



CPD4dentalnurses

YOUR FUTURE IN YOUR HANDS

Mouth Cancer (Oral Cancer) and Oropharyngeal Cancer **Improving Early Detection**

Aims: To discuss the dental team's role in enhancing the early detection and diagnosis of oral cancer (mouth cancer) as well as the causes, categories, stages, and grade of cancers. To review the symptoms and risk factors of mouth cancer and guidance on making an appropriate two-week urgent referral.

Objectives: On completion of this verifiable CPD article the participant will be able to demonstrate, through completion of a questionnaire, the ability to:

- Identify some of the statistics relating to mouth cancer and Oropharyngeal cancer.
- Know the staging and grading system of cancer.
- Identify the potential patients at risk and the signs and symptoms of mouth cancer.
- Recognise the role of the dental team in detecting the early signs of cancer or pre-cancer.
- Know the criteria for referral following the 2015 National Institute of Clinical Excellence (NICE) guidelines (updated October 2023).

Introduction

Mouth cancer, also known as oral cancer, describes one of the areas where head and neck cancers can occur and includes various kinds of tumours affecting the lips, salivary glands, tongue, gums, palate and inside of the cheeks. ¹

Mouth cancer is a type of cancer that comes under the umbrella term "cancers of the head and neck". The oropharynx is the part of the throat (pharynx) just behind the mouth. Cancer starting in the oropharynx is called oropharyngeal cancer.

Other types of head and neck cancer include:

- Cancer of the larynx – the voice box
- Cancer of the nasopharynx – the area at the back of the nose that forms the top part of the throat (pharynx)
- Cancer of the hypopharynx – the part of the throat that is directly behind the larynx

- Cancer of the thyroid gland – a butterfly-shaped gland on either side of the windpipe
- Cancer of the nose and sinuses
- Cancer of the oesophagus – the food pipe

Statistics

In 2024, 10,825 people in the UK were diagnosed with mouth cancer, this has increased by 133% compared to 20 years ago. Mouth cancer accounts for 2% of all cancers. Worldwide, 650,000 people a year are affected by mouth cancer.

Statistics suggest men are twice as likely to have mouth cancer than women. Mouth cancer is the 10th most common cancer in the UK. Mouth cancer is also strongly related to age with more than 78% of new cases being in individuals aged over 55.

Living in areas of deprivation is also considered to significantly increase the risk of being diagnosed with mouth cancer. The ten-year survival rate is between 18% and 57%. The five-year survival rate has hardly improved in the last few decades due to late detection.

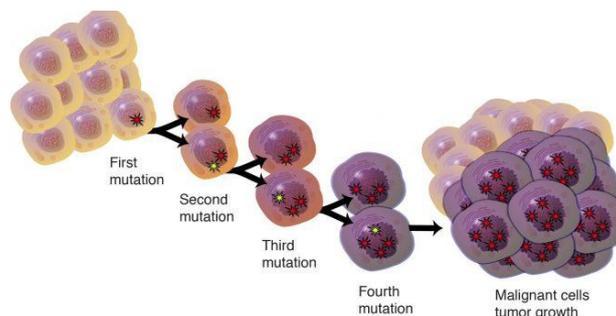
More people die in the UK each year from mouth cancer than from cervical and testicular cancer combined. Although almost nine in ten UK adults have now heard of mouth cancer, the awareness of the signs and symptoms and risk factors is poor.

Improving NHS access to dentistry and tackling late diagnosis and protecting public health policies are some of the key challenges in confronting mouth cancer.^{2,3}

What Causes Cancer?

Cancer is a complex disease that can be caused by a variety of factors, including genetic mutations, environmental factors, and lifestyle choices.

