Introduction
Background
There was previously no Speech and Language Therapy (SLT) service at St Bartholomew’s Hospital (SBH) for patients undergoing radiotherapy at the centre during their treatment. Patients were offered outpatient SLT locally to their home, if at all. Many patients reported that they found this difficult to attend due to attending daily treatment at the treatment centre. Consequently, many patients (44%) were not receiving any SLT input during treatment.

We visited the radiotherapy department weekly to establish if there was a clinical need by assessing patients’ function during their treatment and identifying any SLT needs e.g. dysphagia, trismus, neck stoma care and so on. This also gave us some data on how patients functioned at the end of treatment without weekly SLT input at the treatment centre. We then set up a new SLT service at SBH to see patients weekly during their treatment. We assessed patients at the end of their treatment after receiving regular SLT input at the treatment centre, and measured our outcomes against the baseline data for the patients who did not receive this service. This formed our service evaluation.

Evidence
Oropharyngeal dysphagia is a common sequela of radiotherapy for Head and Neck cancers (Platteaux et al, 2010); and is shown to increase risk of aspiration pneumonia and long term feeding tube dependence (Bleier et al, 2007).

Aspiration pneumonia leads to poorer treatment outcomes (Chen et al, 2010); and possible morbidity in some cases (Mortensen et al, 2012); as well as impacting on quality of life (Nguyen et al, 2005).

Other common side effects include dysphonia, xerostomia, trismus and odynophagia (Visanik et al, 2003).

Improving long term swallowing outcomes is discussed in the literature, particularly with regard to the provision of SLT input during treatment and identifying any SLT needs e.g. dysphagia, trismus, neck stoma care and so on. This also gave us some data on how patients functioned at the end of treatment without weekly SLT input at the treatment centre. We then set up a new SLT service at SBH to see patients weekly during their treatment. We assessed patients at the end of their treatment after receiving regular SLT input at the treatment centre, and measured our outcomes against the baseline data for the patients who did not receive this service. This formed our service evaluation.

Objective
We set out to establish whether providing a weekly SLT service at the treatment centre for patients undergoing radiotherapy to the head and neck improved their functional outcome.

Barts Health
NHS Trust

Methods
Phase 1
SLT attended weekly radiotherapy clinics to gather data over a 5 week period including number of patients seen in clinic; whether SLT input was required for each patient, whether SLT input was required, what therapy was given at the end of treatment with no access to SLT at the treatment centre.

Phase 2
SLT began providing a weekly service to patients undergoing treatment, at the treatment centre

○ No exclusion criteria: the SLT saw all head and neck cancer patients weekly during their radiotherapy treatment

○ 50 patients received the new service over a six month period

○ SLTOM tool was given to patients at the end of treatment to measure communication, voice and swallowing function. 29 were disseminated with a 31% return rate.

○ An anonymous service satisfaction questionnaire was also given to ask patients for feedback about the new service. 36 were disseminated with a 30% return rate.

What our patients said:

the service is brilliant’

‘the therapists were very informative and helpful’

‘our therapists were very supportive throughout’

‘we weren’t always sure about what to expect during treatment so the therapists provided really useful advice’

Results and Discussion
Patient Outcomes
Improved patient access to SLT services: access to SLT increased from 66%-100% with the new service.

23% more patients were taking oral fluids at the end of their treatment with weekly SLT intervention, resulting in fewer patients being nil-by-mouth. As maintaining some oral intake is shown to improve long term swallowing outcome (Langmore et al, 2012), this suggests that SLT intervention during treatment may facilitate this outcome (Table 1).

Continued comfortable use of mouthbites throughout treatment was reported due to early identification of, and intervention for, trismus. This an unexpected finding. Where mouthbites are used to ensure accurate delivery of treatment, continued use of mouthbites is important in maximising patient treatment outcomes.

Patients reported improved communication clarity and voice quality (Table 2). They also reported increased confidence when eating and drinking in front of others. (Table 1).

Patient feedback on our anonymous service satisfaction survey suggested that the new SLT service was informative, supportive, and provided useful advice.

Table 2: Patients’ communication outcomes at the end of treatment

<table>
<thead>
<tr>
<th>Time</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>19.2%</td>
<td>32.4%</td>
<td>48.4%</td>
</tr>
<tr>
<td>Day 1 week 1 SLT service at SBH</td>
<td>30.1%</td>
<td>44.5%</td>
<td>25%</td>
</tr>
<tr>
<td>Day 1 week 2 SLT service at SBH</td>
<td>27.3%</td>
<td>32.1%</td>
<td>40.7%</td>
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</table>

Table 1: Patients’ oral intake at the end of treatment

<table>
<thead>
<tr>
<th>Time</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>8.4%</td>
<td>32.4%</td>
<td>63.6%</td>
</tr>
<tr>
<td>Day 1 week 1 SLT service at SBH</td>
<td>19.2%</td>
<td>32.4%</td>
<td>48.4%</td>
</tr>
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Time Efficiency
In the current economic climate, NHS services are increasingly required to improve standards of care within more time and cost efficient models of service delivery.

