Evaluation of patient characteristics in relation to uptake of BOC’s Remote Pulmonary Rehabilitation offer in response to the COVID-19 pandemic

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Aim
To explore the potential impact and relationship between patient demographics and medical characteristics on BOC’s remote telephone PR programme uptake and completion rates.

Background
Pulmonary Rehabilitation (PR) was forced to stop functioning as usual due to the COVID-19 pandemic. BTS’s recommended developing ways to work remotely to provide ongoing care and treatment (BTS 2020). BOC has 11 PR services nationally and quickly developed an innovative remote telephone PR programme offer to support their respiratory patients. The service evaluation reviewed the characteristics/demographics of patients who either completed, dropped out or were not enrolled into the remote PR programme. As an organisation, BOC wanted to explore the scope of this offering to ensure a fair, equal, and accessible alternative to conventional face to face PR. Through reviewing this data we hoped to ensure the future proofing of service delivery in case of future pandemics. The evaluation also provided supporting evidence contributing to patient suitability for a menu based approach to PR. Thus increasing accessibility for hard to reach patient groups, as part of future service development.

Methodology
Routine data collected from 1074 patients during remote telephone initial assessments (IAS) between 1 April and 30 September 2020 was evaluated to identify any potential factors that may indicate patient outcome through engagement with BOC’s remote PR offering.

Data collected included: Age, gender, diagnosis, FEV1% classification, number of co-morbidities, MRC dyspnoea score, oxygen use, Clinical Frailty Score, previous PR attendance, living alone, patient reported social support, internet literacy, literacy (reading/writing), hearing/vision status.

Why Telephone Remote PR?
We wanted to reduce the health inequality gap through minimising the need for potentially expensive technology and digital competency to complete the programme. The programme commenced as of 1 April 2020 with a quick response to the changing pandemic situation. At that time many online platforms were not approved by Information Governance bodies as safe for use in accordance with the Data Protection Act (2018), which reduced video delivery options.

Results
The 1074 patients were grouped for analysis into:
- Non-Enrolled: Patients who declined to commence or who were deemed medically unsuitable for the programme
- Completed Programme: Those who completed a minimum of 80% of the intended course with or without a discharge assessment
- Did Not Complete Programme: Those patients who enrolled onto the course and completed less than 80% of the programme.

Flow Chart of Patient Groups

<table>
<thead>
<tr>
<th>Total Number of Patients</th>
<th>Enrolled Patients</th>
<th>Completed Programme</th>
<th>Did Not Complete Programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1074</td>
<td>619</td>
<td>480 (45%)</td>
<td>139 (13%)</td>
</tr>
<tr>
<td>Non-Enrolled Patients</td>
<td>455 (42%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Analysis of data sets found that there was no clear difference between group characteristics in all but 3 areas:

Internet Literacy
Internet literacy was higher in the Completed Programme group with those having no access to or unable to use the internet being higher within the Non-Enrolled and Did Not Complete groups.

Social Support Reported
In the non-enrolled group, there were more patients who felt socially supported compared to the Did Not Complete and Non-Enrolled groups.

Vision and Hearing Status
In the non-enrolled group, there was a higher number of patients who reported hearing or visual problems.

Discussion and Limitations
An interesting finding from this evaluation was that patient condition severity (FEV1% and MRC score), clinical frailty, number of co-morbidities, and oxygen use were not clear determinates of whether patients enrolled or completed the remote PR. This potentially increases the accessibility of BOC’s PR offering to include the remote programme as part of menu based PR. This has been shown through simple descriptive data analysis and no statistical analysis to establish the significance of this has been undertaken at present.

The greatest variations indicating potential influence on patient outcomes were within the data sets of internet literacy, patient reported social support, and presence of hearing and visual problems. The internet literacy finding was of particular interest as the course was telephone and not internet based. Although the programme was supplemented by internet resources, including exercise instructional videos. Where possible available information was sent to patients in paper format where required. This could provide an insight into internet users ability to adapt to a remote programme over those who are unable to use this resource.

One consideration is that this offering was given when there was no alternative face to face option. Although this does not change patient suitability for the remote offer, in practice we may see a different group of patients enrolling into this programme as part of a menu based offering.

Conclusion
It was found that internet literacy, patient reported social support and presence of hearing/visual problems may have influenced the uptake and successful completion of BOC’s remote PR programme. Overall, this programme appears to be suitable for a wide variety of patients and could be used as part of routine care for those who cannot access gold standard face to face PR care.

References
Abbreviations
BOC = British Oxygen Company
BTS = British Thoracic Society
FEV1% = Percentage of Forced Expiratory Volume in One Second
MRC = Medical Research Council
PR = Pulmonary Rehabilitation

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