Cancer is caused by changes (mutations) to the DNA within cells. The DNA inside a cell is packaged into a large number of individual genes each of which contains a set of instructions telling the cell what functions to perform, as well as how to grow and divide. Errors in the instructions can cause the cell to stop its normal function and may allow a cell to become cancerous.⁴



A gene mutation can instruct a healthy cell to:

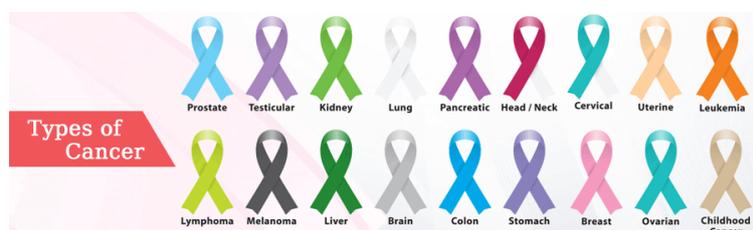
- **Allow rapid growth** - the cell can grow and divide rapidly creating many new cells with the same mutation.
- **Fail to stop uncontrolled cell growth** - cells know when to stop growing so that we have the correct number of each cell type. Cancer cells lose control and continue growing and accumulating.
- **Make mistakes when repairing DNA errors** – DNA repair genes look for errors in a cell's DNA and make corrections. If a DNA cell has a mutation the errors are not corrected, and the cell can become cancerous.

Gene mutations can occur for several reasons, you may be born with a genetic mutation that you inherited. However, most gene mutations occur after birth and are not inherited, multiple factors can result in this type of mutation.

Inherited gene mutations predisposes a person to cancer but does not mean they will develop cancer, other factors like the exposure to various cancer risk factors could make a person more susceptible to developing cancer.^{4,5}

Categories of Cancer

There are many types of cancer. Cancer can develop anywhere in the body and is named for the part of the body where it started. For instance, breast cancer that starts in the breast is still called breast cancer even if it spreads (metastasises) to other parts of the body.



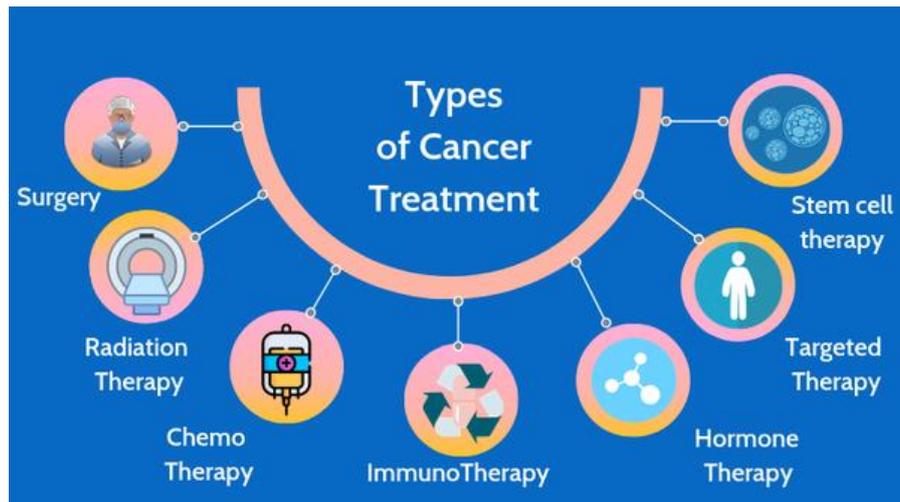
There are two main categories of cancer:

Hematologic (blood) cancers are cancers of the blood cells, including leukaemia, lymphoma, and multiple myeloma.

Solid tumour cancers are cancers of any of the other body organs or tissues. The most common solid tumours are breast, prostate, lung, and colorectal cancers.

These cancers are alike in some ways, but can be different in the ways they grow, spread, and respond to treatment. Some cancers grow and spread fast. Others grow more slowly. Some are more likely to spread to other parts of the body. Others tend to stay where they started.

Some types of cancer are best treated with surgery; others respond better to drugs such as chemotherapy. Often two or more treatments are used to get the best results.⁵



Stages of Cancer

Staging is a way of describing the size of a cancer and how far it has grown. When doctors first diagnose a cancer, they carry out tests to:

- Check how big the cancer is.
- Check if the cancer has spread into surrounding tissues.
- Check if the cancer has spread to other parts of the body.⁵

There are 2 main types of staging systems used for different types of cancer.

