- Outlines which oral symptoms and signs require urgent referral to secondary care.
- Referral letters should include relevant contact details and the words 'cancer' or 'pre-malignancy' to facilitate triage.

An audit of the UK national cancer referral guidelines for suspected oral mucosal malignancy

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Background and objective This study aimed to assess the effectiveness of the UK National Guidelines for identifying patients with potentially malignant oral disease which were introduced in 2000. **Design** Retrospective audit. **Setting** The oral medicine unit in a university teaching hospital in London. **Methods** All new referrals over a one year period were retrospectively reviewed in a departmental audit to evaluate guideline effectiveness. Reasons for referral and final diagnosis were compared in a randomly selected sub-population. **Results** Four hundred and eighty-seven of 901 new patients referred were classified as having potentially malignant disease from the referral letter. In a randomly selected subgroup of 241 patients, 18 actually had malignant (8) or dysplastic lesions (10). Of 75 patients referred with a persistent oral ulcer, only nine were actually malignant or dysplastic. Eight of 116 patients referred with a white patch and none with red patches were found to have dysplastic or malignant lesions. The criteria failed to identify three carcinomas and two severely dysplastic lesions (15% of the malignant or dysplastic lesions). All of the latter had been referred by primary care physicians with orofacial pain of unknown cause. **Conclusions** UK National Guidelines discriminate poorly between potentially malignant and other oral mucosal disease.

INTRODUCTION

Early detection of suspicious oral lesions in primary care with timely, appropriate referral by the general dental practitioner (GDP) or general medical practitioner (GMP) to a specialist centre expedites early diagnosis, assessment and subsequent management of oral malignancies.²⁻⁴

The United Kingdom (UK) Government White Paper entitled *The new*

National Health Service (NHS) – modern, dependable guaranteed that every person with suspected cancer would be seen by a specialist within two weeks of their GMP requesting an appointment.⁵ In order to facilitate appropriate referral between primary and secondary care for a patient with a probable cancer diagnosis, guidelines, including those for head and neck malignancies with relevance to oral malignancy, were introduced along with a two-week wait standard for oral malignancy from December 2000.¹ Unfortunately since the target group for this was GMPs, many GDPs may have been unaware of this. The clinical features of oral lesions deemed suggestive of malignant change in the National Guidelines are listed in Table 1.

To date, there has been no published detailed analysis of the effectiveness of these guidelines in an oral medicine unit. The aim of the present audit was to determine the effectiveness of

the UK National Guidelines in identifying patients with malignant and dysplastic oral mucosal disease from referral letters.

Table 1 Head and neck cancer: guidelines for urgent referral of suspected cancer as defined by the UK National Guidelines¹

All red or red and white patches of the oral mucosa*
Ulceration of the oral mucosa > 3 weeks*
Unresolving neck masses for > 3 weeks
Unexplained tooth mobility not associated with periodontal disease
Cranial neuropathies
Dysphagia for 3 weeks
Hoarseness > 6 weeks
Orbital masses
Unilateral nasal obstruction associated with purulent discharge

*Lesions most commonly referred to the Eastman oral medicine clinic

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METHOD

The referral letters of all new patients accepted by the Unit of Oral Medicine, Eastman Dental Institute for Oral Health Care Sciences, London, United Kingdom for one year were reviewed in a departmental audit and the name, age, referral source, health authority and clinical diagnosis recorded for each patient. All referral diagnoses of orofacial lesions classified as potentially malignant, as defined by the recently published national guidelines (Table 1), were identified.¹ Fifty percent of this subgroup was then randomly selected by computer. The hospital notes of the subgroup were reviewed and details of tobacco use, alcohol consumption and final diagnosis entered on to an Excel spreadsheet.

The relationship between risk factors and the presence of dysplasia and malignancy was analysed using Fisher's exact test.

RESULTS

One thousand, one hundred and forty-eight new referrals were received by the Oral Medicine unit over a 12 month period. Of these 901 were accepted as suitable for assessment. Two hundred and forty-seven were deemed inappropriate and redirected to other dental or medical specialities. The median age of accepted new referrals was 46 years (range 3-96 years). The majority of referrals were from GDPs (71%), while 8% were from GMPs, 11% from tertiary dental and 9% from tertiary medical specialities.

Fifty-four percent of the total number of accepted patients (487 patients) had been referred with potentially malignant lesions as defined by the content of their referral letters using the guideline criteria (Fig. 1). From this group 241 patients were randomly selected for further study. The median age of this subgroup was 56 years (range 12-86 years) and consisted of a 1:1.1 ratio of males to females.

Dysplasia or malignant disease was confirmed in 18 of the 241 patients (7.4%) referred with potential malignancy in this sample and included seven squamous cell carcinomas, one Kaposi's sarcoma and 10 dysplastic lesions (Table 2). Of the 116 patients referred with a white patch affecting the oral mucosa, five (4.3%) were found to be dysplastic and three malignant (2.6%) (Table 2).

