Antimicrobial prescribing guidelines: managing common infections

The Department of Health in England has asked NICE to develop a suite of evidence-based guidelines for managing common infection syndromes, with the purpose of tackling antimicrobial resistance – specifically in relation to bacterial infection and antibiotic use.

The suite of guidelines will be developed using the interim process guide for antimicrobial prescribing guidelines which is based on [Developing NICE guidelines: the manual](#).

1 Why the guidelines are needed

Resistance to antimicrobials is complex (see the Department of Health's [Antimicrobial resistance systems map](#)) and increasing. Combined with a lack of new antimicrobial medicines, there is a growing risk that infections may not be treatable in the future.

The World Health Organization states that 'antimicrobial resistance occurs when microorganisms such as bacteria, viruses, fungi and parasites change in ways that render the medications used to cure the infections they cause ineffective' ([Antimicrobial resistance](#)).

The [Annual Report of the Chief Medical Officer, volume two, 2011, Infections and the rise of antimicrobial resistance](#) (Department of Health) states that antimicrobial stewardship 'embodies an organisational or healthcare-system-wide approach to promoting and monitoring judicious use of antimicrobials to preserve their future effectiveness'. The report also states that evidence-based guidance is needed for antimicrobial use to help slow development of antimicrobial resistance.

29 To support this, the Department of Health's [UK five year antimicrobial](#)
30 [resistance strategy 2013 to 2018](#) recommends that NICE: 'works with other
31 delivery partners to consider the development of comprehensive evidence-
32 based antimicrobial prescribing guidance for primary and secondary care,
33 supporting work to encourage responsible use of antibiotics, improving
34 professional knowledge and clinical practice with respect to antimicrobial
35 stewardship'.

36 Several important factors affect how an infection occurs, how is it managed
37 and whether antimicrobials are needed for treatment. NICE has published a
38 guideline on [antimicrobial stewardship](#) (systems and processes for effective
39 antimicrobial medicine use) and in January 2017 will publish a complementary
40 guideline on [antimicrobial stewardship](#) (changing risk-related behaviours in
41 the general population).

42 **2 Who the guidelines are for**

43 People using services, their families and carers, and the public will be able to
44 use the guidelines to find out more about what NICE recommends and help
45 them make decisions. More specifically, the following groups will find these
46 guidelines useful:

- 47 • prescribers (including independent and non-medical prescribers)
- 48 • health and social care practitioners working in all care settings
- 49 • people receiving care for common infections covered by the guidelines, or
50 those caring for these people
- 51 • organisations commissioning or providing care or supporting the provision
52 of care for managing common infections
- 53 • organisations regulating or monitoring how services for people receiving
54 care are provided (for example, the Care Quality Commission).

55 It may also be relevant for:

- 56 • people and organisations delivering non-NHS healthcare services
- 57 • the devolved administrations.

58 NICE guidelines cover health and care in England. Decisions on how they
59 apply in other UK countries are made by ministers in the [Welsh Government](#),
60 [Scottish Government](#), and [Northern Ireland Executive](#).

61 ***Equality considerations***

62 NICE has carried out an [equality impact assessment](#) during scoping. The
63 assessment:

- 64 • lists equality issues identified, and how they have been addressed
- 65 • explains why any groups are excluded from the scope, if this was done.

66 **3 What the guidelines will cover**

67 **3.1 *Who is the focus?***

68 **Groups that will be covered**

- 69 • Adults and children (aged 4 weeks and over) with the common infections
70 described in table 1.

71 Specific consideration will be given to people with protected characteristics
72 under the Equality Act 2010, and people:

- 73 • taking multiple medicines¹ (polypharmacy)
- 74 • with chronic conditions (such as high blood pressure, diabetes or heart
75 disease).

76 **Groups that will not be covered**

- 77 • Neonates (children in the first 4 weeks of life).
- 78 • People with disorders of the immune system or pre-existing conditions that
79 need specialist management during infection (for example, people with
80 HIV, AIDS or cystic fibrosis).

¹ For these guidelines, the term 'medicine' covers all prescribed and non-prescription (over-the-counter) healthcare treatments, such as oral medicines, topical medicines, inhaled products, injections and wound care products.

81 3.2 ***Settings that will be covered***

82 All publicly funded health and social care commissioned or provided by NHS
83 organisations, local authorities (in England), independent organisations or
84 independent contractors.

85 3.3 ***Topics that will be addressed***

86 We will look at evidence in the areas below when developing the guideline,
87 but it may not be possible to make recommendations in all the areas.

