ORAL HEALTH MANUAL

TEETH RELIEF

Sharon Rankin BDS BA
Marian Lennon MSc BA

Second Edition

ORAL HEALTH MANUAL

Second Edition

Sharon Rankin BDS BA
Marian Lennon MSc BA

TEETH RELIEF

First Edition 2007
Second Edition 2017

ISBN 978-1-9997576-0-1

SUNNYMEDE TRUST
TEETH RELIEF

Registered Charity Number 328326
Trust Address: 1 Laneway, Putney, London SW15 5HX
Chair: Dr Sharon Rankin BDS (Wales), BA

Visit us on our website: **www.teethrelief.org.uk**
or contact us via: **info@teethrelief.org.uk**

The Sunnymede Trust – Teeth Relief is committed to improving oral healthcare in low income communities by making knowledge of oral health a fundamental part of health education. We are a small specialist volunteer driven registered charity.

DISCLAIMER

The authors of this manuscript accept no responsibility for the acts or omissions of any individual or groups of individuals, who having utilised the text in this manuscript as their source of information and knowledge, cause unacceptable harm to any patient or to themselves by undertaking procedures described or alluded to, in this manual.

Design and layout by Christine Engert Graphic Design, Hove, East Sussex, UK
christine@christineengert.com

CONTENTS

ACKNOWLEDGEMENTS 4

INTRODUCTION 5
AIMS, OBJECTIVES & YOUR RESPONSIBILITY 6
RISK ASSESSMENT 8

CHAPTER 1 **ORAL ANATOMY** 9
Anatomy of the jaw
Function of teeth
Development of teeth
Types of teeth
How teeth are formed

CHAPTER 2 **DENTAL DISEASE** 16
Periodontal disease
Dental caries

CHAPTER 3 **ORAL HEALTH PROMOTION** 23
The oral health message
Common risks and influences
Oral health in the community
Oral health habits & skills

CHAPTER 4 **CROSS INFECTION CONTROL** (CIC) 33
Basic rules of CIC
Methods of sterilisation and disinfection
Checklist for dental workers

CHAPTER 5 **EXAMINATION AND DIAGNOSIS** 40
Preparing to see patients
Record keeping: medical history & charting
Diagnosing a specific problem
Prescribing medication
Practice management

CHAPTER 6 **TREATMENTS AND PROCEDURES** 57
Scaling teeth
Injections in the mouth
First Aid for fainting
Extracting teeth
Complications after extraction

CHAPTER 7 **ORAL CONDITIONS** 77
Teeth
Gums
Viral/fungal
Mouth ulcers
Patches, pre-cancers and oral cancers
Trauma
Other
Risks

MEDICAL HISTORY REFERENCE 114
BIBLIOGRAPHY 116
SAMPLE RECORD CARD 117

ACKNOWLEDGEMENTS

First Edition

The authors wish to acknowledge the help and support of **David Halestrap** and **Murray Dickson**, whose books inspired us to develop this 21st century resource.

We are very grateful to **Paul D Robinson** (formerly King's College London, Dental Institute) and **Paul Batchelor** (University College London) who helped to compile and review specialist sections.

For their help and support, we also want to thank **Dr Dame Clare Bertschinger** (London School of Hygiene and Tropical Medicine) and **Professor Crispin Scully CBE** (formerly UCL Eastman Dental Institute).

Second Edition

The authors are very grateful to those who have helped to compile and review specialist sections:
Professor Saman Warnakulasuriya (King's College London, Dental Institute) and **Tim Poate** (King's College London, Dental Institute) – Chapter 7, and **Dr Caroline Pankhurst** (King's College London, Dental Institute) – Chapter 4.

Thanks to the following for help and providing images:
Professor Michael AO Lewis (School of Dentistry, Cardiff University), **Martin Kelleher** (King's College London, Dental Institute), **Warren Birnbaum** (formerly King's College London, Dental Institute), **Serpil Djemal** (King's College London, Dental Institute).

We also appreciate the work of **Heba Ali** and **Stephen Bennett** in re-writing Chapter 7, and are grateful to **Emily Carter**, **Lawrence Mudford**, and **Simon Harvey** for their review and guidance.

Manual references: In this second edition we have included cross references to other parts of the manual, using the following symbol.

Example:

Example shows referral to Chapter 2/ page 10

In the production of both editions, we are grateful for the help and support of our many colleagues; we thank them all. Thanks are due in particular to **Christine Engert** for her skill in artwork, design and layout.

INTRODUCTION

In an ideal setting, oral healthcare is provided by trained dental surgeons, in fully equipped dental units, with options to refer patients on to other professionals, as required. For many communities across the world, this ideal may only exist in part, if it exists at all. The aim of this book is to provide a basic oral health manual for healthcare workers who operate within a variety of 'less than ideal' situations.

General healthcare programmes cannot be truly effective unless they address the fundamentals of oral health. Equally, this manual should be viewed as practical reference material to support and address oral health issues within the Primary Health Care approach – otherwise we might simply have called it 'How to pull teeth and impress people'.

The Basic Package of Oral Care (BPOC) is a policy document, originally produced by a World Health Organization (WHO) Collaborating Centre for Oral Healthcare Planning & Future Scenarios based in Nijmegen, The Netherlands.

It calls for 'Each region and country to develop its own BPOC based on the perceived needs of the local population and on existing supporting environmental conditions'.

Oral Health Promotion is considered an integral part of the BPOC and comprises the following three components:

1. Oral Urgent Treatment (OUT)
2. Affordable Fluoride Toothpaste (AFT)
3. Atraumatic Restorative Treatment (ART)

This book supports that call and we would urge all readers of our manual to also study the WHO report and lobby for the development of this approach, if it's not already established, in your area. Not everything that works on one level can be applied to all but we believe that anything which is proven to work on the most basic level, should be made available to all.

The twin aspects of treatment and prevention are key to most areas of healthcare – how to make things better now and how to stop or reduce problems in the future. It is pointless to talk in terms of hi-tech solutions if access to these is limited but it is equally fruitless in the longer term, (as every dentist knows) to simply offer pain relief without addressing the root cause.

This book addresses both the causes and effects of oral health problems and offers guidance on procedures and treatments with a view to improving access to oral healthcare and education in even the most basic settings.

WHO IS THIS BOOK AIMED AT?

This manual is written for healthcare workers with basic medical knowledge who want to learn more about dental care and oral health. It is intended to help them provide basic care and offer treatment in areas with limited resources and no dentist.

It has been designed as a stepping stone for those who can't yet access specialised dental training but still want to relieve pain and improve the oral health of their communities.

It is impossible to predict exact settings and situations so we have tried to avoid dependence on hi-tech resources. This chart shows various settings, ranging from the ideal hospital situation to a modest rural set up.

SETTING	STAFFING			SERVICES		EQUIPMENT			
	dentist	doctor	nurse aid	water	elec	w.w.w. access	auto-clave	radio graph	drill(s) compressor
LEVEL 1 dental hospital or dental department	✓	✓	✓	✓	✓	✓	✓	✓	✓
LEVEL 2 urban hospital no dental unit	✗	✓	✓	✓	✓	✓	✓	✓	✗
LEVEL 3 rural hospital or health centre no dental unit	✗	✓	✓	✓	✓	✓	✓	✗	✗
LEVEL 4 outreach clinic or village setting	✗	✗	✗	✗	✗	✗	✗	✗	✗

Our manual is pitched at LEVEL 3 and presumes the following:

- a rural/village hospital or health centre
- a doctor on site but no dentist
- nurse aids and/or other healthcare workers
- running water and a basic electricity supply
- access to basic hand tools and materials
- basic sterilisation unit (pressure cooker or autoclave)
- no immediate access to oral radiological equipment
- no immediate access to compression drill.

Alternatives are suggested where possible.

It is also assumed that workers undertaking procedures outlined in this manual will be competent in basic medical care including Cardio Pulmonary Resuscitation (CPR).

OUR OBJECTIVES

If you study the manual from start to finish, you should then be able to:

1. Understand the basics of oral anatomy including the function and development of teeth.
2. Recognise and record different types of teeth and oral problems.
3. Recognise the signs and symptoms of common dental problems i.e. gum disease and dental caries.
4. Understand the basics of oral health promotion within communities.
5. Understand the basic rules of Cross Infection Control as they apply to oral health treatments.
6. Understand how to conduct a full oral examination and chart the findings.
7. Understand how to diagnose common dental problems and recommend relevant treatment or referral.
8. Set up and manage a dental clinic to assess oral health needs.
9. Understand how to perform basic procedures such as: scaling, oral injections, simple extractions.
10. Recognise other conditions with oral signs or problems.

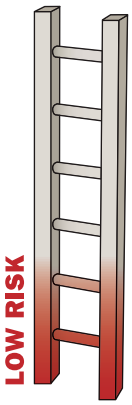
YOUR RESPONSIBILITY

Each community will have to develop their own system of care according to need and resources so we have tried to offer advice that is flexible. Some of what we suggest may not be possible or desirable but it is important that you understand the reasoning behind it. Then, if you choose to make changes, you can do so with good awareness of the need to maintain safe practice for patients and health workers.

Reference materials and preferred methods are constantly being updated so we offer basic information and point you in the right direction to obtain more via web link addresses. **It is your responsibility to keep your knowledge current.**

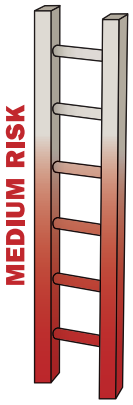
RISK ASSESSMENT

Every medical procedure carries some form of risk both to the patient and to the practitioner, especially in terms of cross infection. The following Risk Ladder symbols will be used to indicate the level of risk for each procedure.



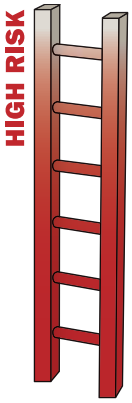
LOW RISK

This procedure is relatively safe if carried out in accordance with basic Cross Infection Control.



MEDIUM RISK

This procedure carries some level of risk and should only be attempted after supervised training.



HIGH RISK

This procedure should not be carried out by un-trained persons. A doctor should be present or available nearby.

FACT OR FICTION?

	Which of these statements are true and which are false?	**FACT** (True)	**FICTION** (False)
1.	**Red gums are healthy gums**		
2.	**All healthy teeth have roots**		
3.	**Women lose 1 tooth for each pregnancy**		
4.	**Toothpaste is not necessary to clean teeth**		
5.	**If you don't have any teeth, you'll never need a dentist**		
6.	**People 'get longer in the tooth' as they get older**		
7.	**No toothache = No problem**		
8.	**If a child has a tooth knocked out, it should not be put back into the socket**		
9.	**Fizzy drinks help to keep teeth clean**		
10.	**The more wisdom teeth a person has, the more intelligent they are**		

Answers at the end of Chapter 1

CHAPT 1
page 15

CHAPTER 1:
ORAL ANATOMY

This section will outline the basics of Oral Anatomy and includes:

- ANATOMY OF THE JAW
- FUNCTION OF TEETH
- DEVELOPMENT OF TEETH
- TYPES OF TEETH
- HOW TEETH ARE FORMED

ANATOMY OF THE JAW

Any treatment of the mouth, teeth and gums must begin with a basic understanding of the framework that surrounds them.

The jaw is in two parts:

- The **upper jaw bone** (maxilla) is fixed to the skull and is not mobile.
- The **lower jaw bone** (mandible) is a mobile, floating extension, connected to the upper jaw by a hinge joint known as the Temporo-Mandibular Joint (TMJ).

