Results of HALT Study 2013

Halting Infections in Long Term Care

HALT Seminar
November 2014
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St Finbars Hospital
Aims of presentation

- Key findings from HALT
- Appropriate antibiotic prescribing to reduce growing problem of AMR
- Mechanisms of antimicrobial resistance
- Requesting, and interpreting MSU in resident LTCF
- Management of UTI in resident of LTCF
- Why else might a resident be “just not her self”
- What can we do now to help reduce HCAI improve Antibiotic Prescribing in Irish Long Term Care facilities
- Time for discussion
Why was HALT done? – is a snapshot

* To measure prevalence of HCAI in LTCF and document the most common types

* To count the number of residents in the LTCF who were prescribed antibiotics –
  * Document reason for prescriptions

* To provide information for action: to reduce the numbers of residents who develop HCAI and to influence positive antimicrobial stewardship practices in LTCF

* To provide residents, families and public with more information about HCAI in Ireland and most common infections seen in LTCF
<table>
<thead>
<tr>
<th>Key Results</th>
<th>EU: 2010</th>
<th>IE: 2010</th>
<th>IE: 2011</th>
<th>IE 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of participating LTCF</td>
<td>722</td>
<td>69</td>
<td>108</td>
<td>190</td>
</tr>
<tr>
<td></td>
<td>61 (HSE)</td>
<td>84 (HSE)</td>
<td>128 (HSE)</td>
<td>190 (HSE)</td>
</tr>
<tr>
<td></td>
<td>8 (Private)</td>
<td>24 (Private)</td>
<td>39 (Private)</td>
<td>23 (Voluntary)</td>
</tr>
<tr>
<td>Median (range)</td>
<td>94 (9-695)</td>
<td>47 beds (10-382)</td>
<td>50 beds (10-226)</td>
<td>46 (5-203)</td>
</tr>
<tr>
<td>LTCF size</td>
<td>47 beds (10-382)</td>
<td>50 beds (10-226)</td>
<td>46 (5-203)</td>
<td></td>
</tr>
<tr>
<td>Number of eligible residents</td>
<td>61,932</td>
<td>4,170</td>
<td>5,922</td>
<td>9,318</td>
</tr>
<tr>
<td>Length of stay of residents</td>
<td>74% till end of life</td>
<td>60% till end of life</td>
<td>90% till end of life</td>
<td>76% till end of life</td>
</tr>
<tr>
<td></td>
<td>9,318 residents surveyed</td>
<td>9,318 residents surveyed</td>
<td>9,318 residents surveyed</td>
<td>9,318 residents surveyed</td>
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</tbody>
</table>
## Nature of LTCF

<table>
<thead>
<tr>
<th>Care Type</th>
<th>&lt;3 months</th>
<th>3-12 months</th>
<th>&gt;12 months</th>
<th>until end-of-life</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>General nursing care</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>97</td>
<td>0</td>
<td>112</td>
</tr>
<tr>
<td>Intellectually disabled</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>22</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td>Mixed facility</td>
<td>3</td>
<td>3</td>
<td>9</td>
<td>17</td>
<td>0</td>
<td>32</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Palliative care</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Physically disabled</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Psychiatric</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>National</td>
<td>13</td>
<td>8</td>
<td>21</td>
<td>145</td>
<td>3</td>
<td>190</td>
</tr>
</tbody>
</table>

*Estimated LOS of the majority of residents admitted to the LTCF = expected LOS for >75% of residents.
Facts about the Long term Care Facilities in the Study

- Majority owned by HSE (67%)
- Median capacity was 46 beds (5-203)
- Bed occupancy on survey date was 94%
- Single room accommodation was 34%
  - Much lower in HSE-owned facilities (21% vs 76%)
Coordination of medical care, IPC and Antimicrobial Stewardship

- GP-led medical care predominated in privately owned facilities vs HSE owned
- Models of medical care varied
  - Resident’s own GP = 35%
  - Directly employed doctor = 41%
  - Mixed model = 24%

- Only 45% had a physician coordinating/standardising resident medical care
  - Even for those in place, unlikely to have role around IPC or antimicrobial stewardship

- 1/3 had no active local IPC team

- Access to staff member with IPC training in 61% of LTCF
  - That person was a nurse
  - Not based in the facility
97% reported having written local hand hygiene policies

- Regular staff update training not in place

- Medical and allied health professional staff less likely to be asked to attend HH training

- 19% had NO designated staff member with responsibility for arranging regular HH compliance and feedback

- Provision of seasonal influenza vaccination not universal – not routine for 6%
Antimicrobial Stewardship

