Antimicrobial Stewardship in long term care facilities – room for improvement

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16,000 care homes provide care for 460,000 residents in England

What are the challenges?

- Workforce – nursing vs residential care; turnover rate; access to GP; pharmacist; microbiologist
- Infection Prevention and Control – access to expertise and training; flu!
- Communication – often by telephone
- Clinical uncertainty – lack of previous cultures; admission avoidance
- Residents are frail and can be hard to assess – dementia; co-morbidities; renal function; sampling; end of life care
- Relatives need to be involved and informed; understanding of AMR?
Antimicrobial Stewardship Policy & guidance for adult social care


Part 2: The Code of Practice

The table below is the 'Code of Practice' for all providers of healthcare and adult social care on the prevention of infections under The Health and Social Care Act 2008. This sets out the 10 criteria against which a registered provider will be judged on how it complies with the registration requirements related to infection prevention. Not all criteria will apply to every regulated activity. Parts 3 and 4 of this document will help registered providers interpret the criteria and develop their own risk assessments.

<table>
<thead>
<tr>
<th>Compliance criterion</th>
<th>What the registered provider will need to demonstrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Systems to manage and monitor the prevention and control of infection. These systems use risk assessments and consider the susceptibility of service users and any risks that their environment and other users may pose to them.</td>
</tr>
<tr>
<td>2</td>
<td>Provide and maintain a clean and appropriate environment in managed premises that facilitates the prevention and control of infections.</td>
</tr>
<tr>
<td>3</td>
<td>Ensure appropriate antimicrobial use to optimise patient outcomes and to reduce the risk of adverse events and antimicrobial resistance.</td>
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<tr>
<td>4</td>
<td>Provide suitable accurate information on infections to service users, their visitors and any person concerned with providing further support or nursing/medical care in a timely fashion.</td>
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<tr>
<td>5</td>
<td>Ensure prompt identification of people who have or are at risk of developing an infection so that they receive timely and appropriate treatment to reduce the risk of transmitting infection to other people.</td>
</tr>
<tr>
<td>6</td>
<td>Systems to ensure that all care workers (including contractors and volunteers) are aware of and discharge their responsibilities in the process of preventing and controlling infection.</td>
</tr>
<tr>
<td>7</td>
<td>Provide or secure adequate isolation facilities.</td>
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<tr>
<td>8</td>
<td>Secure adequate access to laboratory support as appropriate.</td>
</tr>
<tr>
<td>9</td>
<td>Have and adhere to policies, designed for the individual's care and provider organisations that will help to prevent and control infections.</td>
</tr>
<tr>
<td>10</td>
<td>Providers have a system in place to manage the occupational health needs and obligations of staff in relation to infection.</td>
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</tbody>
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In adult social care, primary dental care and primary medical care etc.

- evidence of appropriate action taken to prevent and manage infection;
- an audit programme to ensure that appropriate policies have been developed and implemented; and
- evidence that the annual statement from the Infection Prevention Lead has been reviewed and, where indicated, acted upon

1.6 in accordance with health and safety requirements, where suitable and sufficient assessment of risks requires action to be taken, evidence must be available on compliance with the regulations or, where appropriate, justification of a suitable better alternative. This applies to all healthcare and adult social care.

Guidance for compliance with criterion 3

Ensure appropriate antimicrobial use to optimise patient outcomes and to reduce the risk of adverse events and antimicrobial resistance

Domiciliary care services that provide support in people's own homes will not be expected to comply with this criterion.

For adult social care services providing personal care, providers should keep accurate records of antimicrobial prescriptions including allergies, dose, duration and reason for treatment.

Access to microbiological services and responsibility for stewardship activities rests with the patient’s General Practitioner.
Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use

NICE guideline (NG35) Published date: August 2015

1 Recommendations

The following guidance is based on the best available evidence. The full guideline gives details of the methods and the evidence used to develop the guidance.

Terms used in this guideline
1.1 Antimicrobials
1.2 Microbiological samples

The wording used in the recommendations in this guideline (for example, words such as 'will' and 'consider') denotes the certainty with which the recommendation is made (the strength of the recommendation). See how we develop NICE guidelines for more details.

This guideline should be read in conjunction with NICE’s guideline on antimicrobial stewardship: changing risk-related behaviours in the general population, and the NICE guidance on managing common infections.

Quality statement 3: Recording information

Quality statement
People prescribed an antimicrobial have the clinical indication, dose and duration of treatment documented in their clinical record.

Rationale
Recording in patients' records the clinical indication (that is, the results of clinical assessment, symptoms and diagnosis) for an antimicrobial, and the prescribed dose and duration of treatment, allows better management during follow-up care and transfer of care to another setting. It also supports monitoring of prescribing practice and identification of appropriate and inappropriate prescribing in all settings.