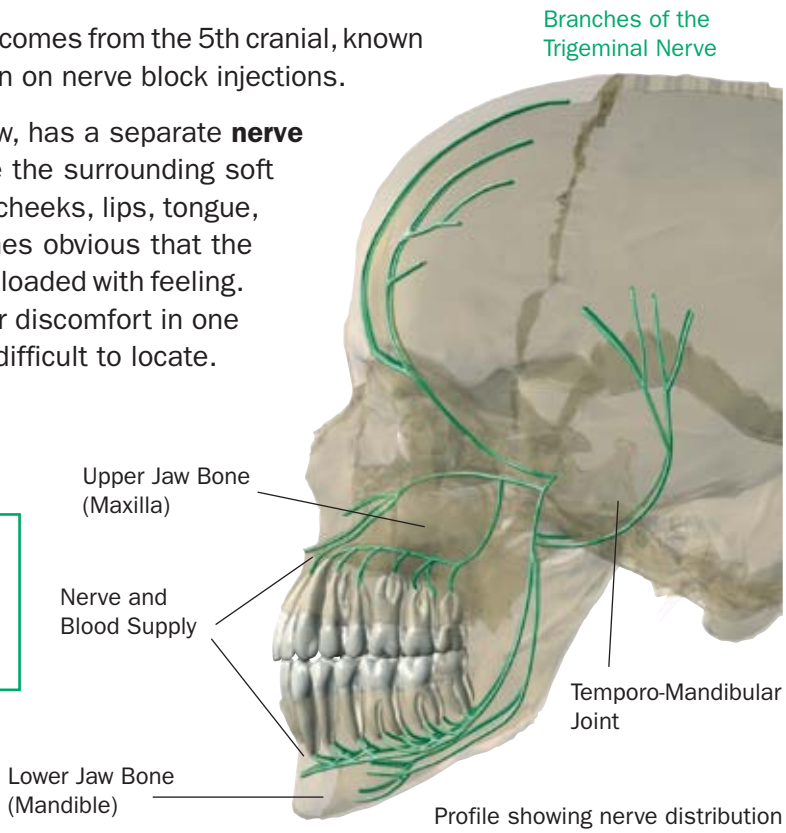
The upper and lower jaws provide a root bed for the teeth. The lower jaw is only attached at one point on either side and so to increase its protection against trauma, it has a more dense structure.

CHAPT 6
page 63

The main nerve feed to the jaw bones comes from the 5th cranial, known as the **trigeminal nerve** – see section on nerve block injections.

Each root, of each tooth, on each jaw, has a separate **nerve and blood supply**. When you include the surrounding soft tissue areas such as gums, palate, cheeks, lips, tongue, saliva glands, sinuses etc. it becomes obvious that the area of the face and mouth is literally loaded with feeling. For this reason, the source of pain or discomfort in one area of the face can sometimes be difficult to locate.

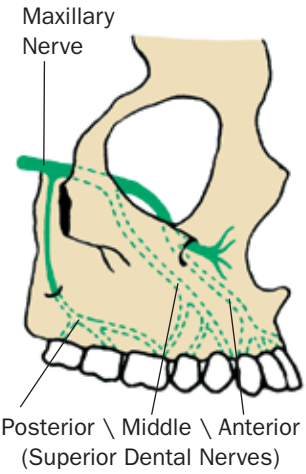
Always be aware of the numerous inter-connecting systems, in and around the mouth, when patients present with apparent dental pain.

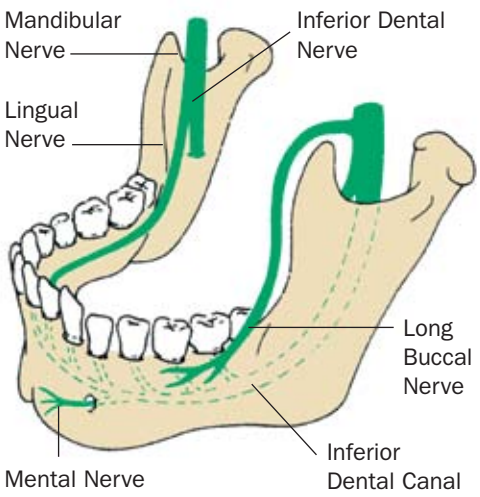


Profile showing nerve distribution

FUNCTION OF TEETH

The primary function of teeth is to enable us to eat and chew our food. If food is broken down in the mouth before being swallowed, this will aid the digestive process. Good digestion is essential for good nutrition and all the health benefits that flow from this.





Teeth are rooted into the **upper and lower jawbones**.

The root(s) of each tooth sits in a **socket** and is held in place by bone.

The bone is protected by a layer of tissue known as **gingiva** or the gum.

The gums act to protect and cushion the teeth and allow some movement.

If all our teeth were fixed rigidly, they would easily break when we bite against hard surfaces, but the natural degree of movement should be so small that it cannot be seen.

Humans have also developed social functions for teeth:

- Speech, how we shape and form words using our mouth and tongue try saying the word 'teeth' without closing them together.
- A smile is a universal symbol of greeting and happiness and when we think smile, we usually think teeth.

talking....
eating....
speaking....
breathing....
...health.

Most adults can expect most of their teeth to last for life – if they look after them and avoid accident or trauma. But if too many teeth are lost through neglect, poor diet or other causes, there will be inevitable problems.

So it is vital to maintain good teeth and this begins with good oral and general healthcare.

DEVELOPMENT OF TEETH

The technical term for children's teeth is deciduous. This is because they naturally start being shed from approximately 6 years onwards to make way for permanent adult teeth. Children's teeth are more commonly known by one of the following terms – baby, milk, primary, first – we will refer to them as the 'primary' teeth.

Primary teeth are being formed in a baby while it is still in the mother's womb. They start to develop inside the jaw before breaking through the gums into the mouth – the process known as 'eruption'.

PRIMARY TEETH

Primary teeth erupt through the gums around the age of 6 - 7 months, the lower, front teeth usually showing first and they continue to grow through over the first two years of a baby's life. By the time they are aged around 30 months, a child should have a full set of teeth.

Under-nourished children may not develop teeth until later but this is not a reason to keep them on a milk or liquid diet. Children need to move on to soft food in order to grow and stay healthy.

Primary teeth serve the same function as adult teeth in helping a child to eat, talk and smile with confidence. Some people mistakenly believe that care of the primary teeth is somehow less important because they will eventually be replaced – this belief must be dispelled because primary teeth also serve another important purpose. They act as guides to steer the permanent teeth into place – therefore, good oral care must be started early if problems are to be avoided later on.

PERMANENT TEETH

Permanent teeth start to form underneath the primary teeth and between the ages of 6 - 12 years, they gradually begin to push against the primary roots. This process happens in stages usually one tooth at a time. Each primary tooth will become lose, then it will fall out – finally it gets replaced by the permanent one.

Adult permanent teeth are designed to last for a lifetime

Sometimes the new tooth is immediately visible below the one that has been shed but sometimes there can be a delay of several months before the new tooth emerges and this is not necessarily a cause for concern.

20 permanent teeth will replace the 20 primary ones but now that the mouth and jaw have grown larger, there is room for 8 new ones to grow in at the back of the mouth, (2 on each side of the upper and lower jaw).

TIMELINE FOR TOOTH DEVELOPMENT

TOOTH	ERUPTION OF PRIMARY TEETH	SHEDDING OF PRIMARY TEETH	
	Lower and Upper *(Mandible and Maxilla)* Age in months	**Lower** *(Mandible)* Age in years	**Upper** *(Maxilla)* Age in years
Central incisor	6-7	5-7	6-7
Lateral incisor	7-9	7-8	7-8
Canine	18-20	9-12	10-12
First primary molar	12-15	9-11	9-11
Second primary molar	24-36	10-12	10-12

for ERUPTION OF PERMANENT TEETH turn to next page

Permanent teeth forming to replace **primary teeth**

TOOTH	ERUPTION OF PERMANENT TEETH	
	Lower *(Mandible)* Age in years	**Upper** *(Maxilla)* Age in years
Central incisor	6-7	7-8
Lateral incisor	7-8	8-9
Canine	9-10	11-12
First premolar	10-12	10-12
Second premolar	11-12	11-12
First molar	6-7	6-7
Second molar	12-13	12-13
Third molar	18-25	18-25

WISDOM TEETH

4 new back molars, commonly known as the 'wisdom teeth' may grow through at any time after approximately 16 years to complete a full set. Wisdom teeth are programmed to erupt when the jaw is fully grown but sometimes they cannot find space behind the other teeth (Pericoronitis). This can be painful and may lead to infection. Some people only get some wisdom teeth and some people never form any at all – neither is unusual.

CHAPT 7 page 84

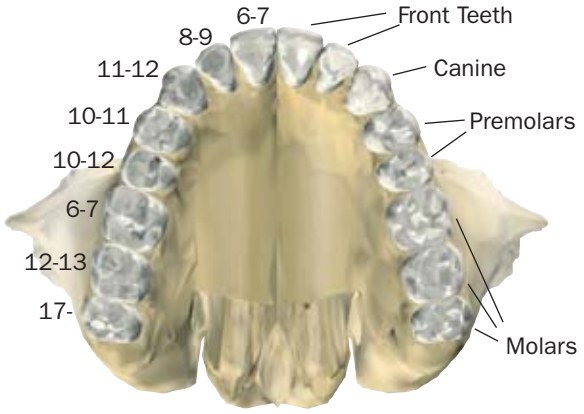
MISSING TEETH

20 primary or 32 permanent teeth make up the full sets but there will always be exceptions. Teeth can be missing for a variety of reasons but this should always be noted so that if any problems arise, they can then be tracked.

AGE CHECK

3 YEARS	8 YEARS	12 YEARS	14 YEARS	18 YEARS
By the age of 3 most children have all their primary teeth	An 8 year old usually has 24 teeth (or spaces for them)	The last primary teeth fall out at about 12 years of age	A 14 year old usually has 28 teeth (or spaces for them)	An adult usually has 32 permanent teeth with no spaces

Note: These tables and diagrams are only guides – just as children of the same age will differ in height and weight – so their teeth will develop at varying rates. Ask around your friends and family to see just how much difference there can be.



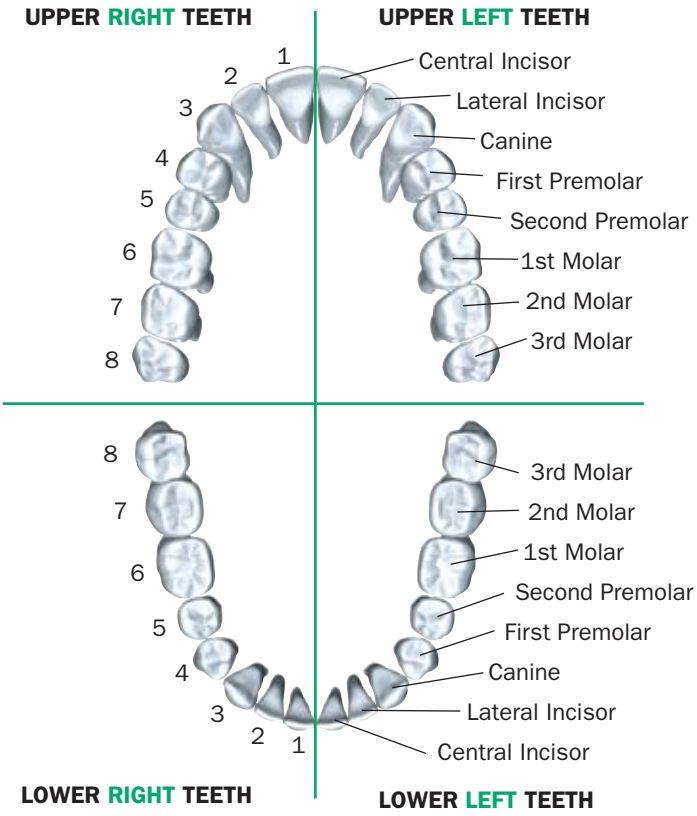
TYPES OF TEETH

In order to recognise and label each tooth, the mouth can be divided into four sections or **quadrants**. Teeth in each quadrant are numbered 1-8, always starting at the centre. We always talk of Right and Left in terms of the patient. If you are facing a patient, their right and left side will be opposite to yours as shown here.

Each quadrant houses 8 teeth:

2 incisors	**1 canine**
2 premolars	**3 molars**

to make a full set of 32 permanent teeth.



TYPES OF TEETH

Incisor
Flat, sharp edged teeth at the front of the mouth.

Purpose: to cut and bite food.

Premolar
They sit behind the canines. They have 2 prominent points known as 'cusps' and 1 or 2 roots.

Purpose: partly to tear and partly to grind food.

Canine
Long, pointed teeth with deep roots. They sit beside the incisors.

Purpose: to tear food.

Molar
Back teeth, each with four or five cusps. Upper molars usually have 3 roots. Lower molars usually have 2 roots.

Purpose: to chew and grind food.

Practise on yourself

Can you identify your own types of teeth?

CHAPT 5
pages 44-48

There is a section showing how to chart teeth and record their condition.

HOW TEETH ARE FORMED

Different teeth may have slightly different shapes and edges to suit a specific purpose but they are all formed in the same way and made from the same things.