By providing a weekly SLT service within the radiotherapy department, we were able to see up to twelve patients daily for review. In a traditional Speech and Language Therapy outpatient clinic service, only half this number of patients would be seen in any one day based on the current centre’s service.

At our centre, 12% of head and neck outpatient SLT appointments are not attended. As the new service involved seeing patients when they came in for treatment and for their oncology review, there was no issue with non-attendance.

Limitations
Findings are from a service evaluation and not a research project; no opportunity to match groups or to use inclusion/exclusion criteria.

Low return rate for feedback forms and outcome measure forms.

Outcome measure tool used (SLTOM) was not published or standardised. However this was used to provide a detailed rating scale for all SLT parameters in the absence of a similar standard tool being available.

Whilst the findings demonstrate the patient outcomes immediately following treatment, they do not provide information on the long term outcomes for those patients.

Conclusions and ideas for research
The weekly on treatment SLT service at SBH represents a more time efficient service which has increased patients’ access to SLT intervention during treatment.

Patients report improved communication outcomes; and more patients continued with oral intake at the end of their treatment when they received weekly SLT input at the treatment centre.

Evidence shows that continued oral intake during treatment can improve long term swallowing outcomes and reduce reliance on tube feeding. Our service evaluation therefore suggests that SLT input contributes to this outcome.

Further longitudinal studies are required to establish if the improvement seen at the end of treatment improves longer term outcomes, in particular the prevention of gastrostomy or naso-gastric tube reliance post-treatment across all patients.

Further studies are required to establish whether SLT intervention and advice improve voice parameters during treatment, or if the findings above represent reduced impact of those difficult through offering information, advice and support.

We found that the new service is more time efficient and accessible at the current centre as twice the number of patients can be seen in an equivalent amount of time without any increase in staffing cost, and vastly reducing non-attendance.

References
Platteaux et al, 2010; 2017
Mortensen et al, 2012
Chen SW, Yang SN, Liang JA, Lin FJ. Analysis by Modified Barium Swallow.
Nguyen et al, 2005
Chen et al, 2010

Conclusion &建议
该研究发现，每周在治疗中心提供言语和语言治疗服务可以显著改善患者的吞咽功能和生活质量。具体的改善包括患者在治疗结束时的膳食摄入率从66%增加到100%。此外，23%的患者在治疗结束后开始口服液体，这表明在治疗期间进行言语和语言治疗服务有助于改善患者的口腔摄入。

时间效率
在目前的经济环境下，NHS服务需要提高效率，降低成本，并在更短的时间内提供更有效率的照护服务。通过提供每周在治疗中心的言语和语言治疗服务，我们可以每天看到多达十二名患者进行复查。在传统的言语和语言治疗门诊，只有半数这样的患者会在一个工作日内被看到。

在我们的中心，12%的头颈部肿瘤患者未出席门诊。而在新服务中，包括在治疗时和肿瘤科复查时进行检查，没有非出席的情况。

局限性
这些发现来自服务评估，而不是研究项目，没有机会匹配组或使用包括/排除标准。

低反馈率的服务评估和成果量表。

我们使用SLTOM工具作为结果测量工具，该工具尚未发表或标准化。然而，它被用来提供所有SLT参数的详细等级规模，这是由于目前没有类似的标准工具。

尽管研究显示了患者在治疗结束后立即的改善，但他们没有提供长期结果的信息。

结论
该每周在治疗中心的言语和语言治疗服务代表了更有效率的服务，增加了患者的访问率。

患者报告了改善的沟通清晰度和声音质量（表2）。他们也报告了在公共进餐时增加信心。

限制
这些发现是在治疗中心提供的服务的基础上进行的，不包括在治疗过程中的言语和语言治疗。

未来的研究需要评估每周在治疗中心的言语和语言治疗是否可以改善声音参数。

我们发现新的服务更有效率，因为目前的中心可以安排两位患者在相同的时间内进行检查，而不用增加人力成本，显著减少了非出席。

参考文献
Platteaux et al., 2010; 2017
Mortensen et al., 2012
Chen SW, Yang SN, Liang JA, Lin FJ. Analysis by Modified Barium Swallow.
Nguyen et al., 2005
Chen et al., 2010

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