Modelling the Potential Impact of Rising COVID-19 Related Staff Absences on Home Care Provision
**Background:**

It is possible that we will see substantial increases in sickness absences related to COVID-19 over the coming weeks and months. This short paper is summary of work undertaken by our Locally Deployed Support (LIST) for one Health and Social Care Partnership (HSCP), on request of the Chief Officer, to help understand the potential impact of rising absence on their ability to deliver home care.

**Method**

There were a variety of different ways this could have been approached with the chosen approach for this project being system dynamics modelling. System Dynamics allows for the modelling of different scenarios in complex systems over time. The model has been built in such a way where we can adjust for increasing/decreasing demand, increasing rates of absence and allow us to play through scenarios where we add staff (perhaps through volunteers or early registration) or reduce care packages based on eligibility criteria.

The model was produced at pace to fit in with local timescales and clearly was based on a number of assumptions (which can be shared on request). When communicating the results, we have been stressing the assumptions and making clear the purpose of the exercise was to help estimate the size of the potential problem the HSCP could face.

The model was produced using the software package Stella. While the model was relatively complex a user friendly data entry function has been designed to allow LIST to reproduce this work for other interested HSCPs. Please see a screen shot in figure 1.

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**Figure 1 – User Friendly Data Entry**

An interactive and user friendly dashboard has been designed to allow visual demonstrations of the output with our customers. The design of the dashboard allows the user to walk through different scenarios with the customers and produce visual and easy to understand output. See example in figure 2.

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**Figure 2 – User Friendly Dashboard**
Results

Understandably the exact results will remain private to the HSCP until they give permission for their output to be used. However, what we were able to demonstrate was the potential gap between available home care hours and planned hours should home care absence hit 25%, 30%, 35% and 40%. Fictional results are shown in Table 1 to help illustrate the output.

Table 1 – Potential Gap Between Available Hours and Planned Hours and % Loss from Baseline for Internal Home Care

<table>
<thead>
<tr>
<th>Internal</th>
<th>25%</th>
<th>30%</th>
<th>35%</th>
<th>40%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gap in weekly hours</td>
<td>-60</td>
<td>-300</td>
<td>-500</td>
<td>-750</td>
</tr>
<tr>
<td>Productivity loss %</td>
<td>2.2</td>
<td>10.1</td>
<td>15.3</td>
<td>23.4</td>
</tr>
</tbody>
</table>

*Note starting absence in the service was 22%

As previously mentioned we were also able to model the impact of turning off different levels of home care packages. The HSCP we worked with have 4 categories of Home Care: Critical, Substantial, Moderate and Low. Table 2 below shows fictional output for illustration where we were able to provide output for the same scenarios of absence rate but factor in what the gap would be if we paused the different levels of care.

Table 2 - Home Care as a Whole Potential Gap if Low, Moderate and Substantial Packages Were Paused

<table>
<thead>
<tr>
<th>Scenario</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity loss %</td>
<td>2.2</td>
<td>10.1</td>
<td>15.3</td>
<td>23.4</td>
</tr>
<tr>
<td>Gap in weekly hours</td>
<td>-250</td>
<td>-1300</td>
<td>-1900</td>
<td>-3200</td>
</tr>
<tr>
<td>Pause low, moderate &amp; substantial</td>
<td>6200</td>
<td>5250</td>
<td>4300</td>
<td>3200</td>
</tr>
<tr>
<td>Pause all low and moderate</td>
<td>1250</td>
<td>350</td>
<td>-600</td>
<td>-1500</td>
</tr>
<tr>
<td>Pause all low</td>
<td>400</td>
<td>-500</td>
<td>-1500</td>
<td>-2350</td>
</tr>
</tbody>
</table>

Next Steps

One of the key benefits of this approach has been the ability to scale up for other areas. Other HSCP have already showed interest in this model especially as they may already be seeing absence rates increase. We have demonstrated the model to the majority of LIST colleagues across Scotland who are now discussing with local contacts if this model would be beneficial to them. In the short period of time this model has been made available 19 areas have already expressed an interest.

There is also the potential that this model could applied to other Health and Social Care services. LIST will discuss this with relevant stakeholders to explore any opportunities.

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