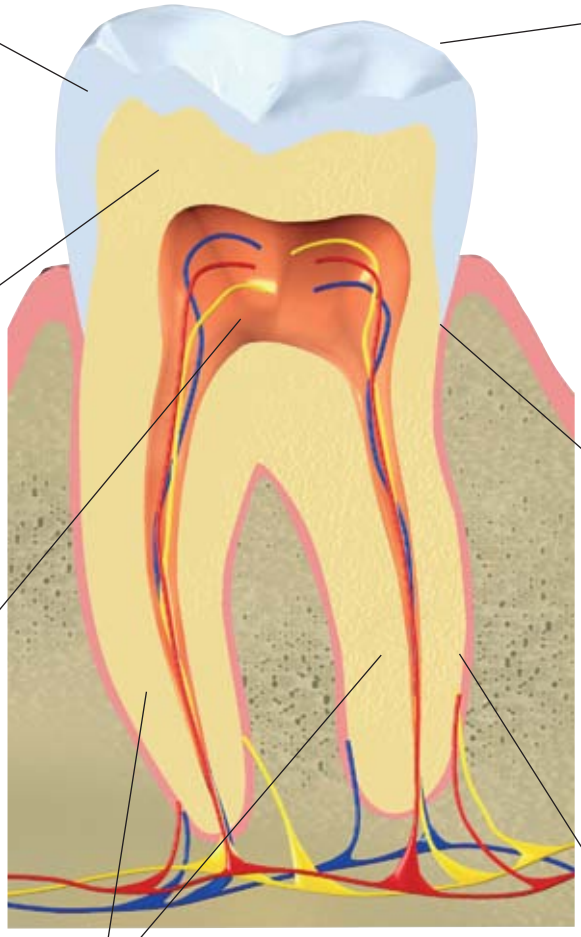
Teeth, like trees, essentially have a root system and a crown. Healthy teeth are alive and connect to the whole body in a two way process – the body sends food parcels and the teeth send back pain signals if they need attention.

The **crown** of the tooth is the white part we recognise because in a healthy mouth this is the only part of a healthy tooth that should be visible.

Dentine forms the main bulk of the tooth and extends down the length of the root.

It is a very sensitive substance, harder than bone but less solid than enamel.

Running along the length of each root is a **root canal**, carrying the nerve and blood vessels into a **pulp** chamber. Through this root system, the body can keep the tooth supplied with nutrients and oxygen to maintain health.



The **roots** of each tooth sit in the tooth socket and connect it to the jawbone.

The outer cover of the crown is a coating of **enamel**. This is the hardest and strongest substance produced by the body.

Primary teeth have a thinner layer of enamel, giving them a slightly whiter appearance.

The outer cover of the root is a hard, rough coating of **cementum**, similar in structure to bone.

The cementum meets the enamel at the **neck** of the tooth.

Thousands of tiny fibres known as **periodontal ligaments** attach the root into the jaw to keep it firm and act as shock absorbers.

Did you know.....?

Elephant tusks, commonly known as ivory, actually consist of dentine.

FACT OR FICTION?

	Answers to questions on p.8	FACT (True)	FICTION (False)
1.	**Red gums are healthy gums** Pink gums with natural pigmentation are healthy gums. Redness is a sign of disease. See page 17		✓
2.	**All healthy teeth have roots** The root feeds the tooth crown. See page 14	✓	
3.	**Women lose 1 tooth for each pregnancy** This is a myth based on the belief that calcium is taken from the mother's teeth and given to the child. See page 29		✓
4.	**Toothpaste is not necessary to clean teeth** Charcoal or salt are also effective. See page 31	✓	
5.	**If you don't have any teeth, you'll never need a dentist** Oral problems can still occur in mouths without teeth. Everyone should have a regular oral check if possible.		✓
6.	**People 'get longer in the tooth' as they get older** Not necessarily – a tooth will continue to erupt only if its opposing tooth is lost or a tooth may appear to get longer if the supporting bone is reduced through periodontal disease. See page 16. Healthy teeth in a healthy mouth do not get longer.		✓
7.	**No toothache = No problem** Not necessarily. Some stages of tooth decay are painless. Regular checks can identify these. See page 21		✓
8.	**If a child has a tooth knocked out, it should not be put back into the socket** Primary teeth should never be re-planted. Permanent teeth should be, when possible. See page 100	✓	
9.	**Fizzy drinks help to keep teeth clean** The high acid content acts to dissolve the enamel on teeth leading to problems of sensitivity and decay. See pages 20 & 30		✓
10.	**The more wisdom teeth a person has, the more intelligent they are** They are known as wisdom teeth because they come through when we are a little older – but age and intelligence don't always go together.		✓

How well did you do?
Test out your friends and family.

CHAPTER 2:
DENTAL DISEASE

This section will outline the basics of Dental Disease, specifically:
- PERIODONTAL DISEASE
- DENTAL CARIES

DENTAL DISEASE

Dental disease mainly occurs in two forms:
Periodontal Disease (gum disease) and Dental Caries (tooth decay).

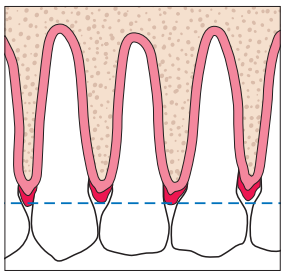
The main cause of dental diseases is a substance called 'plaque'.

The main cause of both diseases is a substance called 'plaque'. Plaque is a thin, sticky, paste that forms in the mouth from a mix of saliva and bacteria. It is present in most mouths and clings onto tooth surfaces and to the margins around the gums and in between teeth. If plaque is not cleared away on a regular basis, the bacteria start to attack the edges of the gums causing inflammation – this is the first stage of periodontal disease.

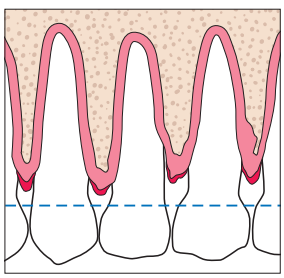
If plaque builds up in the mouth, it will combine with saliva chemicals and start to calcify into a hard, white material that collects around the teeth. This is known as calculus or tartar. Once this stage occurs, the tartar cannot be removed by simple brushing. Bacteria in plaque can also act to convert sugars into acid. The acid then attacks and erodes the surfaces of the teeth and begins the process of decay.

PERIODONTAL DISEASE

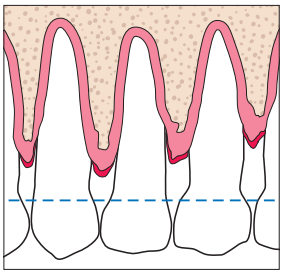
Many un-decayed teeth have to be extracted because of periodontal disease caused by a build up of plaque. This is how the three stages of gum disease develop:



Mild
When too much plaque is allowed to rest around the necks of the teeth, the gums get inflamed – this condition is known as gingivitis.



Moderate
If gingivitis continues, the gums get baggy around the teeth allowing more plaque and bacteria to penetrate into the periodontal fibres and destroy the supporting bone. This condition is known as periodontitis.



Advanced
If periodontitis continues un-checked, bone support is reduced to a point where the tooth becomes mobile and will eventually drop out.

HOW TO RECOGNISE GUM DISEASE

Gum disease is a progressive condition so it can be difficult to define each stage precisely. Use this table as a guide to recognise how far the condition has progressed and help monitor improvement.

STAGES OF GUM DISEASE			
Grade 0 Healthy Gums	***Grade 1*** Gum Disease ***Gingivitis***	***Grade 2*** Gum Disease ***Periodontitis***	***Grade 3*** Gum Disease ***Chronic Periodontitis***
WHAT TO LOOK FOR			
Firm	Slightly inflamed	Soft and swollen	Soft and swollen
Pink	Red around margins	Darker in colour	Darker in colour
Do not bleed	Occasional bleeding	Bleed on pressure	Bleed on pressure
Stippled surface	Some stippling but some areas smooth	Smooth surface	Smooth surface
Little sign of plaque	Plaque present	Plaque present There may be: - deposits of calculus around teeth - loose teeth (due to bone loss) - bad breath	Plaque present There will be: - calculus around teeth - loose teeth (due to bone loss) - bad breath
TREATMENT			
To keep gums healthy and prevent disease, remove plaque daily by effective & thorough tooth-cleaning.	This stage can still be reversed by surface cleaning, removal of plaque and improved oral hygiene.	This stage can only be reversed by thorough deep cleaning, (root planing) requiring local anaesthetic. Good oral hygiene is critical.	This condition can only be controlled by deep cleaning, extractions where necessary and improved oral hygiene.

Brown pigmentation often occurs in the gums of dark skinned people. The extent of this is variable, it can be generalised or patchy, but is normal in terms of Oral Health.

For information on how to chart and record periodontal conditions:

CHAPT 5
pages 44-48

Pregnancy and Periodontal Disease

Pregnancy causes hormonal changes so that bleeding and swollen gums are more commonly seen in expectant mothers. Extra vigilance and care need to be taken with oral hygiene and diet to ensure good health for both the mother and the developing child.

Risk Factors associated with Periodontal Disease

Smoking habits and emotional stress can both cause and aggravate the breakdown of gum tissue.

- HIV and AIDS affect the body's immune system and resistance to disease.
- Diabetes: Insulin dependent diabetes mellitus in particular, can influence oral health especially if the condition is not well controlled.

Healthy Teeth need Healthy Gums

The gums hold everything in place and they deflect food and debris away from the teeth, into the mouth. They also act as a barrier to keep germs and infection away from the teeth. Healthy teeth and healthy gums go together – you can't have one without the other.

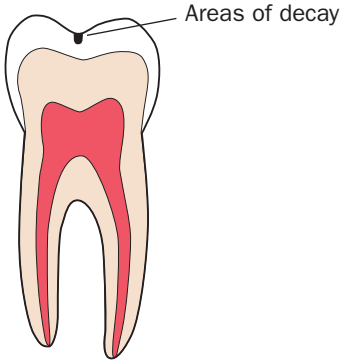
Examine your own Gums regularly

If you notice that they are red or swollen or if they bleed when you brush your teeth, these may be signs of periodontal disease and a visit to a dental worker is advisable.

DENTAL CARIES

Tooth decay is the common name for dental caries. This develops as a result of sugars in the mouth being converted into acid by plaque bacteria. The acid then attacks the teeth. Decay can form on any surface but most commonly it occurs in the hollows and fissures on the biting surfaces of teeth and in between the teeth where food tends to collect allowing bacteria to flourish.

THE STAGES OF TOOTH DECAY

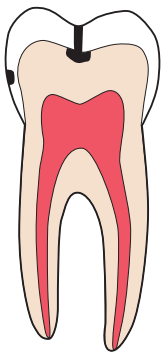


Stage 1

Sugar is converted to acid by plaque bacteria.

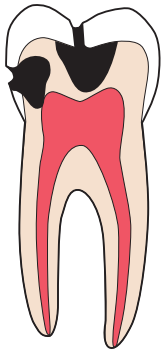
Stage 2

Acid eats into the enamel and decay begins inside the tooth. Early stage decay, appearing between teeth, is usually only detectable through radiographs.



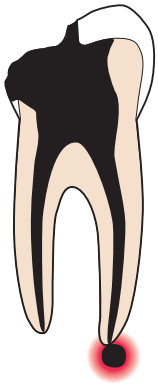
Stage 3

When decay reaches the soft pulp of the tooth, the nerve becomes affected and extremes of hot and cold will cause pain.



Stage 4

Infection can spread throughout the pulp resulting in the formation of an abscess. This is very painful and the tooth may need to be extracted.



