Identifying the target population for a people-centered, integrated chronic care program: a needs-based approach

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Background
About 50 million people in Europe suffer from chronic multimorbidity [1]. In the Netherlands, roughly 2 million people (13% of the population) have multiple chronic diseases [2].

- Internationally, disease management (DM) programs are the norm for chronic care.
- Based on disease-specific guidelines and highly standardised, DM programs are often unsuitable for patients with multimorbidity [3].
- As the number of people with multimorbidity rises, finding disease-transcending solutions becomes increasingly important.

One initiative to find such a solution was taken last year by a primary care group (HZD) in the Netherlands, which supports 129 GP practices with varying organisational characteristics. HZD decided to develop a generic (disease-transcending), people-centered, integrated chronic care program. Unique about the program is that patients’ actual care needs, rather than their specific conditions, are taken as starting point for program development.

Objective
To define suitable target groups for an integrated care program, by investigating the relations between patients’ healthcare use (HC-use) in the GP-practice and patient’s individual characteristics.

Methods
• Cross-sectional study design
• Anonymous, routinely collected data from GP information systems from July 2014 to July 2016.
• Relations between HC-use and patient’s individual characteristics were analysed by:
  - Data visualisations
  - Comparing individual characteristics between three patient groups with different level of HC-use (using ANOVA and Chi-Square tests)

Results
• 66 GP practices authorised use of data (n=291,031 patients)
• 33% (n=97,175) suffered from one (60%) or more (28%) chronic diseases, and/or partook in DM programs (43%).
• Mean number of consultations in GP-practice per year: 10.7 (SD 9.4)
• An increase in GP healthcare use was seen if patients were older, female, had several chronic diseases simultaneously, had a combination of physical and mental chronic diseases, and/or partook in a combination of DM programs.
• For patients without chronic multimorbidity, more than half of the consultations concerned non-chronic issues, regardless of the chronic disease in question.
• For patients with chronic multimorbidity, the number of consultations for chronic issues, yet also for non-chronic issues, were higher than for patients without chronic multimorbidity.
• Based on the cumulative number of consultations in the GP-practices, 3 groups of patients with varying levels of HC-use were identified (fig 2).
• Groups differed significantly on all individual patient characteristics shown in table 1.

Figure 2: Cumulative consultation use by group (n=97,175)

Table 1: Patient groups with low, medium and high healthcare use with regard to individual patient characteristics (n=97,175)

<table>
<thead>
<tr>
<th>Healthcare use group</th>
<th>Low (n=61,562)</th>
<th>Medium (n=23,680)</th>
<th>High (n=11,933)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age in years (SD)</td>
<td>55.3 (19.4)</td>
<td>62.7 (17.8)</td>
<td>69.9 (11.3)</td>
</tr>
<tr>
<td>Mean number of chronic diseases per patient (SD)</td>
<td>1.0 (0.6)</td>
<td>1.5 (0.9)</td>
<td>2.2 (1.3)</td>
</tr>
<tr>
<td>Mean number of DM programs per patient (SD)</td>
<td>0.4 (0.5)</td>
<td>0.6 (0.6)</td>
<td>0.7 (0.7)</td>
</tr>
<tr>
<td>% Women (n=53,085)</td>
<td>49.3 (30,346)</td>
<td>61.2 (14,492)</td>
<td>69.1 (8,247)</td>
</tr>
<tr>
<td>% Men (n=44,087)</td>
<td>50.7 (31,214)</td>
<td>38.8 (9,817)</td>
<td>30.9 (3,686)</td>
</tr>
<tr>
<td>% Total (n=97,172)</td>
<td>100.0 (61,560)</td>
<td>100.0 (23,679)</td>
<td>100.0 (11,933)</td>
</tr>
</tbody>
</table>

Conclusion
- Associations exist between individual patient characteristics (age, sex, number of diseases, type of disease, participation in DM programs) and healthcare use.
- Chronic multimorbidity seems to play an important role in the number of consultations in the GP practice, even though those for non-chronic topics.
- Healthcare use can provide a base for allocating patients to specific subgroups within an integrated chronic care program, as it is a disease-transcending dimension that all patients share, regardless of their specific chronic disease.
- Future research should deepen and confirm the identified patterns, provide predictive modeling, and find ways to create value for a range of GP practices with varying organisational structures.

References

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