- 88 1 Factors that can affect how an infection is managed, taking into account
89 antimicrobial resistance, will be addressed during guideline development
90 and include:
- 91 – antimicrobial resistance including, patterns, trends and levels
 - 92 – managing infections in which a definitive diagnosis is difficult
 - 93 – avoiding the use of antimicrobials for managing infections that are
94 self-limiting or could be managed using other interventions, such as
95 non-pharmacological or non-antimicrobial options
 - 96 – prescribing antimicrobials for managing infections that are caused by
97 organisms that have high resistance to that antimicrobial.
 - 98 – prescribing antimicrobials for managing infections that are caused by
99 organisms that have high resistance to that antimicrobial.
- 100 2 Managing the following common infection syndromes in all care settings,
101 in line with a review protocol agreed by the committee for each topic:

102 **Table 1**

Area of infection	Infection topic
Bone and joint	<ul style="list-style-type: none"> • acute osteomyelitis • septic arthritis
Central nervous system	<ul style="list-style-type: none"> • meningitis
Dental	<ul style="list-style-type: none"> • dental abscess
Eye	<ul style="list-style-type: none"> • conjunctivitis
Genital (not sexually transmitted)	<ul style="list-style-type: none"> • bacterial vaginosis • epididymitis • urethritis • vaginal candidiasis

Intra-abdominal	<ul style="list-style-type: none"> • dysentery • intra-abdominal and pelvic abscesses • intra-abdominal infections, including peritonitis • infectious diarrhoea (including <i>Clostridium difficile</i>)
Lower respiratory tract	<ul style="list-style-type: none"> • acute cough (including bronchitis and tracheitis) • acute exacerbation of chronic obstructive pulmonary disease (COPD) • community acquired pneumonia • hospital acquired pneumonia • ventilator associated pneumonia
Sepsis	<ul style="list-style-type: none"> • bacteraemia • febrile neutropenia • septicaemia
Skin and soft tissue	<ul style="list-style-type: none"> • bites (human and animal) • complicated skin and soft tissue infections, including cellulitis • impetigo • infected eczema • leg ulcers
Upper respiratory tract	<ul style="list-style-type: none"> • acute sore throat (including tonsillitis or pharyngitis) • acute otitis media • acute rhinosinusitis or sinusitis
Urinary tract	<ul style="list-style-type: none"> • acute prostatitis • catheter associated urinary tract infections • complicated UTI including acute pyelonephritis • recurrent urinary tract infections • uncomplicated lower urinary tract

103

104 3.4 **Key questions**

105 While writing this scope, we have identified the following key questions
 106 relating to the key issues found (see [section 3.3](#)):

- 107 1 What is the natural history of the infection? Including:
- 108 1.1 What is the expected duration and severity of symptoms with and
 109 without antimicrobial treatment?
- 110 1.2 What are the known complication rates with and without antimicrobial
 111 treatment?
- 112 2 What are the most likely causative organisms?

- 113 3 What resistance patterns, trends and levels of resistance exist both
114 locally and nationally for the causative organisms of the infection?
- 115 4 What is the clinical effectiveness of non-pharmacological strategies in
116 managing the infection or symptoms? (See interventions recommended
117 in NICE's guideline on [antimicrobial stewardship](#), such as watchful
118 waiting, delayed [back-up] prescriptions.)
- 119 5 What is the clinical effectiveness for non-antimicrobial, pharmacological
120 strategies for managing the infection or symptoms (for example,
121 analgesics, antiseptics or antihistamines)?
- 122 6 What are the indications for prescribing an antimicrobial for each
123 infection?
- 124 7 Which antimicrobial should be prescribed if one is indicated?
- 125 8 What is the optimal dose, duration and route of administration?
- 126 9 For all questions we will take into account:
- 127 9.1 Patterns, trends and levels of resistance.
- 128 9.2 Antimicrobial prescribing strategies such as delayed (back-up)
129 prescriptions or short versus long courses of treatment.
- 130 9.3 'Red flags' indicating the need for immediate treatment.
- 131 9.4 Severity of illness and the need for treatment.
- 132 9.5 Individual patient factors; for example, age, comorbidity, location or
133 pregnancy or breastfeeding.
- 134 9.6 Thresholds or indications for antimicrobial treatment.
- 135 9.7 Need for broad or narrow spectrum antimicrobials.
- 136 9.8 First, second and third line therapy (including for those with allergic
137 reactions to certain antimicrobials).
- 138 9.9 Optimal dose, duration and route of administration (for example,
139 intravenous, oral or topical).
- 140 9.10 Single, dual or triple therapy (where indicated).
- 141 9.11 Immediate, delayed, no prescribing or other intervention for
142 management of the condition.
- 143 9.12 Standby or rescue therapy in line with self-management plans (if
144 agreed by the committee).
- 145 9.13 Relative impact of specific antimicrobials on the development of
146 future resistance to that and other antimicrobials.

147 9.14 Escalation or de-escalation of treatment (for example, admission to
148 hospital, change from oral to intravenous antimicrobials and treatment
149 given before reaching hospital, if appropriate).