HOW TO PREVENT CARIES

There are 3 main ways in which dental decay can be reduced or even completely avoided. In theory, because decay only occurs when bacteria act to convert sugar into acid, it could be prevented by:

a) Avoiding Sugar

b) Increasing the Resistance of Teeth to Acid Attacks

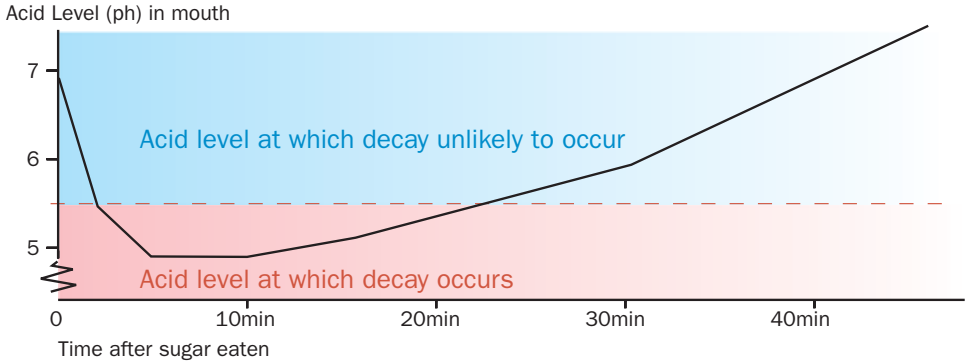
c) Removing the Bacteria

a) Avoid Sugar

People who eat little or no sugar, rarely suffer from tooth decay and the rise of dental caries across many less developed countries is a relatively recent problem. In other countries, sugar is added to many foods e.g. cakes, confectionery, biscuits and soft drinks, making tooth decay more common.

Very little sugar is sufficient for bacterial conversion into acid. It happens within only one or two minutes and the acid can stay present within the mouth, at a critical level, for approximately half an hour. Natural sugar converts into acid more slowly than refined 'factory' sugar which is chemically altered during the manufacturing process.

HOW SUGAR INTAKE AFFECTS ACID LEVELS IN THE MOUTH



Stephan R.M. & Miller B.F. 1943

Most teeth can survive several mild acid attacks a day but frequently consuming foods that contain sugar will increase the severity of these attacks, gradually weakening the natural defences of the teeth.

It's not just the quantity of sugar eaten but the way in which it is consumed that matters most. Sticky foods such as cakes and biscuits will cling to the teeth for longer and sugared drinks coat the teeth, subjecting them to more acid.

If you are going to eat or drink sugar in different forms then try to do so as part of, or immediately after, a meal and restrict it to once a day. If a child has sweets, it's better for them to be eaten in one go than to be sucked on throughout the day.

b) Increase Resistance

! WARNING !
Too much fluoride can be harmful so find out how much is in your water supply and your toothpaste.

Fluoride is a mineral that is naturally found in rocks, soil and water. It is a basic part of tooth enamel. According to the WHO Oral Health Unit, exposure to the correct amount of fluoride is the most effective measure that can be taken to prevent against dental caries and the use of fluoride toothpaste is a very effective way to deliver it.

It is important to know what levels of fluoride your community is accessing. Do you know the level of fluoride (if any) in your local water supply? Can you find out?

FLUORIDE IN WATER

Ensuring that the fluoride content of your water meets recommended levels is the most important oral healthcare step that can be taken for any community so put this at the top of your list. Difficulties can arise because of infrastructure, particularly in rural areas but they should not prevent this from becoming a future aim.

FLUORIDATED SALT

Where water fluoridation is not suitable, salt can be an effective alternative.

FLUORIDE IN TOOTHPASTE

Some governments still regard toothpaste as a cosmetic product, subjecting it to higher tax and making it unaffordable to many people. Every effort should be made to promote regular use of affordable fluoride toothpaste.

FLUORIDATED MILK

In some countries this has been successfully given to school children but problems can arise with storage and distribution.

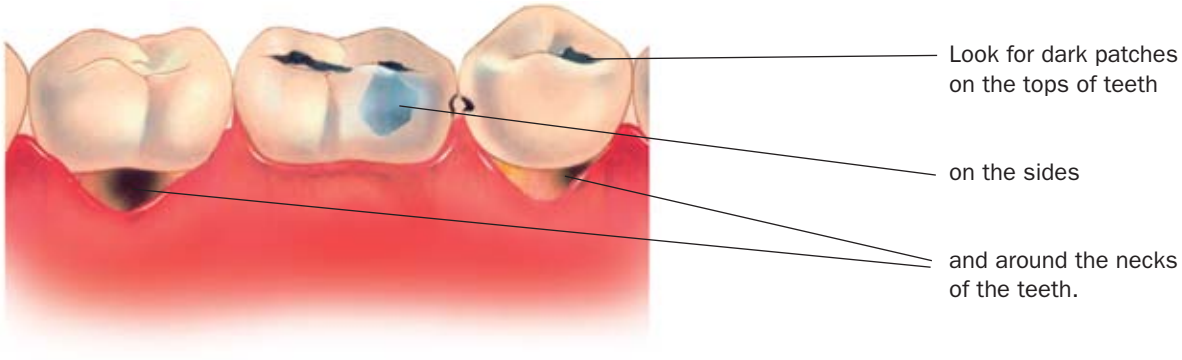
c) Remove Bacteria

Thorough brushing of the teeth will remove the majority of plaque from those parts of the teeth and gums that can be reached and this will help to prevent decay. Very few people though are able to brush their teeth so effectively as to remove every trace of plaque – so reducing the quantity and frequency of sugar intake remains a prevention priority.

HOW TO RECOGNISE DENTAL CARIES

As bacterial acid starts to erode the enamel surface of a tooth it may take some time before there are any visible signs of decay. Eventually a small hole will develop and this will continue to get bigger unless something is done to stop it. At this stage a dentist could remove the decayed part of the tooth (providing they have access to a dental drill) and place a filling in the hole. If the hole is left untreated it will get bigger and deeper until it invades the pulp chamber, affecting the nerve.

What to look for?



Symptoms

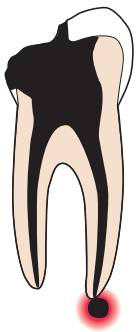
Early decay is usually painless while acid attacks the outer enamel surface of a tooth. Pain is felt as decay works through to the dentine. Pain increases as decay approaches the pulp.

At first, pain will only be felt with hot, cold, sweet and acid foods but later it will be felt all the time and will become severe. If the decay is left untreated it will eventually kill off the pulp – at this stage sensitivity may decrease – leaving the tooth susceptible to an abscess forming around the root.

CHAPT 7
page 80

The Symptoms of an Abscess are:

- The tooth hurts when it is tapped gently
- There may be some swelling in the mouth next to the tooth
- There may be swelling on that side of the face.



Abscess at base of root

TREATMENT OF DENTAL CARIES

The ideal treatment for dental caries involves taking radiographs, removing the decay using a compression drill and filling the cavity to restore the tooth. It is both specialised and costly.

Other methods can be used in situations or settings where this ideal is not possible.

If you are interested in the basic ART technique, then we advise you to seek further information via the web link below.

Later on, we outline the procedure for temporary fillings in case of an emergency but we advise against regular 'drilling and filling' treatments until a good oral healthcare structure, focusing on prevention, is well established.

CHAPT 6
page 76

ATRAUMATIC RESTORATIVE TREATMENT (ART)

ART is a minimal intervention technique for caries, endorsed and promoted by the World Health Organization.

The ART procedure is based on excavating and removing caries using hand instruments only and then restoring the tooth with an adhesive cement material called 'glass ionomer'.

CHAPTER 3:
ORAL HEALTH PROMOTION

This section will outline the basics of Oral Health and includes:
- THE ORAL HEALTH MESSAGE
- COMMON RISKS AND INFLUENCES
- ORAL HEALTH IN THE COMMUNITY
- ORAL HEALTH HABITS & SKILLS

THE ORAL HEALTH MESSAGE

Diet & Dirt

If you remember nothing else from this manual, remember these 2 words.

Diet and dirt are the two main causes of dental disease so Oral Health Promotion should be based around this message. No amount of money or resources will sustain improvement unless these two factors are continually addressed.

WHAT IS ORAL HEALTH PROMOTION?

It is a strategy designed to improve the general health of a population by specifically improving their Oral Health. It aims to offer knowledge and skills to individuals, groups and communities so they can make informed choices about their well being.

Oral Health Promotion is empowering and enables people to influence their own lives because it is done
by people,
with people,
for people:
it is not done to them.

Oral Health Promotion has three functions:

RAISE AWARENESS | **INCREASE KNOWLEDGE** | **CHANGE ATTITUDES**

How people eat and nourish themselves and their children will initially affect the quality of their teeth and gums – how they grow and how they are maintained. Oral Health matters even before teeth come into the mouth so Oral Health Promotion needs to be at the heart of Community Health programmes.

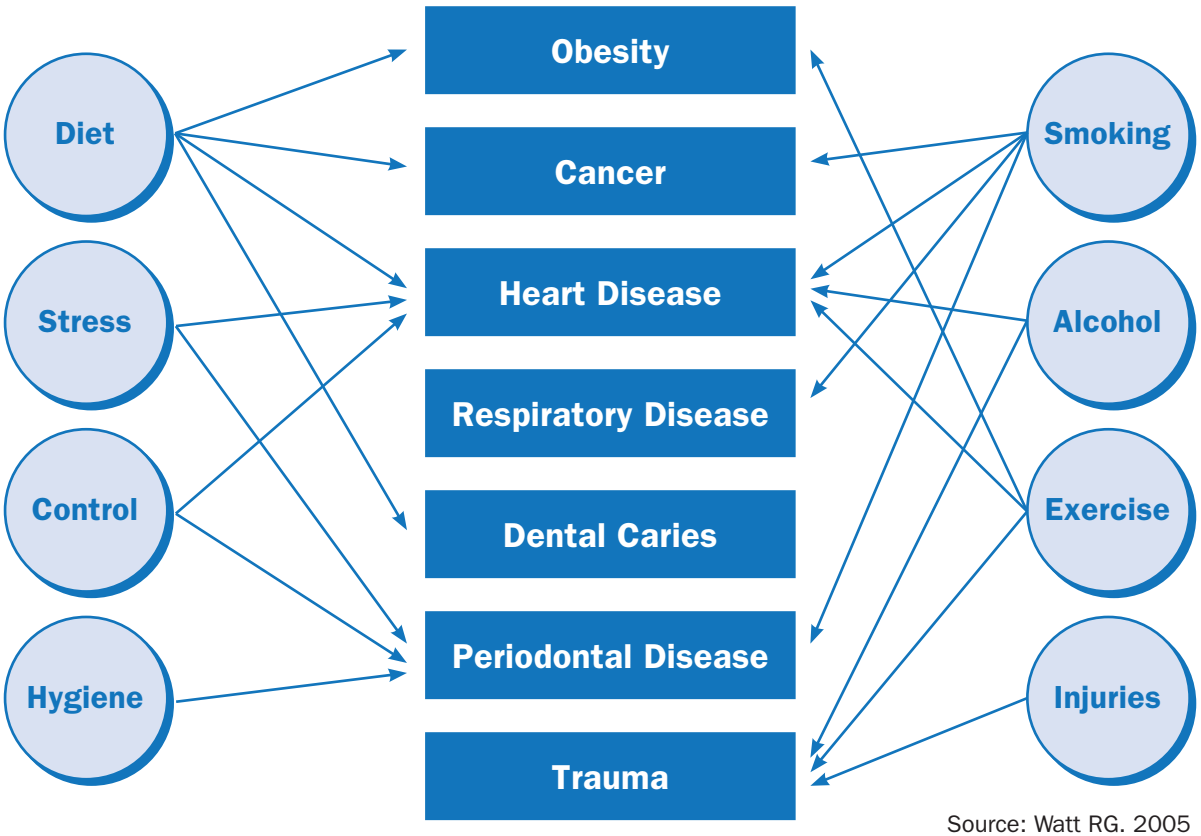
Oral Health Promotion can make a real difference to communities because:

- it reinforces the holistic approach to 'well-being' and encourages people to take responsibility and do more than just avoid disease
- wherever there are people, there are mouths – it is relevant across all sections of society
- positive action for Oral Health is positive action for general health – an improvement in one area will also improve others
- it is a flexible, ongoing process that can be adapted as communities develop and change.

THE COMMON RISK APPROACH

At one time, different diseases and conditions were viewed as separate problems, almost competing with each other for focus and funding: malaria..... overtaken by heart disease..... overtaken by cancer..... overtaken by HIV/AIDS. Healthcare today is much more holistic and health education focuses on the common risk approach.

Dental decay and gum disease are sometimes called the 'silent epidemic' because by the time pain is felt, the condition is usually well advanced – so it is easy to understand why Oral Health doesn't always get a high profile. The situation is slowly improving but it could always do with a louder voice – not because it's more important than other areas of healthcare but because it is equally important.



