COMMUNITY PHARMACIST-LED VITAMIN D POINT-OF-CARE TESTING

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SERVICE OR PROGRAM

To establish a framework for community pharmacist-led Vitamin D point-of-care testing (POCT).

Process
1. Appraisal of Vitamin D POCT devices
2. Validation of selected Vitamin D POCT by comparing results with gold standard (Table 1)
3. Development of Vitamin D POCT framework including risk assessment and action plan for patient management
4. Feasibility testing of developed framework in a community pharmacy setting on 80 participants recruited by convenience sampling (Figures 1-3)

SIGNIFICANCE

The community pharmacist-led service developed responds to an identified health service need with respect to Vitamin D POCT. This pharmacist-led approach to Vitamin D POCT aims to:
- Reduce economic burden on healthcare facilities
- Add value to clinical pharmacy provision in primary care
- Benefit patients through harmonisation of Vitamin D analysis, coupled with identification of risks and a personalised action plan (Figure 4).

Table 1: POCT vs. Gold standard (N=20)

<table>
<thead>
<tr>
<th>Vitamin D Test Result</th>
<th>POCT</th>
<th>Gold Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deficient</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Insufficient</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Sufficient</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Cohen’s kappa (κ) = 0.84

Figure 1: Vitamin D POCT Results (N=80)

Figure 2: Vitamin D Levels Tested Previously (N=80)

Figure 3: Presence of Metabolic Disorder vs. Vitamin D Level (N=80)

Figure 4: Significance of framework

JUSTIFICATION

• With increased awareness on the relevance of Vitamin D to immunomodulation, patient and general practitioner requests for access to Vitamin D testing increased. A need was identified for service provision in primary care that ensures patient safety, quality and reliability in the testing process.

• The service developed identified a semi-quantitative POCT to assess Vitamin D (sensitivity 4ng/ml, cost US$6 per kit) which conforms with EU Medical Device Regulations and is feasible to be applied within community pharmacy.

• The POCT results were validated against the laboratory-driven test (gold standard) for 20 patients. Concordance was observed between the two methods (κ=0.84) (Table 1).

• Figure 1 presents the Vitamin D POCT results undertaken in community pharmacy, with 57 participants showing deficient or insufficient Vitamin D levels (Figure 1). Statistical significance was observed between presence of metabolic disorders and deficient or insufficient Vitamin D level (p=0.026) (Figure 3).

ADAPTABILITY

Development of the Vitamin D POCT framework enables standardisation of pharmacist-led Vitamin D POCT testing and is feasible to be implemented as a service in community pharmacy.

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Busuttil CA, Wirth F, Azzopardi LM. Vitamin D Point-of-Care Testing [Dissertation]. Msida (Malta): Department of Pharmacy, University of Malta; 2022.