Introduction.

This study aimed to evaluate the cost effectiveness of zoledronic acid (ZOL) 5 mg once yearly for management of postmenopausal osteoporosis (PMO) compared to relevant branded compounds in the UK.1-4

Methods.

The cost-effectiveness model (Figure 1) was developed using an individual patient methodology.2,3

1. The process followed for each patient entering the model was: Time to occurrence of the patient’s first event (fracture, nursing-home entry due to hip fracture or death) was sampled.

2. Costs incurred and quality adjusted life years (QALYs) gained in the period up to the event were recorded.

3. The relative risk of fractures was obtained from the HORIZON trial for ZOL 5 mg and ECLIPSE for Fosamax and Protelos.3,4

4. Quality of life and utility ratios were derived from the literature and costs of the medications were taken from the MIMS listing from September 2007.

Results.

Mean relative risk (95% CI) was developed using an individual patient methodology.

Table 1. Model inputs.

<table>
<thead>
<tr>
<th>Event</th>
<th>ZOL 5 mg vs. Fosamax®</th>
<th>ZOL 5 mg vs. Actonel®</th>
<th>ZOL 5 mg vs. Protelos®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean relative risk (95% CI)</td>
<td>0.61 (0.50–0.75)</td>
<td>0.76 (0.64–0.91)</td>
<td>0.76 (0.64–0.91)</td>
</tr>
</tbody>
</table>

Conclusions.

Cost effectiveness of ZOL 5 mg versus selected brand anti-osteoporotics in the UK.

Cost effectiveness in high fracture-risk and osteopenic patients:

1. In high fracture-risk patients (at double risk vs base case):
   - ZOS 5 mg is cost-effective versus Fosamax® with ICER of £–652 at age 70,
   - all treatments had ICERs < £20,000 versus standard treatment, with ZOL 5 mg having the lowest cost-effectiveness ratio of £–652.

2. In osteopenic patients, using a 2.5–5.0 anti-fracture efficacy in this patient population (if available).
   - ZOS 5 mg was cost-effective versus Fosamax® with ICER of £–414 at age 70.
   - only ZOS 5 mg had a ICER < £20,000 (215,000/105,000) versus standard treatment.

Influence of persistence and compliance on cost effectiveness:

In the sensitivity analyses it was demonstrated that persistence and compliance with oral bisphosphonates is poor.6

1. Ten years of treatment and all patients in the model had ICERs < £20,000 versus standard treatment, with ZOL 5 mg having the lowest cost-effectiveness ratio of £–1,041 at age 70.

2. Ten years of treatment and all patients in the model had ICERs < £20,000 versus standard treatment, with ZOL 5 mg having the lowest cost-effectiveness ratio of £–1,652 at age 70.

3. Ten years of treatment and all patients in the model had ICERs < £20,000 versus standard treatment, with ZOL 5 mg having the lowest cost-effectiveness ratio of £–2,165 at age 70.

4. Ten years of treatment and all patients in the model had ICERs < £20,000 versus standard treatment, with ZOL 5 mg having the lowest cost-effectiveness ratio of £–2,676 at age 70.

Using the generic adherence price of £85/345 and the assumptions of persistence and compliance, ZOS 5 mg is cost effective against placebo, zolecalcitron with an ICER of £17,944.