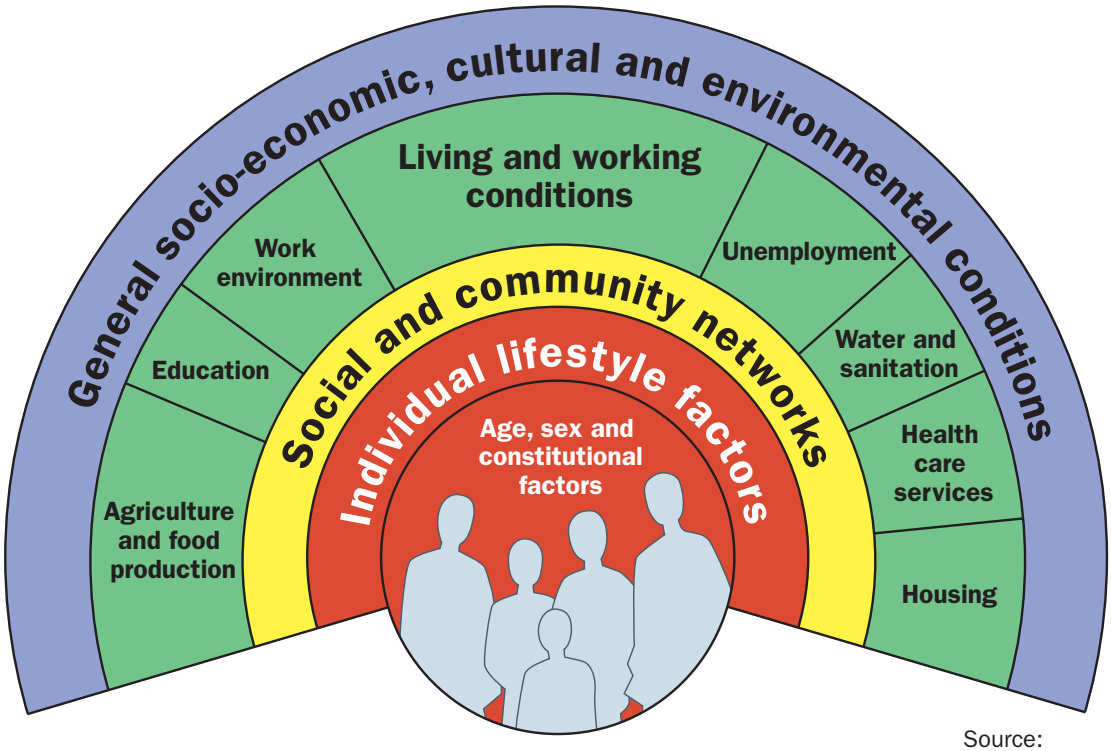
Source: Watt RG. 2005

One glance at the common risk diagram shows how different causes combine and overlap with each other to influence different conditions. Oral Health feeds general health in the same way that the mouth feeds the body – it cannot be treated separately. Equally, Oral Health promoters must reinforce and support general health issues.

ORAL HEALTH IS AN ESSENTIAL: IT IS NOT A LUXURY

Is Oral Health included in your Community Health Programmes? If not, why not? How can you help to change this?

INFLUENCES ON HEALTH



Source:
Dahigren and Whitehead, 1991

Oral Health Promotion needs to take all these influencing factors into account if it is to be properly effective. Otherwise, good work done across one sector may simply be cancelled out by another. Oral Health programmes work best if they operate alongside or through other agencies so that increased awareness can lead to increased positive action.

THE ORAL HEALTH CHALLENGE

The challenge is to prevent and treat oral diseases appropriately at a cost that individuals and communities can afford and can sustain – the best chance of success is to merge Oral Health into systems that are already working well.

Improving the Oral Health of a community can be inspired by individuals but it cannot be sustained unless everyone gets the same basic message: your mouth is your responsibility and you don't need a dentist to keep it clean.

Oral Health, like general health is not a fixed thing and it can change at any time for better or for worse. Try to think of it as an indicator that can offer valuable feedback when regularly checked just like body weight or blood pressure – just like attendance or performance.

WWW.

Visit the World Health Organization website for evidence-based articles: www.who.int/oral_health

A major reason for the lack of success of many Oral Health programmes is the fact that they try to operate separately from the general healthcare structure.

ORAL HEALTH IN THE COMMUNITY

PURSUE PARTNERSHIPS

Where possible, community workers should look to include the promotion of Oral Health within general schemes – we certainly need trained workers to diagnose and treat dental problems but good Oral Health practice can and should be promoted across communities by everyone: health workers, teachers, adults and children.

As long as people continue to suffer dental pain with limited access to dentists, there will always be a demand for specialists to visit communities and provide 'one off' treatment sessions. Oral Health Promotion needs to be at the centre of these to raise awareness and enable improvement to continue when the specialists depart. The right answers come from asking the right questions.

SPEAK UP FOR ORAL HEALTH	
S	**Services** Which health services are already available? Which Oral Health services are available? Are Oral Health services integrated into the general healthcare system? Do people know how to access services? What prevents people from accessing services?
P	**Policy** Is there a Community Public Health policy? Is there an Oral Health policy? If not, why not? If so, what does it cover? Who is responsible for developing Oral Health policy? Who is responsible for making people aware of the policy? Are any cultural practices harmful to Oral Health? If so, can they be changed?
E	**Environment** Does the local environment support good Oral Health? Is the local water fluoridated? Are sanitation facilities adequate? Does the whole community support Oral Health Promotion – in the home, in schools, in the workplace?
A	**Action** What action is already being taken to improve Oral Health? What action needs to be taken? How can this be prioritised and planned? How can this be measured? Who will take responsibility and make sure it happens?
K	**Knowledge & Skills** What do people know about Oral Health – what do they need to know? Knowledge works best when it is applied through skill: Is everyone taught how to keep a clean mouth? Does everyone have the personal skill to do this? Is everyone taught about nutrition and diet? Is Oral Health knowledge being applied? If not, why not? Is good practice being shared and promoted?
SPEAK TO THE PEOPLE WHO SPEAK FOR... AND TO... THE COMMUNITY	

ORAL HEALTH PROMOTION IN SCHOOLS

Schools provide an ideal opportunity for Oral Health Promotion and this will work best if it can be integrated into the school ethos. Involving teachers in the development of Oral Health Promotion policy is a good way to raise and maintain awareness. As a two way process, Oral Health issues can also support the efforts of teachers to lobby for improved school facilities: For example:

a) the decision to have supervised teeth cleaning sessions will require the provision of safe water and sanitation facilities

b) improved safety in playground facilities can significantly reduce dental trauma injuries.

It is also very helpful when recording pupil attendance if teachers keep track of absence due to oral problems and feed this information back to policy makers.

From time to time, it can be good to raise awareness of Oral Health issues through special lessons but it is important not to rely on these as the only means of promoting good practice. Oral Health messages can be reinforced on a regular basis if they are delivered through a range of subjects.

Some examples of how an Oral Health Awareness Project might be approached:

SUBJECT	TOPIC
Basic Maths/ Statistics	- Examine teeth – count present and missing - Use class data to learn basic stats, compile graphs etc. - Share & compare data between classes or between schools
Basic Science	- Anatomy of a tooth - Senses, teeth and taste – sweet, salt, sour, bitter. - Diet – how nutrition works - Dirt – how decay happens
History	- Historical methods of tooth care - Health care in past times – remedies for toothache
Creative Writing & Drama	- Imagine you are a tooth: what's it like to live inside a mouth? - Poetry / Prose – Adjectives for teeth - Tooth fairy story
Languages	- Related words and phrases across different languages e.g. 'I have toothache.' 'I brush my teeth twice a day' - Common phrases relating to teeth – in different languages e.g. The English say: I'd give an eyetooth for that….'
Other	- How to make a mouth cleaning instrument - Supervised cleaning sessions
Art	- Design Oral Health posters for school/local use
www.	- Using the internet, exchange data with other schools for national/international comparisons.

ORAL HEALTH PROMOTION IN THE WORKPLACE

Oral Health Promotion is often neglected in the workplace but it offers positive benefits:

- management can demonstrate a clear commitment to the health and well being of their employees
- work attendance and performance can be enhanced if employees have good Oral Health.

What can a workplace do?

The best way to raise awareness of Oral Health is to include it in health and safety policy. Appropriate action can then be taken for each workplace. For example:

- where food/drink is provided, offer the choice of healthy options e.g. sugar-free or low-sugar products
- discourage smoking and alcohol in the workplace and display information about Oral Health risks in relevant places e.g. rest areas
- make drinking water available to everyone where possible
- include Oral Health in general medical check ups, if offered
- offer an annual session of Oral Health education and/or dental checks.

Evaluating Oral Health Programmes

The most positive way to reinforce the Oral Health message is to prove that it works. Oral Health programmes can feed data and records back into existing systems to clearly demonstrate the value of a broad healthcare approach in the community.

One simple way to monitor the dental health of children in a community/area is to:

See 100 children aged between 6 & 7 years on a yearly basis.

- Look for signs of decay on the first permanent molar (recently erupted)
- Record the % that show decay.

This simple index can also be applied to other age groups helping to build up a picture of the Oral Health within particular populations.

Once data is being collected on a regular basis, comparisons can then be made and questions can be asked to inform future policy and action:

For example:
When does decay first appear?
When does it get worse?
Which factors increase the level of decay?
Which factors help to reduce it?
Why is it worse in one area over another?
Access to fluoridated water?
Why is it better in one school than another?
Is Oral Health taught?
Why has the situation improved or suddenly got worse?

Methodology source:
Batchelor, PA
and Sheiham, A. 2004

This is just one example of how communities can be encouraged to own their Oral Health. It is very easy to train people to conduct this survey and recognise signs of decay. In this way, communities can make informed decisions and develop policy to suit their own experience.

CHAPT 2
page 21

ORAL HEALTH AWARENESS FOR PARENTS

Community health worker showing how to clean teeth

During Pregnancy

Hormone changes make expectant mothers susceptible to gum problems. Guidance about the importance of Oral Health and how to recognise problems must be included in pre-natal education programmes.

Pregnant mothers and young children need good, balanced nutrition to build and maintain strong, healthy teeth. Always check the lips, gums and teeth during routine health examinations.

For primary teeth to grow strong, mother and baby must stay healthy

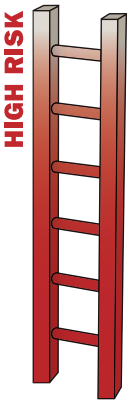
Pregnant mothers are advised to:

- eat a good balanced diet, low content of refined sugar
- be very aware of their oral hygiene
- avoid the antibiotic tetracycline (for young children also)

! WARNING !

TETRACYCLINE *is sometimes used externally as a mouthwash to relieve discomfort of ulcers.* ***If taken internally while teeth are being formed it may cause their permanent discolouration.***

- *Avoid giving to pregnant and breast feeding women – can affect primary teeth in the unborn child.*
- *Avoid giving to children under 12 – permanent teeth are still being formed.*
- *Avoid giving to adults for long term use.*



CHILDREN TEETHING

CHAPT 7 page 113

Children often get irritable when their primary teeth are pushing through. It can be difficult for parents to know if the problem is to do with teething or with something else. Teething periods may be noticed because of dribbling, diarrhoea and excessive chewing. In some communities, the unkind practice of pulling out primary teeth buds claims to avoid these discomforts.

This practice should always be discouraged.

Teething symptoms can be eased by giving the child something safe to chew on, such as a teething ring or rolled piece of clean cloth (chilled first, if ice is available).

For primary teeth to stay strong, mothers are advised to:

- continue breast feeding – never give juice or sweet drinks from a bottle
- wipe the baby's teeth with a clean cloth after feeding.

The best way to get children used to cleaning their teeth is by firstly doing it for them, after eating, as a regular routine. When they are old enough (usually school age) encourage them to take care of their own teeth but continue to check that they are doing so properly. Children should be discouraged from eating or swallowing toothpaste.

