Antibiotic Stewardship in ARPAC European Hospitals

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ARPAC Steering Group

ESGAP

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In 2001 did your hospital have a drugs & therapeutics committee?

- Yes
- No
- Missing

n=146
n=23
n=1

How often did the drugs and therapeutics committee meet in 2001?

- Once every 3 months, 57% (n=97)
- Once per year, 10% (n=17)
- Once every 6 months, 15% (n=26)
- Not at all, 3% (n=5)
- Missing, 15% (n=25)

n=170

If yes who sat on the drugs and therapeutics committee?

- Pharmacist (n=137)
- ICU physician (n=108)
- Infection control personnel (n=74)
- Medical microbiologist / infectious diseases specialist (n=118)

n=118

n=3

n=83

n=25

n=118
In 2001 did your hospital have a drugs & therapeutics committee?

Total antibiotic use $p = 0.931$

<table>
<thead>
<tr>
<th>Drugs &amp; Therapeutics Committee</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDD/100 bed-days</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>p</td>
<td>0.931</td>
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</tbody>
</table>

In 2001 did your hospital have a multidisciplinary antibiotic management team?

<table>
<thead>
<tr>
<th>Management Team</th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>DDD/100 bed-days</td>
<td>6</td>
<td>9</td>
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<tr>
<td>p</td>
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</table>

Is improving antibiotic prescribing a "strategic goal" of your hospitals managers?

<table>
<thead>
<tr>
<th>Strategic Goal</th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>DDD/100 bed-days</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>p</td>
<td>0.076</td>
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</table>

Was there an antibiotic utilisation co-ordinator in your hospital?

<table>
<thead>
<tr>
<th>Co-ordinator</th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>DDD/100 bed-days</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>p</td>
<td>0.600</td>
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</table>

Antibiotic control measures Committees

<table>
<thead>
<tr>
<th>Committees</th>
<th>In 2001 did your hospital have a multidisciplinary antibiotic management team?</th>
<th>Is improving antibiotic prescribing a &quot;strategic goal&quot; of your hospitals managers?</th>
<th>Was there an antibiotic utilisation co-ordinator in your hospital?</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=6</td>
<td>Yes</td>
<td>No</td>
<td>Missing</td>
</tr>
<tr>
<td>n=9</td>
<td>Yes</td>
<td>No</td>
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</tr>
<tr>
<td>n=57</td>
<td>Yes</td>
<td>No</td>
<td>Missing</td>
</tr>
<tr>
<td>Missing</td>
<td>Yes</td>
<td>No</td>
<td>Missing</td>
</tr>
</tbody>
</table>

n=170
Did your hospital have a written antibiotic formulary in 2001?

- Yes, 78% (n=131)
- No, 20% (n=36)
- Missing, 2% (n=3)

Who drew up and reviewed your antibiotic formulary?

- National Committee (n=12)
- Local Drugs & Therapeutic Committee (n=65)
- Local Antibiotic Committee (n=58)
- Local Pharmacy (n=38)
- Local Consultant Microbiologist / ID Physician (n=43)
- Other (n=6)

How often was the formulary published?

- Every 1 - 2 years, 36% (61)
- More than every 2 years, 25% (42)
- Every 6 - 11 months, 7.5% (13)
- Every 6 months, 7.5% (13)
- Missing, 24% (41)
Did your hospital have a written antibiotic formulary in 2001?

- Yes = 94% (n = 51)
- Yes = 59% (n = 23)
- Yes = 42% (n = 5)

p < 0.001

Total antibiotic use p = 0.470

- Glycopeptides: p = 0.411
- F-quinolones: p = 0.844
- Carbapenems: p = 0.192
- 3rd generation cephalosporins: p = 0.026
- 4th generation cephalosporins: p = 0.294
Since 1999 many education campaigns have been carried out?

- Implemented by microbiologists / ID / IC personnel in 86% of hospitals
- Initiated by pharmacists in 20% of hospitals
Since 1999 has your hospital carried out education of staff on antibiotic use?

- Yes: 54 (n=121)
- No: 60

Total antibiotic use:

- Glycopeptides: 6
- F-quinolones: 7
- Carbapenems: 2
- 3 GC: 4

p = 0.033
Antibiotic control measures

Antibiotic availability

Antibiotic policies and pharmaceutical companies

In 2001, prior to making visits to the hospital, did pharmaceutical representatives have to report to the pharmacy or departmental head?

