all these reasons, the presence of PMQR in reptiles should be seen as a public health concern.

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Some of these data were presented in a poster (no. 2881) at the European Congress of Clinical Microbiology and Infectious Diseases, Vienna, 2010.

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Transparency declarations
None to declare.

Supplementary data
Table S1 and Figure S1 are available as Supplementary data at JAC Online (http://jac.oxfordjournals.org/).

References

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Long-term stability of temocillin in elastomeric pumps for outpatient antibiotic therapy in cystic fibrosis patients
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Keywords: Burkholderia cepacia complex, HPLC, refrigerator, room temperature

Sir,
Outpatient antibiotic therapy (OPAT) is often proposed to cystic fibrosis (CF) patients in order to reduce the risk of cross-infection and the duration of hospital stay.1 However, the long-term stability of the drug in the home-supplied device needs to be assessed under conditions mimicking their projected use before any large-scale implementation of OPAT. This is particularly critical for β-lactam antibiotics, as these are notoriously unstable in aqueous solutions; however, there are quite large variations among them.2 We previously reported that temocillin, a 6α-methoxy-carboxyphenicillin with exceptional stability in the presence of most β-lactamases, including extended-spectrum β-lactamases,3 is very stable even when kept at 37°C for several hours in concentrated solutions, as required for use in continuous infusion.4 While being useless for infections caused by Pseudomonas aeruginosa or Acinetobacter spp., temocillin shows good in vitro activity against Burkholderia cepacia complex (Bcc),5 a difficult-to-treat opportunistic organism that often affects vulnerable individuals such as CF patients.6 Since most Bcc isolates are resistant to many, if not all, other antibiotic agents commonly used in CF patients, temocillin could be potentially useful, and even life-saving, in severe pulmonary exacerbations.

We have assessed the stability of temocillin in two frequently used elastomeric devices, namely: (i) the Easypump® 100-0.5 (I-Flow Corp., Lake Forest, CA, USA; also called Homepump Eclipse® in some other countries); and (ii) the Interma-te® SV200 (Baxter Healthcare Corp., Deerfield, IL, USA), taking care to mimic the actual projected use of these devices for OPAT in CF patients. Thus, 30 pumps from each brand were loaded at room temperature with concentrated temocillin

References
helpful and safe for CF patients when with temocillin performed under these conditions may be both
refrigerator where the pumps are stored; and (iii) to strictly
4 week) and handled as for home-based therapy. By appli-
tomergic devices commonly used for OPAT when stored (up to
10 g/L concentration only).

90% threshold to be reached (except for one replicate after

parameters were all statistically significant at

A limit of stability of 90% was taken, as in our previous
studied HPLC method.4 Data were analysed by
two-way ANOVA followed by Bonferroni post-tests.

linear regression. Each relevant data pair was analysed inde-
ependent by two-way ANOVA followed by Bonferroni post-tests.
A limit of stability of 90% was taken, as in our previous
studies.2

The results are presented in Table 1. At 4 °C, temocillin proved
>90% stable for ≥4 weeks. No significant differences were
observed between the pumps or the two concentrations
tested. Likewise, temocillin remained on average >90% stable for
≥24 h at room temperature after being removed from the
refrigerator. Only a minimally faster degradation was seen for
the 20 g/L compared with the 10 g/L concentration when using the
Intermate® pump, but these differences did not cause the
90% threshold to be reached (except for one replicate after
4 weeks at 4 °C and 24 h at room temperature, but for the
10 g/L concentration only).

In conclusion, temocillin was shown to remain stable in elas-
tomeric devices commonly used for OPAT when stored (up to
4 weeks) and handled as for home-based therapy. By appli-
cation of a principle of precaution, we would, however, rec-
tend to users: (i) not to store the pumps for >3 weeks at
4 °C; (ii) to install a temperature-monitoring device in the
refrigerator where the pumps are stored; and (iii) to strictly
limit the storage to 24 h once out of the refrigerator. OPAT
with temocillin performed under these conditions may be both
helpful and safe for CF patients when Bcc infection is suspected
or proven.

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Transparency declarations
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complex bacteria: opportunistic pathogens with important natural

Table 1. Temocillin stability in elastomeric devices

<table>
<thead>
<tr>
<th>Storage conditions</th>
<th>Pump</th>
<th>Initial temocillin concentration (g/L)</th>
<th>0 week</th>
<th>1 week</th>
<th>2 weeks</th>
<th>3 weeks</th>
<th>4 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 °C</td>
<td>EasyPump®</td>
<td>10</td>
<td>100 ± 1.6</td>
<td>98.7 ± 1.1</td>
<td>98.5 ± 0.8</td>
<td>96.2 ± 0.9</td>
<td>95.5 ± 0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20</td>
<td>100 ± 1.0</td>
<td>99.4 ± 0.7</td>
<td>98.3 ± 0.3</td>
<td>96.2 ± 0.6</td>
<td>95.5 ± 0.3</td>
</tr>
<tr>
<td></td>
<td>Intermate®</td>
<td>10</td>
<td>100 ± 1.0</td>
<td>99.6 ± 0.4</td>
<td>97.1 ± 0.7</td>
<td>94.5 ± 0.8</td>
<td>94.8 ± 0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20</td>
<td>100 ± 3.1</td>
<td>97.7 ± 0.3</td>
<td>95.0 ± 0.2</td>
<td>93.1 ± 0.1</td>
<td>94.1 ± 0.4</td>
</tr>
<tr>
<td>4 °C + 24 h at room</td>
<td>EasyPump®</td>
<td>10</td>
<td>96.4 ± 1.7C</td>
<td>98.1 ± 0.8</td>
<td>97.1 ± 1.2</td>
<td>94.9 ± 0.2</td>
<td>91.1 ± 0.7</td>
</tr>
<tr>
<td>temperature</td>
<td></td>
<td>20</td>
<td>98.5 ± 1.2C,D</td>
<td>98.5 ± 0.6D</td>
<td>96.3 ± 0.4</td>
<td>94.8 ± 0.3D</td>
<td>91.0 ± 0.7</td>
</tr>
<tr>
<td></td>
<td>Intermate®</td>
<td>10</td>
<td>97.1 ± 1.8</td>
<td>97.8 ± 0.4</td>
<td>98.6 ± 0.5</td>
<td>95.1 ± 0.9</td>
<td>91.5 ± 1.6*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20A,B</td>
<td>96.2 ± 0.5D</td>
<td>95.6 ± 1.7D</td>
<td>96.3 ± 0.3</td>
<td>92.6 ± 1.0D</td>
<td>92.0 ± 1.1</td>
</tr>
</tbody>
</table>

All values are means ± SD (n = 3); only relevant pairwise comparisons (between brand at the same concentrations and storage conditions, among a brand between concentrations, and between storage conditions) were made by two-way ANOVA taking all values in a row. The capital letters A or B indicate rows between which the difference was significant (P < 0.05). The Bonferroni post-test was then used to analyse the corresponding pairs in each column, and pairs with significant differences (P < 0.05) are marked by the capital letters C or D.

*One replicate below the 90% threshold.