ORAL HEALTH HABITS & SKILLS

HEALTHY HABITS

EAT GOOD HEALTHY FOOD
The best food is food that you grow or raise yourself
Avoid processed food – usually high in refined sugar

BREAST IS BEST
Breast-milk is nutritious and provides natural immunity but seek advice for mothers who are HIV positive

CLEAN YOUR MOUTH EVERY DAY
After breakfast and before bed

PROTECT YOUR MOUTH
Many dental traumas are avoidable
When travelling by car – wear a seat belt
When playing contact sports – wear a mouth guard

HARMFUL HABITS

FIZZY DRINKS
Especially those with added sugar can quickly rot teeth

SWEETENING MILK OR TEA
Learn to enjoy unsweetened drinks

ALCOHOL – excessive use can lead to oral cancers

SMOKING AND CHEWING HABITS
Increase the risk of oral cancers and gum disease (e.g. tobacco, betel nut, areca nut)

USING TEETH TO OPEN THINGS
Don't take risks with your teeth – they are designed to tear food, nothing else

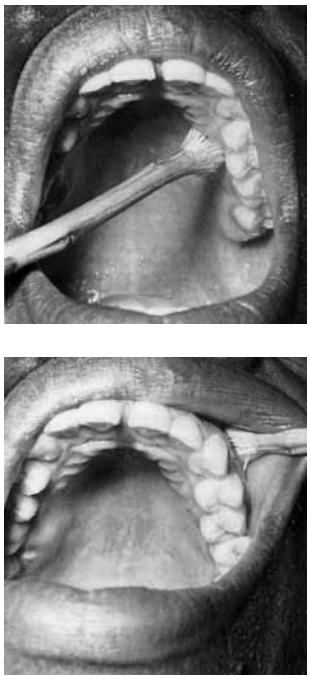
Use local examples……. What happens where you are?

ORAL HEALTH SKILLS – KEEPING A CLEAN MOUTH

Many people consider a toothbrush, toothpaste and water to be the basic tools of oral hygiene – while these are helpful, they are not essential. Plaque is a very soft substance so thorough, careful cleaning is better than heavy scrubbing.

You can make a cleaning instrument from various materials
e.g: a small branch – young bamboo shoots.
Cut a piece that is green & soft. Chew one end like a brush.
Shape the other end to clean between the teeth.

Using coconut fibre
Twist the fibre into a handle and leave the ends free like a brush.
Rub it between your fingers to shake away the loose strands.
Use the ends to clean the teeth.



Using a stick brush

CLEANING AGENTS

WHO Oral Care Unit says that fluoride toothpaste is the ideal cleaning agent. Research into its effectiveness in helping to prevent dental decay shows that the two most important factors are frequency of cleaning and rinsing habits:

- Twice daily cleaning is recommended
- No rinsing or rinsing only once is preferred – spit out any excess.

It is recommended that only a 'pea sized' amount of paste be used (about 0.5g).

If you do not have toothpaste
Use a small amount of charcoal or salt, ground into a powder. Dip your cleaning instrument into boiled water (after it has cooled), then onto the powder but use this carefully. It is really the gentle action of rotating the fibres around the teeth that will loosen food and plaque so even doing this with water or saliva is effective.

CLEANING ROUTINES

Dirty mouth

Clean mouth

Be gentle but thorough – don't scrub teeth & gums.

Change your cleaning instrument regularly and always rinse it out after use.

Plaque is not easy to see but it is always present in the mouth – because teeth look clean does not mean that they are plaque free. It is more important to clean everywhere thoroughly than to worry about using particular methods but the following technique will work well in most cases.

1. Start with fibres against the teeth and gums at an angle

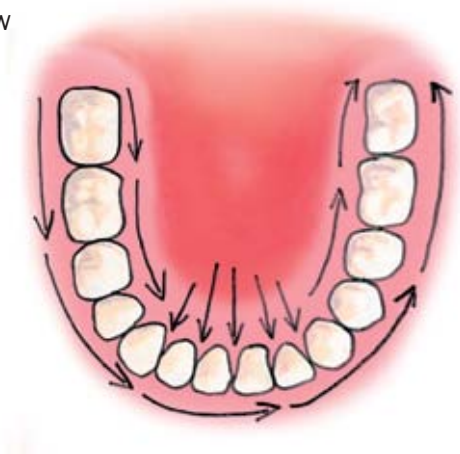
2. Rotate fibres gently but firmly in between teeth and around the necks

3. Clean behind the teeth

4. and along the biting surfaces.

Develop your own cleaning routine e.g.

- start at the back of the lower jaw work around outer surfaces
- then the inner surfaces
- repeat this on the upper teeth
- clean all biting surfaces of the top and lower teeth.
- spit out excess and check all areas with the tongue – if any areas still feel coated, clean them again.



A cleaning instrument should have medium fibres:

- too soft and it will not remove anything
- too hard and it will damage gums and teeth

DO NOT SHARE – GET YOUR OWN

CHAPTER 4:
CROSS INFECTION CONTROL

This section will outline the basics of Cross Infection Control (CIC) and includes:
- BASIC RULES OF CIC
- METHODS OF STERILISATION AND DISINFECTION
- CHECKLIST FOR DENTAL WORKERS

CROSS INFECTION CONTROL (CIC)

In terms of disease and infection, there is no such thing for a health worker as a 'safe' patient and there is no such thing for a patient as a 'safe' health worker. But it is possible to establish a safe clinic and this should be your aim. Everyone must assume that everyone else 'might' be infected with any number of diseases.

The mouth is a natural home for germs – full of microbes, some of which can be harmful. Instruments and equipment used in dental treatment become contaminated whenever they are used. If no action is taken to clean them, this contamination will be passed on from patient to patient and from patient to staff and again from staff to patients – this chain reaction is known as Cross Infection.

In order to prevent cross infection, all microbes, bacteria, spores, fungi or viruses on contaminated instruments must be killed through sterilisation, immediately after treatment. They must then be kept sterile before use on the next patient.

Not having... and
Not thinking...
are NOT acceptable excuses.

STERILISATION IS NOT AS SIMPLE AS IT MAY SEEM

Even in the most sophisticated setting with hi-tech equipment and defined procedures, one momentary lapse or one shortcut could result in one unseen germ being transferred. The effects will not be immediately obvious because germs don't announce themselves and even if the source of an infection is eventually tracked down, this won't help those already affected.

There is no point in our listing all the latest advice about cross infection control if this depends upon equipment and supplies you may not have. Equally, you must never think that because your setting may be different, the basic principles do not apply to you.

You will need to strike the right balance between proven ideals and your own reality:

What are the risks?
What are the alternatives?
What works best for your situation?
What is the highest level of safety that you can achieve?

Even with basic materials like soap & water and household bleach, effective CIC can be achieved. Give careful thought to methods of sterilisation, storage and thorough cleaning of work surfaces. Most importantly, educate others – any system can only be as good as the people who carry it out.

CROSS INFECTION CONTROL BASIC RULES

Prevention is the purpose of infection control. Therefore, before receiving patients you must ensure that strict procedures are in place to maintain control. The basic rules of Cross Infection Control (CIC) relate to:

PEOPLE	PLACE	EQUIPMENT	WASTE
patient staff	surgery or setting	instruments clerical items	clinical waste, disposable items

PEOPLE

- Remove all jewellery including watches
- Ensure that your fingernails are clean and cut short
- Wash hands* with soap, before and after patient contact
- Wear gloves, protective eyeglasses, facemask & apron
- Wear short-sleeved clothing – change this when soiled and do not wear it outside the surgery area
- Wear shoes that protect the toes from dropped instruments.

PLACE

- Establish a 'clean zone' and a 'contaminated zone' within the surgery
- Ensure personnel in one area do not cross over into the other.

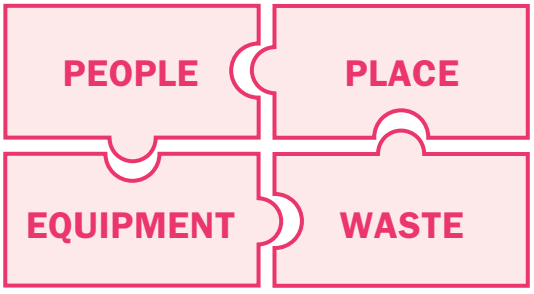
STERILISED ZONE (CLEAN)	CONTAMINATED ZONE (DIRTY)
Preparation of instruments	Chair-side area
Preparation of materials	Treatment area
Hand washing area	Washing area for used instruments
Clerical area – note taking etc.	Disposal area for used materials

EQUIPMENT

- Instruments should be cleaned, scrubbed and rinsed under water and then dried before sterilisation
- Any instrument with traces of blood, however small, must be scrubbed and then sterilised
- Clean equipment needs to be laid out in advance on a clean surface using sterile tweezers
- Keep patient record cards/files away from treatment areas.

WASTE

- Two separate containers are required for:
  - 'Sharps' e.g. needles and sharp items. Must be puncture proof
  - 'Clinical waste' e.g. used gloves, paper towels, extracted teeth etc.
- Each container should be clearly labelled and disposed of carefully.



* Wash Hands in accordance with standard hospital procedures

METHODS OF STERILISATION

In order to prevent cross infection it is essential to kill all microbes on all infected instruments. This process is known as sterilisation and should be the aim in dental settings BUT putting instruments through a heat process to kill germs is only half the battle – they must also be kept sterile until their next use.

Ideally, instruments should be:

1. scrubbed with soap detergent and warm water (below 45°C), then rinsed
2. then sterilised in an autoclave
3. then dried in the autoclave
4. then removed using sterile forceps
5. then placed into sterile bags and sealed

If you can satisfy 1 & 2 but do not have an autoclave that also dries the instruments, they will have to be dried in the air and could then become re-contaminated. Keep instruments covered while they are air drying or dry with a disposable non-linting cloth (eg gauze) and then pack immediately and seal.

Or if you go through steps 1-3 of the process but neglect to use sterile forceps when removing or bagging the instruments, they could become re-contaminated.

3 STAGES OF STERILISATION:
SCRUBBING + STEAMING + STORAGE

So in theory, any procedure that does not complete the 5 steps above, is technically not sterilisation, rather it should only be termed as **disinfection**.

METHODS OF DISINFECTION

The process of Disinfection refers to any method of cleaning that kills only a limited number of microbes. A variety of chemicals known as disinfectants can be used. Disinfectant solutions must always be made to the correct strength. They have a limited time effect so should be freshly made up for each use.

All viruses are killed just before boiling point but some spores e.g. Tetanus, would only die if they were boiled for 2 weeks!

Most disinfectants do not kill spores and some are unreliable against viruses so they should only be used for items that cannot be sterilised by steam.

The main disadvantage of disinfectants is that they are of a poisonous nature with an unpleasant smell and taste, so instruments taken from a disinfectant solution must be rinsed thoroughly (ideally in sterile water) and dried before re-use.

METHODS OF STERILISATION / DISINFECTION

METHOD	TIMINGS / SETTINGS	SUITABLE FOR
Electric Autoclave	3 mins at 134°C 10 mins at 126°C	All metallic instruments
Pressure Cooker for electric/wood/charcoal fires	120 °C for 20 minutes Must use a rack inside so instruments sit above water level to get steam. Place weight on top of lid so when it lifts with steam, the temperature is correct.	All metallic instruments Re-usable gloves and cloths
Saucepan with lid	Boiling for at least 30 minutes (Do not add instruments during each cycle)	Kills all bacteria and HIV
Dry Heat Sterilisers e.g. oven	160°C for at least two hours 170°C for at least 1 hour 180°C for at least 30 mins 250°C for at least 30 mins	Only 250°C will destroy endotoxins. Process is very lengthy with heating up + cooling time

DISINFECTANT SOLUTIONS

METHOD	SOLUTIONS	SUITABLE FOR
Sodium Hypochlorite e.g. domestic bleach	0.5% concentration soak for 30 mins	Soaking iInstruments – but they must be thoroughly washed with soap and water first and rinsed in safe drinking water. After soaking – wipe each instrument with alcohol to remove film of bleach.
Potassium Persulphate (Virkon)	1% concentration soak for 10 mins	
Effective against spores, Hepatitis B and AIDS viruses. Good overall disinfectant for work surfaces and items that cannot be heat sterilised. Must be used with care as it can bleach clothing and corrode metal.		

BEST METHOD FOR CLEANING SURFACES

According to experts the best method for cleaning surfaces is soap detergent and warm water. Do not use hot water, because water above 45°C causes protein, blood and saliva to stick to surfaces.