Number staging system

The number stages are:

- Stage 0 – the cancer is where it started (in situ) and has not spread.
- Stage 1 – the cancer is small and has not spread anywhere else.
- Stage 2 – the cancer has grown but hasn't spread.
- Stage 3 – the cancer is larger and may have spread to the surrounding tissues and/or the lymph nodes (or "glands", part of the immune system).
- Stage 4 – the cancer has spread from where it started to at least 1 other body organ, also known as "secondary" or "metastatic" cancer.

TNM staging system

The TNM system uses letters and numbers to describe the cancer. This system is used in different ways depending on the kind of cancer you have.

TNM system:

- **T** describes the size of the tumour, with numbers 1 to 4 (1 for small, 4 for large).
- **N** stands for lymph nodes, with numbers 0 to 3 (0 means no lymph nodes have cancer, 3 means many do).

- **M** stands for metastases or whether the cancer has spread to another part of the body, with numbers 0 or 1 (0 means it has not spread, 1 means it has).

Grading System

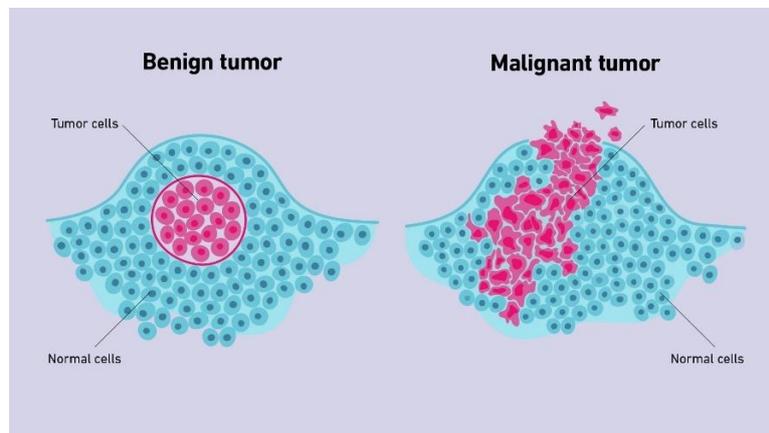
The grade of a cancer depends on what the cells look like under a microscope. In general, a lower grade indicates a slower-growing cancer, and a higher grade indicates a faster-growing one.

The grading system that is usually used is as follows:

- **Grade 1** – cancer cells that resemble normal cells and are not growing rapidly and are contained within the organ they started in.
- **Grade 2** – cancer cells that do not look like normal cells and are growing faster than normal cells. Sometimes grade 2 means that cancer cells have spread into lymph nodes close to the tumour. This depends on the particular type of cancer.
- **Grade 3** – cancer cells that look abnormal and may grow or spread more aggressively and the cancer is larger. It may have started to spread into surrounding tissues and there are cancer cells in the lymph nodes nearby.⁶

The stage of your cancer helps your doctor to decide which treatment you need. Treatment also depends on; your type of cancer (the type of cells the cancer started in); where the cancer is; other health conditions that you have.

Benign and Malignant Tumours



Tumours (lumps) can be benign or cancerous (malignant). Benign means it is not cancer.

Benign tumours:

- Usually grow quite slowly.
- Don't spread to other parts of the body.
- Usually have a covering made up of normal cells.

Benign tumours are made up of cells that are quite similar to normal cells. They only cause a problem if they:

- Grow very large.
- Become uncomfortable or painful.
- Are visible and unpleasant to look at.
- Press on other body organs.
- Take up space inside the skull (such as a brain tumour).
- Release hormones that affect how the body works.