Quality measures

Structure
Evidence of local arrangements and processes to ensure that all prescribers document the clinical indication, dose and duration of treatment in patients' records when prescribing an antimicrobial.

Data source
Local data collection.

Process
Proportion of prescriptions for antimicrobials with the clinical indication, dose and duration of treatment documented.
Antimicrobial Stewardship Guidance for Nursing homes published by AHRQ

https://www.ahrq.gov/nhguide/index.html
CDC resources
The Core Elements of Antibiotic Stewardship for Nursing Homes
https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html#factsheets

Antibiotic outcome measures

Track C. difficile and antibiotic resistance. The National Healthcare Safety Network (NHSN) is a CDC-operated web-based system for tracking and reporting targeted infections and antibiotic-resistant organisms from healthcare facilities. In 2012, NHSN launched a reporting component specifically designed for use by nursing homes and other long-term care facilities. The Laboratory-identified event module in NHSN (http://www.cdc.gov/nhsn/lte/cdiff-mrsa/index.html) allows facilities to track rates of C. difficile and selected multidrug-resistant organisms such as methicillin-resistant Staphylococcus aureus (MRSA) and antibiotic resistant gram-negative bacteria like E.coli using laboratory based surveillance as a proxy for infections.4

Track adverse drug events related to antibiotic use. Adverse events due to use of medications in skilled nursing homes accounted for nearly 40% of harms identified in a recent report.5 Antibiotics are among the most frequently prescribed medications in LTCFs and have a high rate of adverse drug events.5,7

Track costs related to antibiotic use. Very few, if any, studies on antibiotic use in nursing homes have calculated the financial costs of antibiotic use.4,8 However, in acute care settings, antibiotic stewardship has been shown to reduce hospital pharmacy costs in addition to improving antibiotic use.8,9 This metric can be useful in justifying support of staff time and external consultant support for ASP activities.

Antibiotic Stewardship in Nursing Homes

4.1 MILLION Americans are admitted to or reside in nursing homes during a year.

UP TO 70% of nursing home residents received antibiotics during a year.

UP TO 75% of antibiotics are prescribed incorrectly.

CDC recommends

7 CORE ELEMENTS for antibiotic stewardship in nursing homes

Leadership Commitment | Accountability | Drug Expertise | Action | Tracking | Reporting | Education
ECDC SURVEILLANCE REPORT Point prevalence survey of healthcare-associated infections and antimicrobial use in European long-term care facilities April–May 2013

- 77,264 residents in 1,181 LTCFs across 19 European countries
- 64% Nursing Home
- 5.3% Residential Home
- Varying models of medical support
- **England 413 beds; 16 LTCF *poor representation**
- 3,367 residents (4.4%) received at least one antimicrobial
- 3,561 antimicrobials prescribed; 73% as treatment for RTI>UTI>SSTI
- 27% as prophylaxis UTI
13,447 residents in 251 aged care homes in Australia which participated in a single day PPS during June-September 2016


1,300 (9.7%) residents prescribed at least one antimicrobial (N=1,867)
71% of antimicrobial prescriptions were for oral administration
27% topical administration
77% of antimicrobial prescriptions had an indication documented
#ToDipOrNotToDip - Improving the management of UTI in care homes

• Use of an evidence based algorithm to diagnosis UTI in nursing home residents, delivered within an educational bundle by care home pharmacists does improve care and improvement is sustained

• Include hydration messages within the educational content

• Introduce use of a clinical assessment & documentation process – STOP dipstick diagnosis

• 56% reduction in the number of residents prescribed antibiotics

• 82% reduction in the number of residents prescribed antibiotics prophylactically

• 67% reduction in the number of antibiotic prescriptions

• Improved appropriate management of UTI, and reduced inappropriate use of antibiotics

• Reduction in unplanned admissions for UTI, urosepsis and AKI

• Reduced calls to GP practices for inappropriately diagnosed UTI saves GP time
NHS BANES CCG E.coli bacteraemia rates started to decline in FY 2015/16, bucking the national trend. This aligned with the Nursing Home quality improvement programme To Dip Or Not To Dip - improving the management of UTI in care home residents. This continues to deliver a sustained reduction in inappropriate use of antibiotics, reducing the risk of AMR in this vulnerable patient group. In addition an Acute Kidney Injury educational bundle is being delivered by the CCG care home pharmacy service, as part of a CCG led primary care AKI programme.
Reduction in inappropriate antibiotic prescribing for UTI in Bath and North East Somerset CCG Nursing Homes has been sustained over 18 months