PROTECTIVE WEAR

1ST CHOICE		ALTERNATIVES	CLEANING OPTIONS
GLOVES	Disposable – single use only	Plastic bags can be used but ensure there are no holes	Not applicable
	Kitchen/rubber gloves	If being re-used and cleaned – inflate first to ensure no holes	Clean in detergent Wrap in paper Pressure cook x 20 mins
MASK	Disposable – paper		Not applicable
	Re-usable cotton cloth		Clean in detergent Wrap in paper Pressure cook x 20 mins
GLASSES Operator:	Glasses with side protectors or visor	Any glasses or goggles that allow clear vision	70% alcohol solution
Patient:	Glasses with side protection	Any type of glasses or goggles to protect against light, instruments, debris etc	70% alcohol solution
BIB	Patient: Disposable paper or plastic – single use only	Any paper or plastic sheet but single use only	Not applicable
CLOTHING	Operator/Nurse: Short sleeved uniform	Keep uniform separate from everyday wear	Wash in boiling water and detergent Dry in the sun

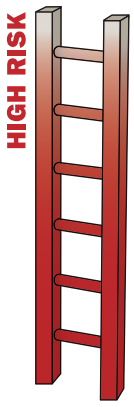
STERILISATION OF NEEDLES

While steam can kill all microbes, it is not a safe method for syringe needles.

The space inside a needle is too small to allow for complete penetration of steam into clotted blood remnants.

Even the smallest trace of infected blood in the cavity of a used needle can transmit the hepatitis B virus from patient to patient.

Remember syringe needles are single use only.



! WARNING !

Used needles must NEVER be re-used on another patient.

METHODS OF STERILISATION & VIRUSES ARE CONSTANTLY BEING UPDATED

STAY SAFE – STAY INFORMED

www.who.int/en/ search under ‘cross infection control’

CHECKLIST FOR DENTAL WORKERS

At the start of a session, before any patients are treated
- Prepare autoclave or steriliser unit
- Define the clean and contaminated areas ready for use
- Fresh supply of soap solution and paper towels.

Before every patient is treated
- Wash hands
- Cover any skin cuts with waterproof dressing
- Put on fresh gloves/mask where possible
- Wipe down work surfaces, chair and head rest.

During treatment
- Wear protective clothing, mask, gloves, glasses
- Change glove if it gets torn or punctured
- Provide bib and eye protection for patient
- Provide water rinse and spittoon for patients.

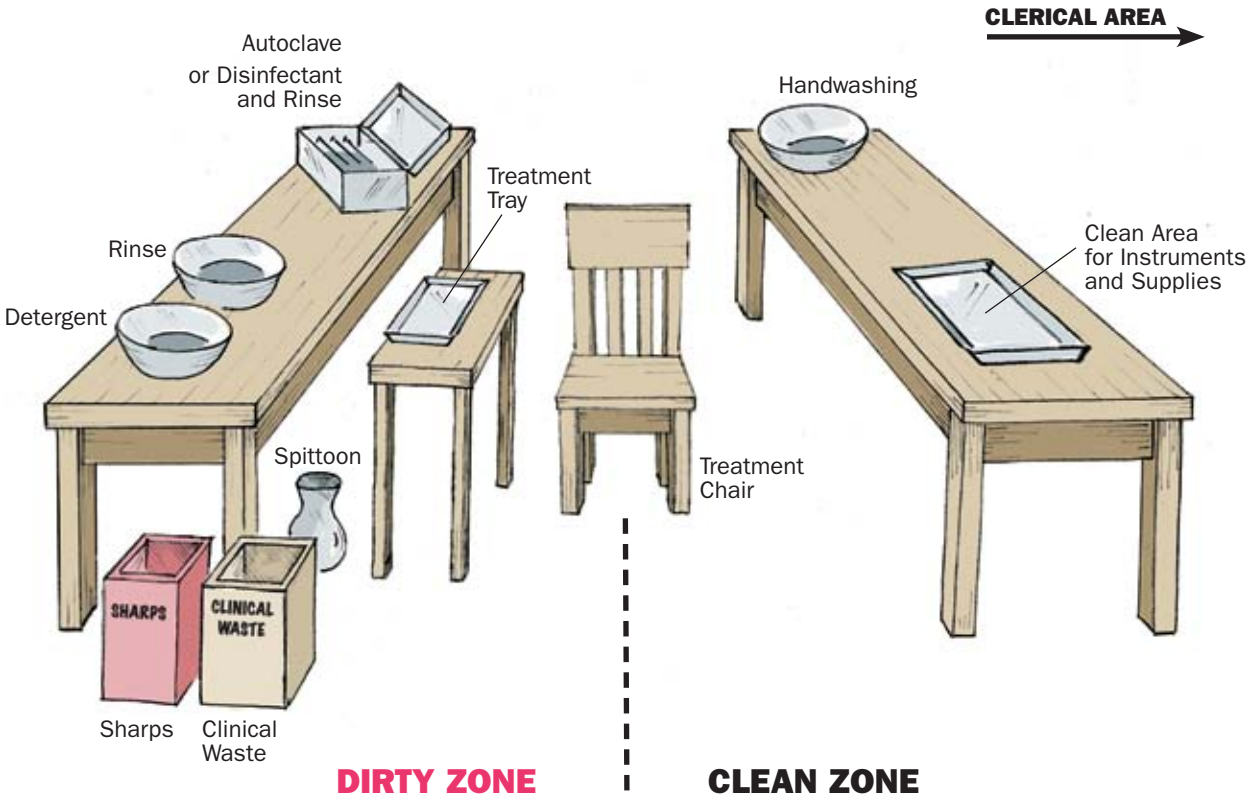
After each patient is treated
- Clean/scrub all instruments first, then sterilise
- Dispose of waste safely in appropriate containers
- Clean and disinfect contaminated work surfaces
- Flush, clean and disinfect spittoon
- Prepare for next patient.

At the end of a session
- Separate waste and remove it from surgery for safe disposal
- Clean and disinfect all work surfaces and chair
- Drain autoclave/steriliser and dispose of water safely
- Flush out, disinfect and cover spittoon.

Waste disposal
- Always dispose of waste away from people, animals and crops
- Dispose of sharps and clinical waste by burning in a container
- Bury the residue 2-5 metres down into soil.

Storage
- When handling sterile instruments, wear sterile gloves and/or use sterile forceps to avoid recontamination
- Store dried instruments inside a clean, covered pan
- Keep all instruments and supplies in a secure place
- Regularly check the expiry dates of all consumable supplies.

EXAMPLE OF SURGERY LAYOUT



Sterilisation/Disinfection takes time –
so you will need to have more than one set of instruments to avoid a long delay between patients.

Ideally 3 of everything is best then you can rotate them:
- one set in use
- one set in readiness
- one set in the sterilising process.

Good Practice takes time
The most important thing is to establish a strict routine to suit your own environment.

Review this regularly and ensure that everyone is aware of it and sticks to it.

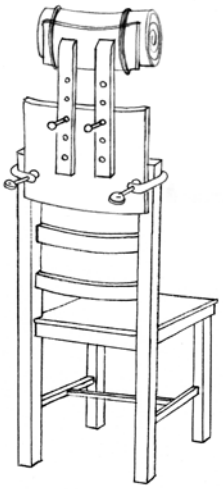
DON'T CUT CORNERS – BE SAFE

CHAPTER 5:
EXAMINATION AND DIAGNOSIS

This section will outline the process of conducting a dental examination and includes:

- PREPARING TO SEE PATIENTS
- RECORD KEEPING: MEDICAL HISTORY & CHARTING
- DIAGNOSING A SPECIFIC PROBLEM
- PRESCRIBING MEDICATION
- PRACTICE MANAGEMENT

PREPARING TO SEE PATIENTS



WHERE TO EXAMINE PATIENTS

The inside of the mouth is dark so firstly you need a light, bright place.
Outside – use the sun Inside – use a window

Use a small mouth mirror to reflect light onto the teeth and gums. If this is not sufficient, set up a lamp or arrange for someone to hold one for you.

Some people like to use a head lamp (small torch attached to headband) but always make sure this is firmly fixed.

Use a chair with a strong back and a head-rest support where available. To make your own seat – clamp a wide plank of wood to the back of a chair and add a rolled up towel for support. Alternatively ask the patient to lie flat on a table.

INSTRUMENTS

Two instruments are enough to carry out a basic examination:

- A sharp **probe** to feel for cavities and check for tartar under the gum.
- A small **mouth mirror** to see around the gums and teeth.

Keep the instruments on a tray or paper towel, close to the patient chair. The whole set can then easily be carried away for sterilisation at the end of each treatment.

If you are seeing several patients you will need several sets of instruments because sterilisation takes time.

PREPARE THE CLEAN ZONE

Before the patient comes in, prepare the **Clean Zone** and then keep it clean.

CHAPT 4
pages
38-39

RECORD KEEPING: MEDICAL HISTORY & CHARTING

EXAMINATION PROCESS

The examination process begins as the patient enters your surgery area, long before you actually look into their mouth. Train yourself to observe as much as possible and make a mental note of:

- approximate age
- pallor of skin
- anything unusual
- walk/mobility/gait
- any facial swelling or asymmetry

Invite the patient to sit in the chair making sure that they are comfortable and sitting upright with their neck supported.

MEDICAL HISTORY

Ideally, in advance of seeing the patient, ask an assistant to collect the following information on a record sheet/card:

Name: Address/Location: Sex: M/F Age/Date of Birth:

When taking patient details, always check that you have their permission and assure them of confidentiality.

Begin by introducing yourself and by using the patient's name. This will help to put them at ease and will also serve as a double check that the patient and the name on the record card are the same.

Ask the patient why they have come and then run through a brief medical history.

page 117

A sample record card is available at the end of the manual which you can copy or use for reference to design your own. The basic medical history questions that should be asked are:

- Is there any history of serious medical illness?
- Do you have any infections in the blood?
- Do you have any allergies?
- Do you have a heart condition or breathing problems e.g. asthma?
- Are you taking any medication?
- If the patient is female – ask if they may be pregnant
- Do you smoke? If so, how many?
- Other habits: e.g. Alcohol, tobacco chewing etc.

page 114

Managing medical conditions in the dental setting

TALKING WITH PATIENT

You need to know why the patient has come to see you before you check the mouth. Don't dive straight in before carrying out a general exam otherwise you may miss something significant.

Here is a typical example of dialogue between dentist and patient after the medical history has been taken.

DENTIST	PATIENT
"Joseph, how is your health generally?"	*"Good"*
"Have you seen a dental worker before?"	*"No"*
"And what's the problem?"	*"Tooth hurts"*
"Can you show me where the pain is?"	*"Down here on the right"*
"How long have you had the pain?"	*"About a week"*
"Did it come on suddenly or did anything happen to cause it?"	*"Just came on one night"*
"Does anything make it better or worse – like eating or drinking – hot or cold?"	*"Hurts when I bite on it and aches all the time"*
"Well first, I'll have a look at your mouth and do a general examination – we'll keep a record of your teeth and then I can have a look at the problem."	
"Is that okay Joseph?"	*"Yes, that's ok"*

NOW WASH YOUR HANDS –
let the patient see you do this if possible

DENTIST	PATIENT
Put on gloves and mask Put on eye protectors	Put on eye protectors Put on bib / towel / tissue
You need to be protected in case of saliva or blood spraying from the patient & from instruments in case the patient knocks your hand	The patient needs to be protected in case of dropped instruments

A complete dental examination should include the following:

- Soft tissue check of mouth, lips, cheek and neck
- Screening and check for periodontal disease
- Basic charting of teeth – Decayed / Missing / Filled

Before you look at teeth, check the face for any obvious signs of swelling and/or a raise in temperature.

(In Joseph's case, there is no facial swelling or temperature rise.)

DENTIST	PATIENT
"Right then Joseph, if you can open your mouth, I'll just check the soft tissue areas first...."	

Are there any sores?

- Check inside the mouth including lips and cheeks.
- Check under the tongue and along its sides for unusual colour, swellings, etc.

(Joseph has no swellings or sores)

DENTIST	PATIENT
"That all looks fine – now I'll check your gums"	

CHAPT 2 page 17

Gums – are they in good condition?
How would you grade the condition of the gums from Healthy to Grade 3?

(Joseph's gums are firm with no sign of bleeding on pressure. The surface is stippled with minimal levels of plaque but the gum margin around the Lower Right 6 is inflamed and some pus is present.)

DENTIST	PATIENT
"Your oral hygiene is good Joseph – the gums are generally healthy but there is a little area of redness where you said you feel pain."	*"I haven't been cleaning round there much because the tooth hurts"*
"Ok. Let's have a look at all your teeth and then we can make a record of how everything is. Open wide again please."	

Now check the teeth

- In general are they in good condition?
- Are any of the teeth loose?
- Are new teeth coming through?
- Are there any spots of decay or unusual discolouration?

