Influence of varying the time between diagnosis to biologic treatment (d-b) on drug-use and staffing costs

Table 1. Influence of varying the time between diagnosis to biologic treatment (d-b) on drug-use and staffing costs

<table>
<thead>
<tr>
<th>Diagnosis to Biologic (d-b)</th>
<th>Drug Costs (£k) Unit (10k)</th>
<th>Total Appointments</th>
<th>No. patients prescribed NSAIDs</th>
<th>No. patients prescribed Biologics</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>8,796</td>
<td>20,384</td>
<td>7,154</td>
<td>1,283</td>
</tr>
<tr>
<td>220</td>
<td>5,702</td>
<td>18,692</td>
<td>6,796</td>
<td>971</td>
</tr>
<tr>
<td>250</td>
<td>3,259</td>
<td>16,214</td>
<td>6,324</td>
<td>621</td>
</tr>
<tr>
<td>260</td>
<td>2,054</td>
<td>14,700</td>
<td>5,968</td>
<td>382</td>
</tr>
<tr>
<td>265</td>
<td>1,297</td>
<td>13,411</td>
<td>5,562</td>
<td>233</td>
</tr>
</tbody>
</table>

Conclusion: We have successfully developed, and validated an agent-based approach to model the effect of key policy changes on the whole healthcare system, providing output estimates of cost and patient outcomes, based on integrated real-world data. To our knowledge this is the first attempt to explore the patient journey in people with axSpA in this way. The model provides a useful tool for exploring the effects of changing the way healthcare is delivered to patients with this disease. Our experimental analysis lends support to the case for increasing staffing and drug expenditure to achieve current NICE standards of care in AS.

Acknowledgments: Financial support National Axial Spondyloarthritis Society (NASS), data access BSR.

Disclosure of Interests: Alan Roach Grant/research support from: I was awarded an I-CRP grant from Pfizer for a similar simulation in RA, this was for about £50k and ran from 1/9/15 28/2/17, Ian Scott: None declared, Gary Macfarlane: None declared, Gareth T. Jones Grant/research support from: Pfizer, Abbvie, UCB, Celgene and GSK., Alex MacGregor: None declared

Figure 1. Influence of varying the time between diagnosis to biologic treatment (d-b) on 2 year BASDAI outcome

Figure 1. Summary of economic evaluation. (d-b) is the difference between the date of diagnosis to first introduction to biologics.

Disclosure of Interests: None declared

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OP0284

AN AGENT-BASED SIMULATION OF THE EFFECTS OF VARYING TIME BETWEEN TREATMENT WITH BIOLOGICAL AGENTS ON PATIENT HEALTH AND COST IN AXIAL SPONDYLOARTHRITIS USING NATIONAL REGISTER DATA

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Background: Evaluating the long-term impacts of healthcare policies on patient's health and treatment costs for people with axial spondyloarthritis (axSpA) is challenging due to its chronic nature, and the variation in individual patient journeys post-diagnosis. Agent-based simulations are a novel approach to interrogating this complexity, and allow the consequences of different policy scenarios on outcomes to be explored.

Objectives:

1. Develop and validate an agent-based simulation of the UK axial spondyloarthritis healthcare system, using real-world data.
2. Integrate the effects of earlier biologic treatment on costs and patient outcomes.

Methods: Anonymised data were obtained from the UK National Early Inflammatory Arthritis Audit, and BSR Biologics Register (BSRBR-AS). This provided data on 162 units, and 702 patients with 1,631 patient-years of follow-up. An agent-based model was designed and programmed on the Netlogo platform to simulate patients and units individually over time. New patients were created in which the time between the date of diagnosis, to first introduction to biologics (d-b) was 250 days. In the experimental scenarios, as ison tests showed a high-level of similarity between simulated output and target datasets. In the target data, d-b was 250 days. In the experimental scenarios, as ison tests showed a high-level of similarity between simulated output and target datasets.

Results: In the baseline model in a typical two year run, 13,631 new patients attended 5,167 baseline, and 6,966 follow-up appointments. Of these, 6,324 and 6,324 were prescribed ≥1NSAID, and biologics, respectively. The validation comparison tests showed a high-level of similarity between simulated output and target datasets. In the target data, d-b was 250 days. In the experimental scenarios, as might be expected, earlier biologic access improved outcomes but at higher-costs.

Conclusion: We have successfully developed, and validated an agent-based approach to model the effect of key policy changes on the whole healthcare system, providing output estimates of cost and patient outcomes, based on integrated real-world data. To our knowledge this is the first attempt to explore the patient journey in people with axSpA in this way. The model provides a useful tool for exploring the effects of changing the way healthcare is delivered to patients with this disease. Our experimental analysis lends support to the case for increasing staffing and drug expenditure to achieve current NICE standards of care in AS.

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OP0285

TOWARDS IMPLEMENTING THE OMOP CDM ACROSS FIVE EUROPEAN BIOLOGIC REGISTRIES

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Background: The Observational and Medical Outcomes Partnerships (OMOP) common data model (CDM) provides a framework for standardising health data.

Objectives: To map national biologic registry data collected from different European countries to the OMOP CDM.