<table>
<thead>
<tr>
<th></th>
<th>n=116</th>
<th>Missing</th>
<th>n=6</th>
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</thead>
<tbody>
<tr>
<td>Yes</td>
<td>51</td>
<td>No</td>
<td>83</td>
</tr>
</tbody>
</table>

Were pharmaceutical company representatives permitted to leave sample drugs on the ward?

<table>
<thead>
<tr>
<th></th>
<th>n=51</th>
<th>n=6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>51</td>
<td>6</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>57</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Did pharmaceutical representatives provide sponsorship for:

- Dinners / parties (n=151)
- Local scientific meetings (n=153)
- Printing of policy documents (n=39)
- Participation at conferences (n=151)

<table>
<thead>
<tr>
<th></th>
<th>n=170</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, 83% (n=141)</td>
<td></td>
</tr>
<tr>
<td>Yes, 12% (n=20)</td>
<td></td>
</tr>
<tr>
<td>Missing, 5% (n=9)</td>
<td></td>
</tr>
</tbody>
</table>

Did pharmaceutical companies have an input into the antibiotic policy?

- No, 83% (n=141)
- Yes, 12% (n=20)
- Missing, 5% (n=9)
Audit

Did hospitals assess the above?

- Prescriber knowledge of antibiotics: n = 10
- Effectiveness of education campaigns: n = 11
- General antibiotic policy: n = 13
- Restricted antibiotic list: n = 17
- Policy on surgical prophylaxis: n = 14
- Policy on empiric therapy: n = 17

Did hospitals audit adherence to the above?

- General antibiotic policy: n = 127
- Restricted antibiotic list: n = 129
- Policy on surgical prophylaxis: n = 123
- Policy on empiric therapy: n = 97
- General antibiotic policy: n = 11
- Restricted antibiotic list: n = 30
- Policy on surgical prophylaxis: n = 34
- Policy on empiric therapy: n = 56
- General antibiotic policy: n = 127
- Restricted antibiotic list: n = 98
- Policy on surgical prophylaxis: n = 51
- Policy on empiric therapy: n = 28
In 2001 did the laboratory provide an emergency service eg. Telephoning emergency Gram stains and other results OUTSIDE routine working hours?

- Yes: 75% (n=127)
- No: 23% (n=40)
- Missing: 2% (n=3)

Did the laboratory examine blood cultures more than once per day?

- Yes: 86% (n=147)
- No: 12% (n=20)
- Missing: 2% (n=3)
Were there financial limitations to antibiotic prescribing in the hospital?

- Yes: 34% (n=57)
- No: 64% (n=108)
- Missing: 3% (n=5)

If yes, who imposed financial limitations?

- Government: Yes - 19% (n=32), No - 29% (n=49)
- Hospital: Yes - 80% (n=136), No - 70% (n=119)
Was there a compulsory system of automatic stop dates for prophylaxis?

Was there a compulsory system of automatic stop dates for treatment?

Antibiotic use; median values

Total Antibiotic use; median value

Prescribing advice given by clinical microbiologist / infectious disease physician and pharmacists (n = 170)

Were daily ward visits carried out to advise on therapy?

Was prescribing advice available outwith normal working hours?

Was prescribing advice available during normal working hours?
Antibiotic Control

Conclusions

- There are few significant geographic variations in the practice of restrictive antibiotic control measures in ARPAC hospitals.
- There are weak but consistent associations between lower hospital antibiotic consumption and the presence of written formularies and drugs and therapeutics committees.
- There is significant scope for the expansion of restrictive control measures.
Education
Conclusions

- Education activities were traditional; lectures, case discussions, commonly carried out showing a weak association with lower antibiotic use.

- Only a minority of hospitals carry out audit and no evidence is available from ARPAC that it influences antibiotic use.

Role of the Laboratory
Conclusions

- Antibiotic stewardship is a priority of laboratories in ARPAC hospitals.

- There is significant geographic differences in the provision of Emergency Services and Clinical liaison.

- There is no evidence that these activities reduce antibiotic consumption.
Role of the Pharmacy

Conclusions

- There is no evidence that a clinical pharmacy service lowers antibiotic use.

- There seems to be great potential for expansion of all services offered by pharmacy especially in improving the quality of prescribing.

Acknowledgements

ARPAC participating hospitals
ARPAC Steering Group

www.abdn.ac.uk/arpac