Malignant tumours are made up of cancer cells. They:

- Usually grow faster than benign tumours.
- Spread into surrounding tissues and cause damage.
- May spread to other parts of the body in the bloodstream or through the lymph system to form secondary tumours. This is called metastasis.⁷

Carcinoma

Carcinoma is a type of cancer that starts in the epithelial cells that make up the tissues covering the surface of organs or lining the body cavities. These cells are responsible for forming the protective barrier and is found in various organs such as the skin, lungs, liver, kidneys, and digestive tract.

Carcinomas are the most common type of cancer, accounting for about 85% of all cancer cases. They can be classified into several subtypes based on their specific location and characteristics, such as squamous cell carcinoma, adenocarcinoma, and basal cell carcinoma.

Carcinomas can be either benign (non-cancerous) or malignant (cancerous) and have the potential to spread to nearby tissues and organs or to other parts of the body through the bloodstream or lymphatic system. Early detection and treatment are essential for improving the prognosis of carcinoma.

Carcinoma in-situ

Carcinoma in situ is sometimes called stage 0 cancer or 'in situ neoplasm'. It means that there is a group of abnormal cells in an area of the body. The cells may develop into cancer at some time in the future. The changes in the cells are called dysplasia.

The number of abnormal cells is too small to form a tumour. Some doctors or researchers call these cell changes 'precancerous changes' or 'non-invasive cancer'. But many areas of carcinoma in situ will never develop into cancer.

Risk Factors Associated with Mouth Cancer and Oropharyngeal Cancer

Anything that can increase your risk of getting a disease is called a risk factor. Different cancers have different risk factors. Having one or more of these risk factors doesn't mean you will definitely get cancer.

Smoking

Smoking tobacco (cigarettes, pipes, cigars) increases your risk of developing mouth and oropharyngeal cancer. Research suggests that around 25 out of 100 of mouth and oropharyngeal cancers in the UK (66%) are caused by smoking. People who smoke are more at risk if they also drink alcohol and chew tobacco or betel quid.

There is some evidence that people exposed to second hand smoke (passive smoking) for a long time have a small increase in their risk of mouth and oropharyngeal cancer.

Alcohol

Drinking alcohol increases your risk of mouth and oropharyngeal cancer. It causes around 35 out of 100 (around 35%) of mouth and oropharyngeal cancers in the UK. Smoking and drinking together further increase the risk of mouth and oropharyngeal cancer.

Chewing tobacco or betel quid

Smokeless tobacco, including chewing tobacco, such as betel quid (gutkha) or paan is known to cause mouth cancer. It is not a safe alternative to cigarettes.

Diet

A diet low in fruit and vegetables may increase your risk of mouth and oropharyngeal cancer. This might be due to a lack of vitamins and minerals. A balanced diet usually means you are getting enough vitamins and minerals.

Human papilloma virus (HPV)

The human papilloma virus (HPV) is a type of virus that infects the skin and the cells lining body cavities. It is estimated that around 80 out of 100 people (around 80%) will be infected with HPV at some time during their lifetime.

For most people, HPV causes no harm and gets better on its own. You do not catch cancers like an infection, but the virus can cause changes in the mouth and throat. These changes are more likely to become cancerous in the future.

HPV spreads through close skin to skin contact, usually during sexual activity. The virus is very common, however, only a very small number of people with HPV develop mouth or oropharyngeal cancer.

There are over 100 types of HPV and each one has a number. The main type of HPV found in mouth and oropharyngeal cancer is HPV 16.

The link to HPV is much stronger for oropharyngeal cancers than it is for mouth cancers. HPV causes around 50 out of every 100 (around 50%) of oropharyngeal cancers in the UK.

In recent years there has been an increase in HPV positive oropharyngeal cancer. Compared to HPV negative oropharyngeal cancer, people with HPV positive oropharyngeal cancers:

- Are generally younger.
- Do not usually smoke.
- Drink little or no alcohol.

People with HPV positive oropharyngeal cancer usually have a better outlook (prognosis) compared to those with HPV negative oropharyngeal cancers.

Weak immune system

Your body's immune system fights infection. Some illnesses and medications can weaken your immune system. Research shows an increased risk of mouth and oropharyngeal cancer in people:

- With HIV/AIDS - there are higher rates of Human papillomavirus (HPV) infection in people with HIV.
- Taking medicines to suppress the immune system after an organ transplant.

