Can an online, Consultant-led advice service accurately diagnose oral cancer? Implications for streamlining the two-week wait referrals pathway.

A service evaluation

Dr Amrita Bose
Background

• Early detection of oral cancer vital for patient survival

• Reduced morbidity, deformity and costs to the healthcare system

• Two-week wait pathway for urgent referrals was introduced in 2000

• Aims to see new cancer referrals within 14 days of receipt of the referral

• Currently estimated to be used around a million times/year
So what’s the issue??
• Low diagnostic yield for malignancy in head and neck speciality (8.8%)\(^1\)

• Further decline in these values predicted

• Inappropriate referrals fill the urgent clinics

• Delaying patients who need urgent specialist attention

• Waste of resources and health service funds

**Two-week rule in head and neck cancer 2000-14: a systematic review.**

Langton S\(^1\), Siau D\(^2\), Bankhead C\(^3\).
Additional system required??
• Application of telemedicine to triage referrals

• Studies show successful use as a distant diagnostic tool


**Application of teledentistry in oral medicine in a community dental service, N. Ireland.**

Bradley M¹, Black P, Noble S, Thompson R, Lamey PJ

**Teledentistry: distant diagnosis of oral disease using e-mails.**

Torres-Pereira CC¹, Morosini Ide A, Possebon RS, Giovannini AF, Bortoluzzi MC, Leão JC, Piazzetta CM


**Digital image referral for suspected skin malignancy--a pilot study of 300 patients.**

Tadros A¹, Murdoch R, Stevenson JH
In a Suspicious lesion, GPs and Dentists may refer for further evaluation. If the lesion is malignant, an Urgent Referral may be necessary. If benign, a Routine Referral can be made.
Saving Faces
The Facial Surgery Research Foundation
research today saves faces tomorrow

Saving Faces Diagnostic Advice Service
SFDADS
Fast tracking mouth cancer treatment
SFDADS is an online diagnostic platform provided by the research charity, Saving Faces–The Facial Surgery Research Foundation, which aims to provide diagnostic advice to primary care providers within 3 working days using clinical information and digital photographs of suspicious oral lesions.
Hypothesis

Online Platform

Suspicious lesion →

GPs

Dentists

Streamline "Urgent Pathway"?

Urgent Referral

Routine Referral

Save Faces Diagnostic Advice Service
Fast tracking mouth cancer treatment

SFDADS
Aims

Retrospective service evaluation

• Accuracy of diagnostic advice
• Appropriateness of referral advice
• Rapidity of specialist attention for actual cancer patients
Method

• 55 dental practitioners from 39 dental practices based in England, subscribed to the service paying an annual subscription fee*

• A commercially available survey software was used to create online forms

• Between May 2012 and December 2015, a total of 166 submissions were made

* All proceeds go towards funding research into H&N conditions
# Saving Faces Diagnostic Advice Service

## Patient Details

**Patient Initials**
- [ ]

**Gender**
- [ ] Male

**Year of Birth**
- [ ]

**Age in years**
- [ ]

**Patient's home town or borough**
- [ ]

*This will be used to select a convenient hospital if a referral is advised*

**Smoking status**
- [ ] Smoker
- [ ] Non-smoker
- [ ] Ex-smoker
- [ ] Smokeless tobacco/pean
- [ ] Ex-smokeless tobacco/pean

**Site of lesion**
- [ ] Buccal
- [ ] Mouth floor
- [ ] Lower gingival
- [ ] Hard palate
- [ ] Other

**Tongue**
- [ ] Upper gingival
- [ ] Opposite tooth
- [ ] Soft palate

## How many days has the lesion been present?

- [ ]

## Symptoms or signs

- [ ] Pain or soreness
- [ ] Neck lump
- [ ] Sore throat
- [ ] Blistering
- [ ] Bleeding
- [ ] Voice change
- [ ] Earache
- [ ] Ulcer
- [ ] Mouth lump
- [ ] None
- [ ] Other

Select one or more from the list

**Comment**
- [ ]

**Attach Image 1 here**
- [ ] Browse, No file selected.

**Attach Image 2 here**
- [ ] Browse, No file selected.

**Attach Image 3 here**
- [ ] Browse, No file selected.
Within 3 working days

Transfer of litigation risk

• Most likely diagnosis
• Most appropriate referral

Expert Advice
## Results

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total submissions made</td>
<td>166</td>
</tr>
<tr>
<td>Total outcomes obtained</td>
<td>133</td>
</tr>
<tr>
<td><strong>Suspected-malignancy</strong></td>
<td></td>
</tr>
<tr>
<td>Diagnosis match (M)- Yes</td>
<td>4</td>
</tr>
<tr>
<td>Diagnosis match (M)- No</td>
<td>1</td>
</tr>
<tr>
<td><strong>Diagnostic accuracy for suspected-malignancy</strong></td>
<td><strong>80%</strong></td>
</tr>
<tr>
<td><strong>Suspected-benign</strong></td>
<td></td>
</tr>
<tr>
<td>Results obtained</td>
<td>124</td>
</tr>
<tr>
<td>Diagnosis match (B)- Unk (lost to follow-up)</td>
<td>20</td>
</tr>
<tr>
<td>Diagnosis match (B)- Yes</td>
<td>104</td>
</tr>
<tr>
<td>Diagnosis match (B)- No</td>
<td>0</td>
</tr>
<tr>
<td><strong>Diagnostic accuracy for suspected-benign</strong></td>
<td><strong>100%</strong></td>
</tr>
<tr>
<td><strong>Unsure</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Total diagnosis known</strong></td>
<td>113</td>
</tr>
<tr>
<td><strong>Successful diagnosis</strong></td>
<td>108</td>
</tr>
<tr>
<td><strong>Overall diagnostic accuracy</strong></td>
<td><strong>96%</strong></td>
</tr>
</tbody>
</table>
## Results

### Type of referral

<table>
<thead>
<tr>
<th>Type of Referral</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>urgent-H&amp;N</td>
<td>14</td>
</tr>
<tr>
<td>urgent-nonH&amp;N (epiphenomenon)</td>
<td>10</td>
</tr>
<tr>
<td>Diagnostic yield of urgent-H&amp;N referrals</td>
<td>17% (4/24)</td>
</tr>
<tr>
<td>non-urgent</td>
<td>89</td>
</tr>
<tr>
<td>none/review</td>
<td>20</td>
</tr>
<tr>
<td>Patients prevented from urgent clinics</td>
<td>82% (109/133)</td>
</tr>
</tbody>
</table>

Average days between submission and date first seen by a specialist for cancer patients = 9 days
Correctly identified malignant lesions
Conclusions

- High rate of diagnostic accuracy for both benign and malignant lesions
- 4 correctly identified cancer patients received rapid medical attention
- 5 benign cases overdiagnosed; no case of malignancy misdiagnosed
- Diagnostic advice was given within an average of 2 working days
- Reassurance to patients with benign lesions and their dentists
- Diagnostic yield double the average reported
SFDADS an effective model of telediagnosis
Future Research/Publications

• To examine the effect of telediagnosis on the two-week wait referrals

• Manuscript to be submitted to the BMJ for publication soon
Acknowledgements

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Thank you

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