- Vast majority (95%) had no active local antimicrobial stewardship committee
- 95% did not have any training on antimicrobial prescribing
- 68% did not have local antimicrobial prescribing guidelines
- Prescriber feedback on local antibiotic use only available in 13% of LTCF
- Local microbiology lab susceptibility data available in 7%
Other wounds = venous ulcers, traumatic wounds, PEG exit sites, SPC exit sites, stomas, surgical wounds
HCAI % Crude Overall Prevalence

- National crude prevalence = 5.3%
- National median prevalence = 4.2%
- Highest in palliative care facilities

NB: Definition of HCAI changed in 2013
# 2013 HCAI Prevalence by Facility Type

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Total eligible residents</th>
<th>Number of residents with an infection</th>
<th>HCAI prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GN &gt; 12 months</td>
<td>5,807</td>
<td>294</td>
<td>5.1</td>
</tr>
<tr>
<td>Mixed &gt; 12 months</td>
<td>1,409</td>
<td>86</td>
<td>6.1</td>
</tr>
<tr>
<td>Intellectually disabled</td>
<td>1,060</td>
<td>46</td>
<td>4.3</td>
</tr>
<tr>
<td>LTCFs &lt; 12 months</td>
<td>374</td>
<td>28</td>
<td>7.5</td>
</tr>
<tr>
<td>Psychiatric</td>
<td>345</td>
<td>11</td>
<td>3.2</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>139</td>
<td>11</td>
<td>7.9</td>
</tr>
<tr>
<td>Palliative care</td>
<td>89</td>
<td>18</td>
<td>20.2</td>
</tr>
<tr>
<td>Physically disabled</td>
<td>46</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Note highest in palliative care

**Crude** refers to unadjusted prevalence, while **Median (IQR)** indicates the median prevalence with its interquartile range.
HCAI – Reported infections

3 categories accounted for 92% infections

- UTI = 34%
- RTI = 32%
- Skin infections = 24%
If you are resident in an Irish nursing home, you are more than twice as likely to be on an antibiotic than in any other European Country.
EU 2010 Results: Prevalence of antimicrobial use

Crude prevalence of AB use per 100

- Green: 0-1.99
- Yellow: 2-3.99
- Orange: 4-5.99
- Red: 6-7.99
- Purple: >8

EU prevalence = 4.3%

Source: Katrien Latour ARHAI 2011
Of those prescribed an antibiotic

Majority were on treatment for an infection = 61%

Prophylaxis = 39%

Three body sites accounted for 93% of prescriptions

9.2% of residents were on an antibiotic
The most frequently prescribed antimicrobials

Co-amoxiclav was the most common antimicrobial (20.3%). It was mostly prescribed to treat RTI (49%), UTI (25%) and skin/wound infections (9%)

Trimethoprim was the second most common antimicrobial (18.7%). It was only prescribed for urinary tract indications, in particular for UTI prophylaxis (86% of prescriptions)

Nitrofurantoin was the third most common antimicrobial (17.5%). It was only prescribed for urinary tract indications, in particular for UTI prophylaxis (71% of prescriptions)
What did we learn from HALT?

- High dependency levels in Irish LTCFs, but the type of residents in LTCF varies widely
- HCAI and antimicrobial prescribing are common in Irish LTCF
- Twice as many residents in Irish LTCF were prescribed antimicrobials as in other EU countries
- High level of prescribing for prophylaxis/prevention – especially in intellectually disabled units (for UTIs)
- UTI more common in Irish LTCF than in other EU countries, but catheter use slightly lower
- A relevant microbiological specimen sent for 27% of prescriptions
  - *E Coli* (33%) and *Staphylococcus aureus* (22%) of reported pathogens
- Of those with available susceptibility results
  - 29% of *E coli* resistant to 3rd generation cephalosporins
  - 44% of *S. aureus* were MRSA
- IPC resources broadly comparable with EU, but Irish LTCFs appear to have more access to IPC practitioners
Antibiotic Resistance Is Increasing For Most Micro-Organisms

2002

2012

E.Coli resistance to 3\textsuperscript{rd} generation cephalosporins
Ireland DDD’s

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>20.34</td>
</tr>
<tr>
<td>2004</td>
<td>20.19</td>
</tr>
<tr>
<td>2005</td>
<td>20.50</td>
</tr>
<tr>
<td>2006</td>
<td>21.09</td>
</tr>
<tr>
<td>2007</td>
<td>22.03</td>
</tr>
<tr>
<td>2008</td>
<td>21.00</td>
</tr>
<tr>
<td>2009</td>
<td>20.23</td>
</tr>
<tr>
<td>2010</td>
<td>19.75</td>
</tr>
<tr>
<td>2011</td>
<td>22.55</td>
</tr>
<tr>
<td>2012</td>
<td>22.80</td>
</tr>
<tr>
<td>2013</td>
<td>23.66</td>
</tr>
</tbody>
</table>
In Northern Europe Overall Consumption Of Antibiotics Is Less/Use More Narrow Spectrum Than Broad Spectrum

Macrolide Resistance to Strep Pneumoniae

Primary Care Antibiotic consumption rates
Countries with low rates AMR

- Overall consumption of antibiotics is less. Greece and Cyprus use 3 times more antibiotics per head of population than Netherlands.
- Use more narrow spectrum Antibiotics than broad spectrum.
- Levels of antibiotic consumption consistently correlate with levels of AMR in the population.
If you decide to prescribe ask the following questions?