Table 2 Referring and actual diagnoses of 241 patients with potentially malignant disease

Referring diagnosis	Number of patients	Median age	Male: female ratio	Final diagnosis	Number of patients
White patch	116	60	54:62	Lichen planus Hyperkeratosis Smoker's keratosis Dysplasia Squamous cell carcinoma Recurrent aphthous stomatitis	60 35 12 5 3 1
Red patch	19	52	10:9	Erythema migrans Erythematous candidosis Smoker's keratosis Hyperkeratosis	7 10 1 1
Persistent ulceration	75	49	41:34	Lichen planus Chronic non specific ulceration Dysplasia Recurrent aphthous stomatitis Kaposi's sarcoma Squamous cell carcinoma	11 39 5 16 1 3
Intraoral mass plus ulceration	14	62	7:7	Bony exostosis Trauma Orofacial granulomatosis	5 5 4
Cervical lymphadenopathy	3	43	1:2	Hyperplastic lingual tonsils Squamous cell carcinoma	2 1
Dysphagia	13	62	2:11	Oral dysaesthesia Recurrent aphthous stomatitis Erythema migrans Atypical facial pain	5 3 1 4
Hoarseness of voice	1	45	1 male	Oral dysaesthesia	1

Persistent ulceration was the referring diagnosis in 75 patients of which four were malignant (5.3%) and five dysplastic lesions (6.7%). Cervical lymphadenopathy was the presenting sign of one of the patients ultimately found to have a squamous cell carcinoma.

None of the patients referred with red patches, intra- or extra-oral swellings, dysphagia or hoarseness were found to have oral mucosal dysplasia or malignancy (Table 2).

The UK guideline criteria failed to identify three carcinomas and two

Fig. 1 Diagnosis suggested after initial reading of the referral

severely dysplastic lesions from details included in the referral letter ie 15% of the malignant and dysplastic lesions presenting over the 12 month period. The five referral letters concerned all contained references to facial pain with no description of the type of lesion present. In all five cases other information within the referral letters prompted the triaging clinician to arrange urgent review and these patients were all clinically examined within four weeks of the letters reaching the department.

The median age of patients with oral mucosal dysplasia was 48 years (range 33-62 years) and the ratio of males to females was 7:3 (Table 3). Half of these patients were referred as a consequence of having a white patch while the remainder were described as having persistent ulceration. The lingual mucosa was the most common site of dysplastic change, with six of 10 lesions on the lateral border and one on the dorsum of the tongue. Of the four severely dysplastic lesions three were in female patients (average age 42 years). Sixty per cent of the patients with dysplasia were non-smokers, however this was not statistically significant at the 5% level ($p = 0.051$, Fisher's exact test) when compared to the patients without dysplasia. However, there were significantly more patients with dysplastic lesions who did not drink any alcohol ($p = 0.004$, Fisher's exact test) than those who did. In patients with severe dysplasia three of four drank alcohol and smoked tobacco (Table 4).

The median age of patients with oral malignancy was 50 years (range 39-72 years) and the ratio of males to females was 5:3 (Table 5). Four of these patients were referred as a consequence of having persistent ulceration, three had white patches and one had cervical lymphadenopathy. The lateral border and ventral surface of the tongue were the most common sites of malignancy.

With regards to risk factors, 62.5% of the patients with malignancy smoked tobacco, while 87.5% drank alcohol (Table 5). The individual found to have Kaposi's sarcoma was known to have human immunodeficiency virus infection. However, there was no significant association between the presence of malignant disease with a history of either cigarette smoking ($p = 0.27$, Fisher's exact test) or alcohol intake ($p = 0.399$, Fisher's exact

Table 3 Characteristics of 10 subjects with final diagnosis of dysplasia

Age/ gender	Referring diagnosis	Site of lesion	Degree of dysplasia	Tobacco cigarettes/ day	Alcohol units/ week
48/male	White patch	Left lateral border of tongue	Mild	> 20	>21
53/male	White patch	Right lateral border of tongue	Mild	Nil	Nil
37/female	White patch	Left lateral border of tongue	Severe	20	<14
38/female	White patch	Left buccal mucosa	Severe	Nil	Nil
49/male	White patch	Junction of hard and soft palate	Mild	Nil	Nil
33/female	Persistent ulceration	Right lateral border of tongue	Severe	<20	>14
59/male	Persistent ulceration	Left lateral border of tongue	Severe	<20	<21
57/male	Persistent ulceration	Dorsum of tongue	Mild	Nil	Nil
47/male	Persistent ulceration	Floor of mouth	Mild	Nil	Nil
62/male	Persistent ulceration	Left lateral border of tongue	Mild	Nil	Nil

test) (Tables 3 and 5). Of the 241 patients with supposed potentially malignant disease 65% smoked cigarettes – much higher than the 27% found in the general population of the United Kingdom.⁶