Mouth conditions

Changes can happen in the cells in the lining of the mouth. They can appear as red or white patches. The red patches are called erythroplakia. White patches are called leukoplakia.

In some people, these conditions may develop into cancer over some years. Doctors call these conditions pre-cancerous. It is important that any patient with these conditions is monitored in dental practice for the early detection of changes.

Family history

Research shows a slight increase in the risk of mouth and oropharyngeal cancer if you have a very close relative. For example, a parent or sibling who has head and neck cancer. Further research is needed to understand why this is.

Sunlight and sunbeds

Too much ultraviolet (UV) radiation from the sun or sunbeds is the main cause of skin cancer. Skin cancers are relatively common on the head and neck as these areas are more often exposed to UV radiation. Skin cancer can develop on the lip.

Physical activity

Research suggests that people who do little or no activity may have a bigger risk of developing mouth and oropharyngeal cancer. There are several research studies looking at reasons why physical activity might reduce the risk of cancer.

Blood pressure drug (hydrochlorothiazide)

Hydrochlorothiazide is a drug to treat high blood pressure (hypertension). A side effect is increased sensitivity to sunlight (photo sensitivity). A small study showed this medicine might lead to an increased risk of developing lip cancer.⁸

Signs and Symptoms of Mouth and Oropharyngeal Cancer

Symptoms of mouth and oropharyngeal cancer include:

➤ **Ulcers that don't heal**

A broken area in the lining of the mouth (ulcer) that will not heal is a common symptom of mouth cancer.

➤ **Pain in the mouth**

Pain, discomfort or swelling in your mouth that does not go away is the other most common symptom of mouth cancer.

➤ **Red or white patches in your mouth or throat**

An abnormal looking patch in your mouth or throat could be a sign of pre-cancerous changes or cancer. They can sometimes be painful.

- White patches are called leukoplakia.
- Red patches are called erythroplakia.

These patches are not cancer, but if left untreated they may lead to cancer.

Red and white patches in the mouth can also be caused by a fungal infection called thrush (Candidiasis). The white patches usually rub off, leaving a sore red patch underneath. If you have anti-fungal treatment, and the patches go away, they are not related to cancer.

➤ **Difficulty swallowing**

Mouth cancer can cause pain or a burning sensation when chewing and swallowing food. Or a person might feel like their food is sticking in your throat. Difficulty swallowing can also be caused by a narrowing of the food pipe (oesophagus).

➤ **Speech problems**

Cancer in the mouth or throat can affect a person's voice. Their voice might sound different. It may be quieter, husky, or sound as if they have a cold all the time. Or they might slur some of their words or have trouble with pronouncing some sounds.

➤ **A lump in the neck**

A person may have a lump in their neck caused by an enlarged lymph node. Swelling in one or more lymph nodes in the neck is a common symptom of mouth and oropharyngeal cancer.

A hot red painful lump usually means an infection, rather than a cancer. Lumps that come and go are not usually due to cancer. Cancer usually forms a lump that slowly gets bigger.

➤ **Weight loss**

Weight loss is a common symptom of many different types of cancer. Mouth and oropharyngeal cancer can make it painful to eat and difficult to swallow. This might cause weight loss.

Extreme weight loss (when you are not dieting) can be a sign of advanced cancer.

➤ **Bad breath**

Most people have bad breath at some point in their life and it is not cancer. But if you have cancer, bad breath might be worse and happen more often.⁷

➤ **Other symptoms**

These can include one or more of the following:

- A lump or thickening of the lip.
- A lump in the mouth or throat.
- Unusual bleeding or numbness in the mouth.
- Loose teeth for no clear reason.
- Difficulty moving the jaw.
- A sore throat that does not get better after a few days.
- Pain in the ear that does not get better in a few days.