What do I tend to prescribe for a particular condition?
Is it the right drug for this condition?
Is it the right dose for the patient sitting in front of me?
How long do I tend to prescribe it for?
What investigations, if any, do I use to support my decisions?
Do I know about the Irish primary care prescribing guidelines and am I using them?
Narrow versus broad-spectrum

Is it the right drug for the condition I am treating?
“Am I Keeping Patients Safe From Antibiotic Side-Effects?”

- Nausea, vomiting, diarrhea, rashes
- Toxicity from prolonged use – nitrofurantoin for UTI prophylaxis and renal damage
- Toxicity from idiosyncratic reactions – liver failure with co-amoxiclav
- Toxicity when dose not reduced or incorrect antibiotic used for patients with chronic kidney disease
- Interaction with other medicines – statins and macrolides
- Serious Allergic reactions
What Can Individual GP’s Do To Ensure Safe Antibiotic Use?

Reflect on your individual prescribing habits

“Have I consulted the antibiotic guidelines recently?”

www.antibioticprescribing.ie
<table>
<thead>
<tr>
<th><strong>Upper Resp.</strong></th>
<th><strong>Lower Resp.</strong></th>
<th><strong>Flu</strong></th>
<th><strong>Meningitis</strong></th>
<th><strong>Urinary</strong></th>
<th><strong>Gastro</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Sinusitis</td>
<td>Acute Cough, Bronchitis</td>
<td></td>
<td></td>
<td>Acute Pyelonephritis</td>
<td>Clostridium difficile</td>
</tr>
<tr>
<td>Otitis Media</td>
<td>Acute Exacerbation of COPD</td>
<td></td>
<td></td>
<td>Adult Uncomplicated UTI</td>
<td>Helicobacter Pylori</td>
</tr>
<tr>
<td>Pharyngitis</td>
<td>Community Acquired Pneumonia</td>
<td></td>
<td></td>
<td>UTI in Long Term Care</td>
<td>Infectious Diarrhoea</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Genital</strong></th>
<th><strong>Skin/Soft Tissue</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Prostatitis</td>
<td>Acne Vulgaris</td>
</tr>
<tr>
<td>Bacterial Vaginosis</td>
<td>Animal Bite</td>
</tr>
<tr>
<td>Chlamydia trachomatis</td>
<td>Cellulitis</td>
</tr>
<tr>
<td>Gonorrhoea</td>
<td>Conjunctivitis</td>
</tr>
<tr>
<td>Pelvic Inflammatory Disease (PID)</td>
<td>Dermatophyte - Nails</td>
</tr>
<tr>
<td>Trichomoniasis</td>
<td>Dermatophyte - Skin</td>
</tr>
<tr>
<td>Vaginal Candidiasis</td>
<td>Eczema</td>
</tr>
</tbody>
</table>

[http://www.antibioticprescribing.ie/](http://www.antibioticprescribing.ie/)
Add this website to your PC’s toolbar ‘Favourites’
Formal implementation of current guidelines

* 2009 HIQA Standards for Prevention and Control of HCAI
* National guidelines for antimicrobial prescribing in primary care
* Diagnosis and management of UTI in long-term care residents aged over 65
* Prevention of catheter-associated UTI
* Surveillance, diagnosis and management of *C difficile* infection
* Prevention and management of influenza outbreaks in residential care facilities
NOT ALL BAD NEWS

There is evidence that the repeated HALT surveys and publication of the UTI guideline for LTCF have had a positive impact on reducing prophylactic prescribing in Ireland. The overall prevalence has decreased from 4.3% to 3.8% and the UTI prophylaxis prevalence has decreased from 3.8% to 2.8%, between 2010 and 2013.

BUT WE COULD DO SO MUCH BETTER.........
Keeping Antibiotics Safe And Effective For Future Generations ...It’s Everyone's Responsibility

Some signs of improvement 2014

We have a professional responsibility to do better
Keeping Antibiotics Safe And Effective For Future Generations ...

..it’s everyone's responsibility