DISCUSSION

To our knowledge this is the first reported audit study to review the impact of the *Referral guidelines for suspected cancer* on potential oral malignancy referrals to an oral medicine department. Our

findings concur with those of a recent study of 100 sequential new referrals to an oral and maxillofacial surgery clinic in South-West England.⁷ During the year reviewed, 487 (54%) of accepted referral letters to the Department of Oral Medicine fell into the category of potential malignancy as defined by the referral guidelines. Of 241 referrals randomly selected from this group, eight (3.3%) were diagnosed as malignant, 10 (4.1%) dysplastic and 71 (29.5%) as oral lichen

Table 4 Risk factors for malignant and dysplastic lesions in patients referred with potentially malignant disease

Patient group	No. of patients	Gender male: female	Age range Median age	Tobacco Number (%)	Alcohol Number (%)
No dysplasia evident	223	105:118	12-86 56	CG 145 (65) SL 4 (1.8) BN 7 (3.2) NS 67 (30)	59 (27.8) greater than specified limit 138 (65.1) less than specified limit 26 (11.65) No alcohol
Dysplasia	10	7:3	33-62 48	CG 4 (40) SL 0 (0) BN 0 (0) NS 6 (60)	2 (20) greater than specified limit 2 (20) less than specified limit 6 (60) no alcohol
Malignancy	8	5:3	47-73 63	CG 5 (62.5) SL 0 (0) BN 1 (12.5) NS 2 (25)	4 (50) greater than specified limit 3 (37.5) less than specified limit 1 (12.5) No alcohol

CG – Cigarettes SL – Smokeless tobacco BN – Betel nut NS – Non smokers

SPECIFIED LIMIT OF ALCOHOL FOR WOMEN IS 14 UNITS/WEEK
SPECIFIED LIMIT OF ALCOHOL FOR MEN IS 21 UNITS/WEEK

Table 5 Characteristics of eight subjects with final diagnosis of malignancy

Age/ gender	Referring diagnosis	Site of lesion	Final Diagnosis	Tobacco cigarettes/day	Alcohol units/week
39/male	Persistent ulceration	left retromolar area	Kaposi's sarcoma	>20	>21
50/male	Persistent ulceration	left lateral border of tongue	Squamous cell carcinoma	>20	<21
40/male	Cervical lymphadenopathy	Lump right side of neck	Squamous cell carcinoma	nil	<21
52/male	Persistent ulceration	Adjacent to right upper second molar region	Squamous cell carcinoma	<20	<21
45/male	White patch	Posterior lateral border of tongue	Squamous cell carcinoma	nil	>21
72/female	White patch	Ventral surface of the tongue	Squamous cell carcinoma	>20	>14
68/female	Persistent ulceration	Left buccal mucosa	Squamous cell carcinoma	Betel nut for 30 years	nil
49/female	White patch	Ventral surface of tongue	Squamous cell carcinoma	>20	>14

planus – which may in itself have a 1-5% malignant transformation rate.⁸⁻¹¹

A preliminary estimate of the proportion of urgent referrals with suspected oral cancer which were likely to be actually diagnosed with malignancy was suggested to be between 5-10:1 benign to malignant lesion ratio by the steering group responsible for the guidelines. The present study in fact describes a 30:1 ratio suggesting that for every 30 patients examined meeting referral guidelines, one malignancy will be diagnosed, with a 24:1 ratio for the detection of dysplastic lesions. The UK National guidelines would therefore appear to discriminate poorly between potentially malignant and other oral mucosal disease.

Although the referral guidelines detected the majority of malignant oral disease referred over 12 months, three patients with squamous cell carcinoma (27% of total number of malignancies) and two severely dysplastic lesions (8.3% of total number of dysplasias) were not identified from the description within the referral letter. In these instances the reason for referral was cited as orofacial pain with the primary care physician failing to detect the underlying cause. Despite pain being reported as a presenting feature of 60% of oral malignancies in the guideline it was not specifically included in the list of criteria for urgent

referral, unless inferred under the umbrella term of cranial neuropathies.¹ The proposed revision of the document should consider the inclusion of persistent/increasing oral mucosal pain as a criterion for urgent referral, especially from medical practitioners, the target group for this document.