150 The key questions may be used to develop more detailed review questions,
151 which guide the systematic review of the literature.

152 3.5 ***Main outcomes***

153 The main outcomes that will be considered when searching for and assessing
154 the evidence are:

155 1 Clinical outcomes such as:

- 156 – mortality
- 157 – infection cure rates or reduction in symptoms (duration or severity)
- 158 – rate of complications in treated or untreated patients
- 159 – safety, tolerability, adherence and adverse effects.

160 2 Changes in antimicrobial resistance patterns as a result of treatment.

161 3 Patient reported outcomes such as medicines adherence, patient
162 experience and patient satisfaction.

163 4 Health and social care-related quality of life, including long-term harm
164 disability.

165 5 Health and social care utilisation, including length of stay, planned and
166 unplanned contacts).

167 6 Ability to carry out activities of daily living.

168 7 Service user experience.

169 3.6 ***Resource impact***

170 We will take resource into account when making recommendations. For each
171 of the infection topics (see table 1), the committee will consider whether
172 resource impact considerations are relevant, and if so whether this is an area
173 that should be prioritised for resource impact analysis.

174 **4 Related NICE guidance**

- 175 • [Antimicrobial stewardship – changing risk-related behaviours in the general](#)
176 [population](#) NICE guideline in development. Publication expected January
177 2017.
- 178 • [Multimorbidity: clinical assessment and management](#) (2016) NICE
179 guideline NG56
- 180 • [Prophylaxis against infective endocarditis: antimicrobial prophylaxis against](#)
181 [infective endocarditis in adults and children undergoing interventional](#)
182 [procedures](#) (2016) NICE guideline CG64
- 183 • [Sepsis: recognition, diagnosis and early management](#) (2016) NICE
184 guideline NG51
- 185 • [Antimicrobial stewardship: systems and processes for effective](#)
186 [antimicrobial medicine use](#) (2015) NICE guideline NG15
- 187 • [Pneumonia in adults: diagnosis and management](#) (2014) NICE guideline
188 CG191
- 189 • [Fever in under 5s: assessment and initial management](#) (2013) NICE
190 guideline CG160
- 191 • [Healthcare-associated infections: prevention and control in primary and](#)
192 [community care](#) (2012) NICE guideline CG139
- 193 • [Neonatal infection \(early onset\): antibiotics for prevention and treatment](#)
194 (2012) NICE guideline CG149
- 195 • [Neutropenic sepsis: prevention and management in people with cancer](#)
196 (2012) NICE guidelines CG151
- 197 • [Healthcare-associated infections: prevention and control](#) (2011) NICE
198 guideline PH36
- 199 • [Respiratory tract infections \(self-limiting\): prescribing antibiotics](#) (2008)
200 NICE guideline CG69
- 201 • [Surgical site infections: prevention and treatment](#) (2008) NICE guideline
202 CG74

203 **NICE guidance about the experience of people using NHS services**

204 NICE has produced the following guidance on the experience of people using
205 the NHS. This guideline will not include additional recommendations on these
206 topics unless there are specific issues relating to common infections:

- 207 • [Medicines optimisation](#) (2015) NICE guideline NG5
- 208 • [Patient experience in adult NHS services](#) (2012) NICE guideline CG138
- 209 • [Service user experience in adult mental health](#) (2011) NICE guideline
210 CG136
- 211 • [Medicines adherence](#) (2009) NICE guideline CG76

212 **5 NICE Pathways**

213 When the guidelines are published, the recommendations will be added to
214 NICE Pathways. NICE Pathways bring together everything NICE says on a
215 topic in an interactive flow chart.

216 **6 Context**

217 **Key facts and figures**

218 Public Health England's 2014 [English surveillance programme antimicrobial](#)
219 [utilisation and resistance \(ESPAUR\) report](#) highlights that 'antibiotic
220 prescribing has increased in England year on year'. It also says that although
221 antimicrobial resistance and antimicrobial prescribing varies across England,
222 'frequently areas with high prescribing also have high resistance'. Other
223 highlights include:

- 224 • Total antibiotic consumption increased by 6.5% from 2011 to 2014 (2.4%
225 rise between 2013 and 2014).
- 226 • Most antibiotics were prescribed in general practice (74%) in 2014.
- 227 • Primary care data suggest less antibiotic prescriptions have been offered in
228 recent years, but that higher doses or longer courses are being used.
- 229 • Prescribing of antibiotics in hospital increased significantly both for
230 inpatients (11.7%) and outpatients (8.5%) between 2011 and 2014.

- 231 • Use of broad-spectrum antibiotics (antibiotics effective against a wide
232 range of bacteria) in primary care decreased to 8.5% between 2010 and
233 2014.
- 234 • England is the lowest user of cephalosporins and quinolones (broad-
235 spectrum antibiotics likely to lead to more antibiotic resistance) in the
236 European Union.