Examining the Patient



The British Dental Association State that “Early detection of mouth cancer needs more than just understanding of the signs and symptoms of disease. The process must be managed effectively and handled sensitively. Every member of the dental team has a part to play, and protocols should be developed for effective delivery of:

1. Regular examination of the oral cavity of patients attending the practice.
2. Management of patients with lifestyles that contribute to an increased risk of oral cancer.
3. Management of detected mucosal lesions with appropriate referral.”

At every examination the patient should be thoroughly examined for potential malignancy.

The following table briefly shows the components of an oral cancer examination:

1. Extra oral examination: Examine the head and neck and palpate the lymph nodes.
2. Examine the lips: Note colour, texture, and any surface abnormalities.
3. Labial and Buccal Mucosa: Note colour, texture, swellings, or other abnormalities.
4. Alveolar ridge and gingiva.
5. Tongue: Inspect the ventral and dorsal surfaces of the tongue and the lateral borders. Palpate the tongue.
6. Floor of the mouth: With the tongue elevated, examine the floor of the mouth for changes in texture, swelling, colour or other abnormalities.
7. Hard palate.
8. Soft palate and oropharynx.
9. Salivary glands- parotid/sublingual/submandibular.

Recognising Oral Lesions



64-year-old male with a long history of cigarette smoking presents with an asymmetrical nodular mass in the retromolar region.

Diagnosis: Squamous cell carcinoma, nodular/exothytic⁹



47-year-old male presents with a tender, well-defined ulceration of the left ventral tongue of 2 weeks duration.

Diagnosis: Erosive lichen planus⁹



59-year-old female with a painless papillary mass of the left posterior mandibular alveolar ridge.

Diagnosis: Verrucous Carcinoma⁹



38-year-old a male presented with a white friable lesion of the maxillary gingiva which wiped off with a cotton swab, leaving a raw red base.

Diagnosis: Aspirin Burn⁹



31-year-old female noticed a flat grey/black asymptomatic alteration in the anterior floor of her mouth, of unknown duration.

Diagnosis: Amalgam tattoo⁹



Red and white surface alteration which is centrally indurated/firm was noted on routine examination in this 70-year-old male. The patient has a long-time history of tobacco and alcohol abuse.

Diagnosis: Squamous cell carcinoma⁹



On a routine examination of a 52-year-old female a well-defined red velvety lesion of the lower-left ventral tongue was observed.

Clinical Diagnosis: Erythroplakia
Microscopic | Diagnosis: Squamous cell carcinoma⁹



The patient has a white lesion with irregular margins on the left ventral tongue. At the inferior aspect, there is a prominent red patch of tissue.

Diagnosis: Carcinoma in situ⁹



Blood-based, firm, asymptomatic nodule of long duration was noted along the right buccal mucosa during routine examination.

Diagnosis: Irritational fibroma⁹



This 46-year-old female presents with irregular ulceration of the ventral lateral tongue, which is surrounded by leukoplakia.

Diagnosis Edge biopsy revealed squamous cell carcinoma⁹



The right lateral tongue of this patient demonstrated the presence of an indurated, painless ulcer of unknown duration.

Diagnosis: Early-stage squamous cell carcinoma⁹



In this patient, the buccal mucosa bilaterally showed red and white surface changes, with delicate keratotic striae enclosing a thin, but intact red area.

Diagnosis: Lichen Planus⁹

National Institute for Health and Care Excellence (NICE)

NICE National Institute for
Health and Care Excellence

NICE guidelines refer to evidence-based guidelines produced by the National Institute for Health and Care Excellence (NICE) in the UK. These guidelines provide recommendations to healthcare professionals on the best ways to prevent, diagnose, and treat various health conditions.

NICE guidelines are developed using a rigorous process that involves reviewing the latest research evidence and considering the views of healthcare professionals, patients, and other stakeholders. The guidelines are designed to help healthcare professionals make decisions that are based on the best available evidence, and to ensure that patients receive the most effective and appropriate care.

By following NICE guidelines, healthcare professionals can ensure that they are providing the most up-to-date and effective care to their patients, while also helping to improve the overall quality and consistency of care across the UK healthcare system.