An alarming lack of public awareness regarding oral cancer and associated risk factors has been demonstrated in the United Kingdom and this may potentially account for delays in presentation.^{2,12} Thereafter, waiting to receive a diagnosis and commence treatment not only results in patient anxiety but in addition, professional diagnostic delays of greater than one month are recognised to contribute to an increasingly poor prognosis in upper aerodigestive tract cancer.¹³ A delay in the diagnosis of oral malignancy may also be a cause for litigation.¹⁴

The drive to end waiting is central to the Cancer Plan, which introduces new targets to cut waiting times for referral to diagnosis and diagnosis to treatment.¹⁵ This, however, has not been universally accepted as being an evidence-based strategy.¹⁶ In this unit alone, to achieve the two-week standard wait from referral to specialist oral medicine assessment we estimate that an average of a further 10 new patient episodes weekly are required. In a small, oversubscribed

speciality with a limited number of clinicians in each unit, this would represent a significant increase in patient load. Patients referred with disease not meeting the criteria are therefore likely to experience longer waiting times for initial assessment – unless funding is secured to recruit clinicians and support staff to implement the guidelines. The resources of oral medicine units may be still further stretched by requests for 'urgent' assessments for benign conditions. Solutions to this dilemma need not necessarily involve expansion in the number of oral medicine clinicians but might also involve provision of medical undergraduate and postgraduate oral medicine teaching, encouraging practitioners to telephone departments to discuss patients who have concerning oral lesions and also sending digital photographs of the lesions with referral letters.

The referral letter remains the main means of communication between general practitioners and specialists in the process of patient referral. The importance of the quality of the oral medicine referral letter in obtaining a prompt and appropriate diagnosis has been previously reviewed.^{4,17} The essential

Fig. 2 Essential components of an oral medicine referral letter

It is essential that the letter should be legible whether typed or written and should include the following to facilitate triaging:

1. Referring clinician's details including name, title, address and contact telephone numbers
2. Patient's details including name, title, address and contact telephone numbers
3. Reason for referral, including description of lesion or pain history if this is appropriate
4. Perceived degree of urgency – if cancer is suspected then the referral should be marked urgent, mentioning the word cancer or 'treat under the two week rule'
5. What the referring clinician has said to the patient about the lesion and the referral
6. Relevant medical history including drug history
7. Relevant social history eg smoking or alcohol history and any language needs
8. The letter needs to be signed by the referring clinician with his or her name printed beneath
9. If urgent the letter should be faxed and the patient discussed by telephone with a clinician directly.

components of an oral medicine referral letter are outlined in Fig. 2. To be counted under the two-week standard the referral letter must be marked urgent and also mention 'cancer' or 'treat under the two-week standard'.¹ Only 40% of general medical practitioners' letters referring patients with potentially malignant oral disease, and none of the general dental practitioners, included this information. This discrepancy is not surprising since the referral guidelines target primary care medical practitioners. Although GMPs have previously been shown to have a poor knowledge of oral cancer in the United States¹⁸, in the United Kingdom² they have been shown to be no less competent than general dental practitioners in the diagnosis and referral of malignancy despite limited undergraduate oral medicine teaching. The majority of referrals to oral medicine clinics arise from GMPs who remain unaware of the NHS directive – a fact highlighted when the document went out for consultation.¹ It has been suggested that standard proforma letters for patients with probable malignant disease are likely to improve the standard of referral,⁴ however, opinion remains diverse regarding their use for urgent referrals.¹ Model proformas are now available on the NHS website which may be customised to an individual unit's needs.¹⁹ Clearly it is essential that undergraduate and postgraduate dental and medical education should include the characteristics of a good referral letter in order to improve standards.

Smoking and alcohol consumption are associated with an increased risk of oral epithelial dysplasia.²⁰⁻²² Surprisingly, of the group of 10 patients with oral epithelial dysplasia, a history of cigarette smoking or alcohol consumption was not associated with the presence of dysplasia. In seven patients with squamous cell carcinoma there was also no association with tobacco or alcohol consumption and the presence of the lesion. This

result must clearly be interpreted with caution due to the small number of patients found to have potentially malignant or malignant oral disease and the unusually large number of cigarette smokers (65%) and alcohol drinkers (93%) in the comparison group of patients without malignant or oral epithelial dysplasia referred with possible malignant disease. Despite the non-significant associations in the present group of patients with potentially malignant or malignant disease, we would concur with the cancer referral guidelines, suggesting a greater degree of urgency of referral for patients with potentially malignant oral lesions who smoke and drink alcohol.

The introduction of guidelines for the referral of suspected cancer is an important step towards primary care practitioners identifying patients with oral malignancy and ensuring urgent specialist opinion. Over a 12 month period 85% of malignant and dysplastic lesions were identified in our unit by the national guidelines and this may be increased by introducing persistent pain to the referral criteria. The guidelines, however, failed to discriminate effectively between malignant and non-malignant disease – for every patient with confirmed oral epithelial dysplasia or malignancy, 25 to 30 patients fulfilling the referral criteria had to be evaluated. At this time it would seem appropriate to consider the work-force implications of the introduction of guidelines for the referral of patients with potentially malignant disease.

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