<table>
<thead>
<tr>
<th></th>
<th>Pre intervention 8 nursing homes (May-Oct 2013)</th>
<th>Post intervention 8 nursing homes (Jul-Dec 2015)</th>
<th>Difference pre and post intervention 8 nursing homes</th>
<th>All 22 nursing homes (Jul-Dec 2015)</th>
<th>All 20 nursing homes (Jan-Jun 2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N of residents prescribed one or more acute course antibiotics / all residents</strong></td>
<td>101/234 43% (95% CI 37% - 50%)</td>
<td>50/265 19% (95% CI 14% - 23%)</td>
<td>24% absolute reduction in the proportion of residents prescribed an antibiotic (95% CI 16% - 32%) p&lt;0.0001</td>
<td>143/690 21% (95% CI 18% - 23%)</td>
<td>141/700 21%</td>
</tr>
<tr>
<td><strong>N of acute course antibiotic prescriptions for UTI / all residents prescribed an acute course antibiotic for UTI</strong></td>
<td>223/101</td>
<td>70/50</td>
<td>153 fewer antibiotic prescriptions (67% relative reduction)</td>
<td>204/143</td>
<td>244/141</td>
</tr>
<tr>
<td><strong>N of residents prescribed antibiotic prophylaxis for UTI / all residents</strong></td>
<td>28/234 12% (95% CI 8% - 16%)</td>
<td>5/265 2% (95% CI 0.3% - 3.5%)</td>
<td>10% absolute reduction in the proportion of residents prescribed prophylaxis (23 fewer residents) (95% CI 6% - 14%) p&lt;0.0001</td>
<td>13/690 1.9% (95% CI 0.8% - 2.9%)</td>
<td>19/700 2.7%</td>
</tr>
</tbody>
</table>
Assessment Tool

Older People >65 years with Suspected Urinary Tract Infection (UTI) - Guidance for Care Home staff

Complete resident’s details, flow chart and actions (file in resident’s notes after). **DO NOT PERFORM URINE DIPSTICK** – No longer recommended in >65yrs.

<table>
<thead>
<tr>
<th>Resident:</th>
<th>DOB:</th>
<th>Carer:</th>
<th>Date:</th>
<th>Care Home:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Any symptoms suggesting alternative diagnosis?</th>
<th>Tick if present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased breathlessness or new cough</td>
<td></td>
</tr>
<tr>
<td>Diarrhoea and vomiting</td>
<td></td>
</tr>
<tr>
<td>A new red warm area of skin</td>
<td></td>
</tr>
</tbody>
</table>

**UTI unlikely**

Seek guidance as appropriate

**UTI possible** - Actions needed

**Tick when done**

For nursing residents:
Phone, fax or securely email form to GP Practice

For residential residents:
Phone Care Home Hub on 0300 083 0100 or phone, fax or securely email form to GP Practice

Obtain urine sample and arrange catheter
change if catheterised: see reverse of form

Outside Mon - Fri normal working hours, phone 111 as normal

**New Problem**

<table>
<thead>
<tr>
<th>Tick if present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inappropriate shivering/chills or High or low temperature &gt;38°C or &lt;36°C if measured document ............°C</td>
</tr>
<tr>
<td>New lower back pain</td>
</tr>
<tr>
<td>New or worsening confusion or agitation</td>
</tr>
</tbody>
</table>

**Tick if present**

<table>
<thead>
<tr>
<th>New Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain on passing urine</td>
</tr>
<tr>
<td>Need to pass urine urgently or new or worse incontinence</td>
</tr>
<tr>
<td>Need to pass urine much more often than usual</td>
</tr>
<tr>
<td>Pain between belly button and pubic hair</td>
</tr>
<tr>
<td>Blood in urine</td>
</tr>
<tr>
<td>Inappropriate shivering/chills or High or low temperature &gt;38°C or &lt;36°C if measured document ............°C</td>
</tr>
<tr>
<td>New lower back pain</td>
</tr>
<tr>
<td>New or worsening confusion or agitation</td>
</tr>
</tbody>
</table>

If concerned about resident, please seek guidance from GP or Care Homes Team

Less than 2 ticks
Residents with Urinary Catheters: Sampling & Changing

- Registered Nurse only to take catheter urine sample using aseptic non-touch technique.
- If antibiotics are commenced for UTI, catheter change should be performed by Registered Nurse as soon as possible.

For Nursing Residents:

- Registered Nurse only to take catheter urine sample using aseptic non-touch technique.
- If antibiotics are commenced for UTI, catheter change should be performed by Registered Nurse as soon as possible.

Resident Without Urinary Catheter: Obtaining a Urine Sample

- Urine cultures are very important in the elderly to guide antibiotic choice.
- Try to obtain a urine sample when the resident is in the middle of passing urine (rather than at the start).
- Put the urine in a Red Top urine bottle, filling to the 20ml line.
- Fill in the resident’s details and type of sample carefully to help the lab to process the sample.
- Samples should be taken to the GP practice as soon as possible. If there is a delay, they can be refrigerated until taken to the GP practice at the next possible opportunity.
- Ensure the GP practice know what to write on the request card (the information from the assessment tool).