Recommended Referral Pathway as Detailed in the NICE Guidelines and Cancer Research Referral Guidelines

Referral Details

It is important that certain details are recorded on a patient referral so that a waiting list can be prioritised. The following details are direct recommendations from Cancer Research UK.

- Patient's details. This includes the patient's name, address, and telephone number.
- Medical history: Including doctor's name and contact details.
- Relevant social history: Including smoking and drinking status.
- Detailed description of the lesion including duration, site, size, colour, texture, and findings upon palpitation.
- Clinical diagnosis in order to categorise the urgency of the referral.

Urgency of Referral (England, Northern Ireland and Wales)



Non-Urgent

Requires routine referral or tests



Urgent

Faster Diagnosis Framework

The NICE Guidelines for suspected cancer referrals were updated in October 2023 in line with NHS England's standard on faster diagnosis of cancer. People should have a diagnosis or ruling out of cancer within 28 days of referral. The NHS Cancer Programme has developed a Faster Diagnosis Framework, which sets out NHS England and Improvement's strategic approach to speed up cancer diagnosis and improve the patient experience. <https://www.england.nhs.uk/cancer/faster-diagnosis/>

The full guidelines can be accessed from <https://www.nice.org.uk/guidance/ng12>

The details below are taken directly from these referral guidelines:

Oral cancer

1.8.2 Consider a suspected cancer pathway referral (for an appointment within 2 weeks) for oral cancer in people with either:

- Unexplained ulceration in the oral cavity lasting for more than 3 weeks, or;
- a persistent and unexplained lump in the neck.

1.8.3 Consider an urgent referral (for an appointment within 2 weeks) for assessment for possible oral cancer by a dentist in people who have either:

- A lump on the lip or in the oral cavity, or;
- a red or red and white patch in the oral cavity consistent with erythroplakia or erythroleukoplakia.

1.8.4 Consider a suspected cancer pathway referral by the dentist (for an appointment within 2 weeks) for oral cancer in people when assessed by a dentist as having either:

- A lump on the lip or in the oral cavity consistent with oral cancer, or;
- a red or red and white patch in the oral cavity consistent with erythroplakia or erythroleukoplakia.¹⁰

Further guidance for referrals in Wales and Scotland can be found with the following links:

<https://www.dental-referrals.nhs.wales/dentists/cancer/>

<https://www.nhscfsd.co.uk/media/wdnfqyxz/nhs-scotland-optimal-head-and-neck-cancer-diagnositic-pathway-v1-december-2023.pdf>

Dental teams should familiarize themselves with the relevant referral guidelines for the area in which they practice.

Conclusion

Research suggests that early detection of oral cancer can increase survival rates. The dental team are in a position whereby they can identify potential risk factors and discuss these with patients during the course of preventative care. Each patient should be examined for oral cancer at each dental examination and a high level of suspicion used to identify early signs of oral cancer. NICE guidelines should be followed when referring patients for further investigation.

A diagnosis of mouth cancer or oropharyngeal cancer will have an enormous impact on a patient and the dental team are in the position that they can help patients on a practical level to stay as comfortable as possible during and after treatment and offer signposting to other supporting services.

Personal Development Plan and Reflective Learning

This CPD is linked to the following GDC Enhanced CPD Development Outcome:

C. Maintenance and development of knowledge and skill within your field of practice.

Reflective learning is now a requirement of the GDC Enhanced Professional Development Scheme. As such, you will now have the opportunity to answer some reflective learning questions, if you complete the⁹se now you will fulfil the requirements of the GDC. These will be:⁹

- 1) What did you learn (or confirm) from the activity that was helpful or relevant to your daily work and patients?
- 2) Comment on any changes/updates needed in your daily work
- 3) How has completion of this CPD article benefitted your work as a DCP?

Further Reading

[Suspected cancer: recognition and referral](#)

[Mouth Cancer Foundation – Check yourself](#)

[What to expect in a mouth cancer check](#)

References

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