237 **Current practice**

238 Guidelines for prescribers exist for specific infection areas when considering
239 antimicrobials. But these do not always take into account resistance patterns.

240 NICE's guideline on [respiratory tract infections \(self-limiting\): prescribing](#)
241 [antibiotics](#) states that around 60% of antibiotics prescribed in primary care are
242 for respiratory tract infection. Rates of prescribing for colds, rhinitis and upper
243 respiratory tract infection declined between 1997 and 2006. However, in 2006
244 a high proportion of UK primary care consultations led to antibiotic prescribing
245 for tonsillitis, otitis media and acute sinusitis.

246 **Policy, legislation, regulation and commissioning**

247 Antimicrobial stewardship and resistance is high priority for the UK
248 government. The Department of Health's [UK five year antimicrobial resistance](#)
249 [strategy 2013 to 2018](#) recommends that NICE, alongside other partners,
250 considers developing comprehensive, evidence-based antimicrobial
251 prescribing guidance for primary and secondary care.

252 The O'Neill report [Review on antimicrobial resistance](#) produced
253 recommendations for the UK government to meet the challenge of
254 antimicrobial resistance to which the [Government responded](#).

255 [The Health and Social Care Act 2008 \(Regulated Activities\) Regulations 2014](#)
256 requires health and care providers to assess the risk of, and prevent, detect
257 and control the spread of infections, including healthcare-associated infections
258 (regulation 12 [h]). The Care Quality Commission has to take into account the
259 Department of Health's [The Health and Social Care Act 2008: code of practice](#)
260 [on the prevention and control of infections and related guidance](#) when making

261 decisions about registration. The code applies to NHS bodies and providers of
262 independent healthcare and adult social care in England.

263 NICE will take account of relevant medicines legislation (such as the [Human](#)
264 [Medicines Regulations 2012](#) and the [Health and Social Care Act 2012](#)),
265 regulation, policy and guidance when developing the guidelines and
266 recommendations.

267 **Resources**

268 Public Health England:

- 269 • [Start smart then focus: antimicrobial stewardship toolkit for English](#)
270 [hospitals](#) (updated 2015).
- 271 • [Checklist for antibiotic prescribing in secondary care](#) This updates the
272 resource published as part of the start smart toolkit.
- 273 • [Carbapenemase-producing Enterobacteriaceae: early detection,](#)
274 [management and control toolkit for acute trusts.](#)
- 275 • [Carbapenem resistance: implementation of an enhanced surveillance](#)
276 [system.](#)
- 277 • [English Surveillance Programme for Antimicrobial Utilisation and](#)
278 [Resistance \(ESPAUR\): Validation protocol for NHS Acute Trust](#)
279 [Antimicrobial Consumption Data.](#)
- 280 • [Mandatory healthcare associated infection surveillance: data quality](#)
281 [statement.](#)
- 282 • [Primary care guidance: diagnosing and managing infections](#) including
283 [managing common infections: guidance for primary care.](#)
- 284 • [Antimicrobial Resistance: resource handbook.](#)
- 285 • [Antibiotic guardian and antibiotic awareness: key messages on antibiotic](#)
286 [use](#) for patients and [Health matters: antimicrobial resistance](#) and [Behaviour](#)
287 [change and antibiotic prescribing in healthcare settings: literature review](#)
288 [and behavioural analysis.](#)

289 Other organisations:

- 290 • The Department of Health and Public Health England have published
291 [Antimicrobial prescribing and stewardship competencies](#).
- 292 • The Infection Prevention Society and Royal College of Nursing's [Infection](#)
293 [prevention and control commissioning toolkit](#).
- 294 • NHS England have published a [Quality Premium](#) (2016/17) including 3
295 measures for reducing Gram Negative Bloodstream Infections (GNBSIs)
- 296 • The Royal College of General Practitioners' [TARGET toolkit](#) for antibiotic
297 prescribing for clinicians and commissioners
- 298 • The Royal College of Paediatrics and Child Health has published the
299 [Manual of Childhood Infections](#) (the Blue Book) that summarises the
300 current management of childhood infections in the UK.
- 301 • The Scottish Intercollegiate Guidelines Network has produced clinical
302 guidelines on [antibiotic prophylaxis in surgery](#), [management of sore throat](#)
303 [and indications for tonsillectomy](#) and the [management of suspected](#)
304 [bacterial urinary tract infection in adults](#).

305 **7 Further information**

This is the draft scope for consultation with registered stakeholders. The consultation dates are 1 November to 28 November 2016.

The final scope will take Public Health England priorities into account to ensure that associated areas of work carried out by the 2 organisations complement each other.

The guidelines are expected to be published between 2017 and 2019 with the first one to be published in July 2017.

Our website has information about how [NICE guidelines](#) are developed.

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