Assessment Tool

For Residential Residents:

- Contact Care Home Team or District Nursing Team to arrange for a sample to be taken.
- If antibiotics are commenced for UTI, catheter change should be arranged with Care Home Team or District Nurses as soon as possible.

Fill red top urine bottle to 20ml line
Fill in resident details carefully

*If there is not enough urine to fill to 20ml line, then use a white top specimen bottle instead.
# ToDipOrNotToDip

Resources free to use

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**Preventing Urinary Tract Infections**

**Recognise Dehydration**

- **Urine Colour Chart**
  - Good
  - Fair
  - Dehydrated
  - Very Dehydrated
  - Severely Dehydrated

**Signs of dehydration**

- Headache
- Sunken eyes
- Dry mouth or lips

**Prevent Dehydration**

Encourage residents to drink 1.5 - 2 litres of fluids every day (unless advised not to by GP).

**Encourage regular bladder emptying and mobilise as much as able.**

**Act quickly to resolve constipation and continence problems.**

Please speak to the care home manager if you have any questions.

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**ToDip or Not to Dip?**

"ToDip or Not to Dip" is an evidence-based pathway which aims to improve the diagnosis and management of Urinary Tract Infections (UTI) in older people living in care homes. This pathway has been shown to reduce antibiotic use and hospital admissions for UTI. This leaflet explains more about UTI's and the ToDip or Not to Dip care pathway.

**Bacteria in the Urine in Older People**

The presence of bacteria in the urine in older people does not necessarily mean there is an infection that requires antibiotics. Bacteria can live harmlessly in the urine of older people. In fact, around 50% of older people have bacteria in the urine without causing any symptoms. In those with a long-term urinary catheter, this rises to 100%.

**What's the Problem with Urine Dipsticks?**

Urine dipsticks are often used in the diagnosis of UTI in older people living in care homes. A positive result for "nitrite" (bacterial marker) or "leucocyte" (white blood cell marker) may be a normal finding because of the high proportion of older people that have bacteria in the urine. Often, if a resident has a positive dipstick result and has no specific symptoms, such as a fever or cloudy urine, they are inappropriately diagnosed with a UTI. The real diagnosis may be missed and the resident may receive antibiotics unnecessarily.
#ToDipOrNotToDip  What does good look like?

- Number of residents prescribed antibiotics for acute UTI
- Number of residents prescribed antibiotic prophylaxis for UTI
- Number of residents prescribed nitrofurantoin for lower UTI vs trimethoprim
- Number of residents prescribed nitrofurantoin / trimethoprim for lower UTI with a recorded eGRF
- Number of residents prescribed trimethoprim with a previous urine culture reported in previous 3 months
- Number of residents with a urine sample sent for culture for any diagnosis UTI
- Number of residents with any UTI diagnosed by urine dipstick
ToDipOrNotToDip
Improving the management of UTI in Bath and North East Somerset Nursing Homes

Summer peak in the number of residents treated for UTI

- Number of residents prescribed one or more acute antibiotic treatments for UTI as a proportion of all Nursing Home residents (742; 743; 729)

- Number of acute antibiotic treatments prescribed
How many acute antibiotic treatments were prescribed for UTI in individual residents?

- **Jul-Sep 2016**
  - 76 residents
  - 189

- **Oct-Dec 2016**
  - 72 residents
  - 129

- **Jan-Mar 2017**
  - 58 residents
  - 141
Improving the management of UTI in Bath and North East Somerset Nursing Homes

Use of trimethoprim is starting to reduce as replaced by nitrofurantoin which is guideline empirical first choice antibiotic for LUTI.
ToDipOrNotToDip
Improving the management of UTI in Bath and North East Somerset Nursing Homes

Use of nitrofurantoin to treat acute UTI in individual residents (45/95/743; 52/94/729)

Nitrofurantoin is replacing trimethoprim as empirical first choice antibiotic for LUTI in line with local guidelines.

However, 1 in every 5 prescriptions for nitrofurantoin are in residents without an eGFR documented in the GP record in past 12 months.

No residents were prescribed nitrofurantoin with a known eGFR <30ml/min.
#ToDipOrNotToDip

Improving the management of UTI in Bath and North East Somerset Nursing Homes

Nitrofurantoin is replacing trimethoprim as empirical first choice antibiotic for LUTI in line with local guidelines.

However trimethoprim empirical use is inappropriately high.

Half of the trimethoprim prescriptions could have been prescribed as nitrofurantoin in those residents with eGFR >45ml/min.
Use of trimethoprim to treat **acute** UTI and adherence to guideline advice to send a urine sample for culture in all residents with UTI 742; 743; 729
Join the #ToDipOrNotToDip community of interest
Slack via elizabeth.beech@nhs.net
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YES

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