ALWAYS:

- *Let the patient know what you are doing*
- *Keep them informed about what you find*
- *Let the patient close their mouth when you are not examining, so that they can easily speak to you*
- *Praise the patient if they are maintaining good oral hygiene*

RECORDING WHAT YOU SEE – BASIC CHARTING

WHY CHARTING IS IMPORTANT

Basic charting is useful for future reference when seeing patients again. It also helps with measuring the oral health of local communities and regions. If dental records show high incidence of certain problems or of good oral health, they can be used to support planning, education and treatment programmes.

Records are histories – keep them and value them.

A dental chart is a diagram representing the teeth. In its most simple form it can be used to record if teeth are Decayed, Missing or Filled and this data can count towards an International Public Health monitor known as the DMF index.

Basic charting can be done in different ways and there are several systems. It really doesn't matter where you start or how you chart as long as you do it in a consistent way. This will help assistants and other dental workers to easily access and record information and will ensure that your records provide reliable and measurable data.

HOW TO CHART

For the purpose of charting, we view the mouth as four sections or **quadrants** by: dividing the mouth in half = **Upper** and **Lower** jaw
and then in half again = patient's **Right** and **Left** side

UR - Upper Right UL - Upper Left

LR - Lower Right LL - Lower Left

Remember that Right and Left should refer to the patient – as they will usually sit facing the dentist – the chart therefore reads as a mirror image.

Always start numbering in the middle and work away from the centre.

QUADRANTS

To identify each quadrant within the mouth when making notes, draw a right angle from the centre of the cross and write in the number of the relevant tooth:

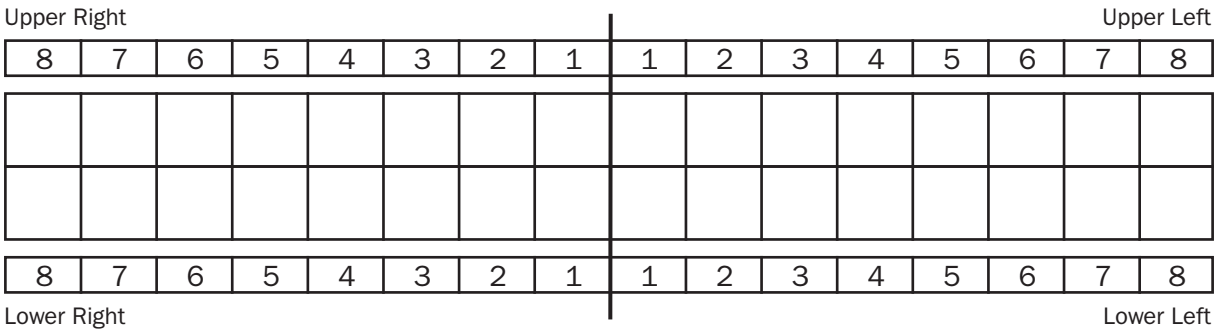
Refers to the Upper Right 4 — **4** | **6** — Refers to the Upper Left 6

Refers to the Lower Right 3 — **3** | **7** — Refers to the Lower Left 7

Alternatively you can refer to each quadrant using capital letters: UR, UL, LR, LL

If a patient is returning on a regular basis for a course of treatment (e.g. several weekly visits), there's no need to do a full oral exam each time. Ideally, try to chart the condition of the teeth and gums yearly.

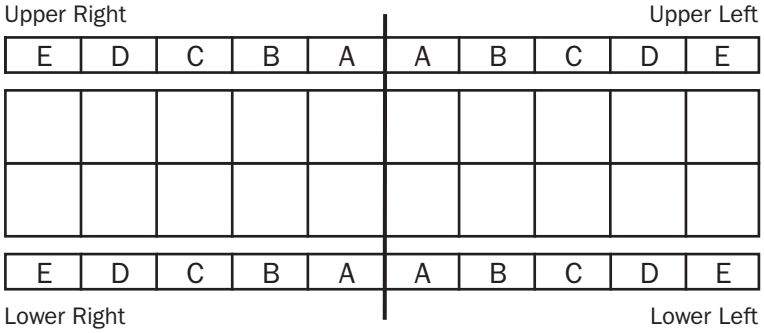
CHART FOR ADULT TEETH



Adult / **Permanent Teeth** in each section are numbered 1-8

Central Incisor	1	2nd Premolar	5
Lateral Incisor	2	1st Molar	6
Canine	3	2nd Molar	7
1st Premolar	4	3rd Molar	8

BASIC CHART FOR CHILD



Children's **Primary Teeth** in each section are lettered A B C D E

Central Incisor	A
Lateral Incisor	B
Canine	C
1st Molar	D
2nd Molar	E

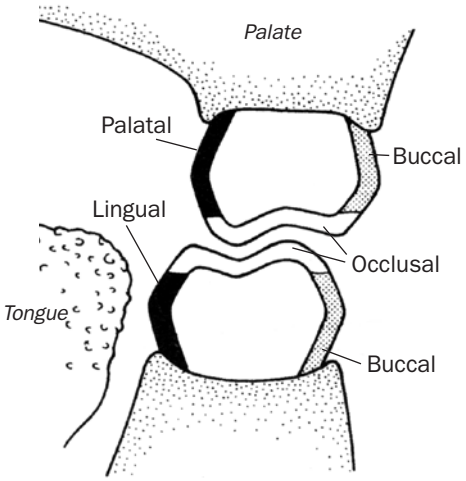
If possible, try to use the same record card for several visits so that you can see at a glance how the oral health of a patient is progressing.

You can re-date the record card and make a note of any changes by adding extra boxes on top of the first chart.

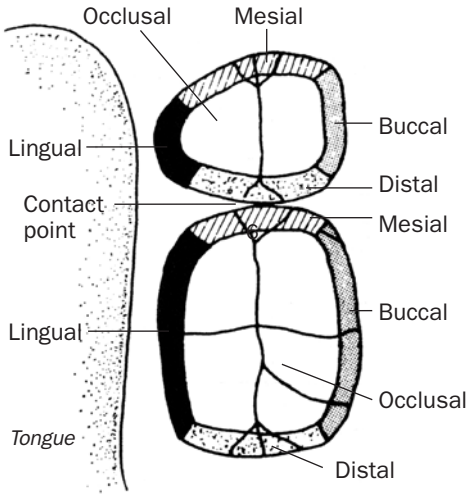
HOW TO CHART DIFFERENT SURFACES

Each tooth has a back and a front, a left and right side and a biting surface. However, because the teeth lie in a semi circle, using terms such as left and right or front and back can be confusing – for example, where is the front of a back tooth?

The following terms, once learnt, enable consistent charting. They derive from Latin names and help to position each tooth in relation to which part of the mouth it faces.



Cross section of molar teeth



Adjoining teeth viewed from above

Do not be put off by this 'dental language'. The terms sound complicated at first but are quickly learnt to provide a clear shorthand for consistent charting. This is important in settings with frequent staff turnover.

Tooth Surfaces

Buccal
Outer surfaces of molars and pre-molars, face towards the cheeks

Lingual
Inside surfaces of all lower teeth, face towards the tongue

Palatal
Inside surfaces of all upper teeth, face towards the palate

Labial
The outer surfaces of canines and incisors face towards the lips

Occlusal
The biting surface of molars and premolars

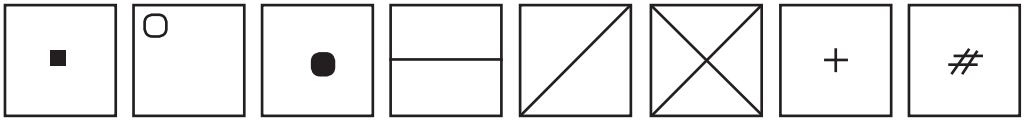
Incisal Edge
The biting surface of incisors and canines

Mesial
Surfaces between adjoining teeth that face towards the front

Distal
Surfaces between adjoining teeth that face towards the back

BASIC SYMBOLS USED FOR CHARTING TEETH

A simple square is adequate to represent the tooth for basic charting.



When charting decay, cavities or fillings, try to place the symbol to show which tooth surface is affected. This will help you to identify and keep track of problems. In the above example, the tooth with a filling present shows it as being in the centre, on the occlusal (biting) surface.

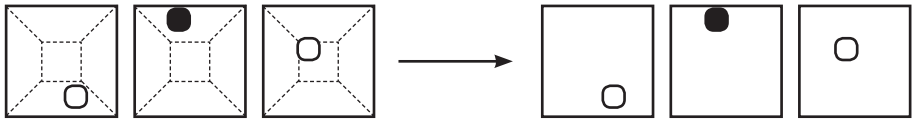
Printed Dental Record Cards

If you can obtain printed dental record cards, they usually show the teeth with dotted lines. This gives a 3 dimensional (3D) view as if you were looking at the tooth from the biting point. Molars and Premolars are shown with a square at the centre to represent the broad biting surface. Canines and incisors have a line at the centre to represent their thin cutting edge.

The examples below show how the same notation can be represented on a 3D chart or by using a simple square.

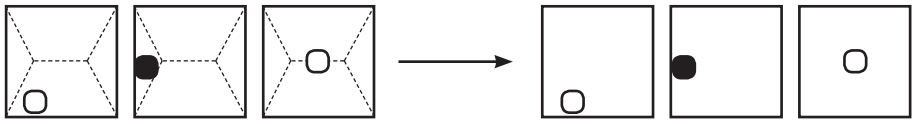
Upper Right Quadrant

Molar/Premolars



UR 6 Palatal Cavity	**UR 5** Buccal Filling	**UR 4** Occlusal Cavity	**UR 6** Palatal Cavity	**UR 5** Buccal Filling	**UR 4** Occlusal Cavity

Canines/Incisors



UR 3 Labial Cavity	**UR 2** Distal Filling	**UR 1** Incisal Cavity	**UR 3** Labial Cavity	**UR 2** Distal Filling	**UR 1** Incisal Cavity

SHORTHAND TERMS FOR PATIENT NOTES

PC	Patient Complained of…	TTP	Tender to Percussion
⌝	Lower Right Quadrant	TCA	To come again
⌞	Upper Left Quadrant	XLA	Extract under Local Anaesthetic
⌜	Lower Left Quadrant	OH	Oral Hygiene
⌟	Upper Right Quadrant	R x	To Prescribe

Develop other shorthand as required but make sure everyone understands it.

Time references can be shown in days (7), weeks (52) or months (12)

e.g. 2/7 = 2 days
1/52 = 1 week
6/12 = 6 months

If prescribing medication, the frequency of dose can be shown as

e.g. 4 x daily = 4 times a day
3 x daily x 5 = 3 times a day for 5 days

SIMPLE PERIO CHARTING

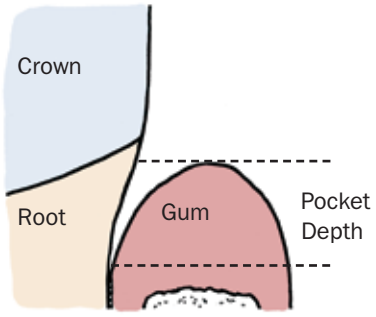
The World Health Organisation recommends a simple chart for recording gum conditions. It is called the Community Periodontal Index of Treatment Needs (CPITN). The mouth is divided into six areas known as **sextants**.

Upper Back Right Sextant Teeth: 8 7 6 5 4	**Front Upper Sextant** Teeth: 3 2 1 - 1 2 3	**Upper Back Left Sextant** Teeth: 4 5 6 7 8
Lower Back Right Sextant Teeth: 8 7 6 5 4	**Front Lower Sextant** Teeth: 3 2 1 - 1 2 3	**Lower Back Left Sextant** Teeth: 4 5 6 7 8

MEASURING POCKET DEPTHS

Where pockets have formed around the teeth these can be measured for depth using a perio probe to assess the extent of the problem and track future progress.

GRADE	POCKET DEPTH PERIO PROBE INSERTS	TREATMENT REQUIRED	USING A DENTAL PROBE*
1	1-3mm	scaling	If ⅓rd inserts
2	3.5 - 5.5mm	root planing	⅓rd to ⅔rd inserts
3	6mm or more	root planing surgery and/or extraction	⅔rd or more inserts



* If you don't have a mm perio probe, use a dental probe instead – blunt the end first to avoid damage.

A dental probe is usually 10mm long – check first and then adjust this guide if yours differs.

CHAPT 2 page 17

Gum condition can be graded.

Progress can then be tracked on a patient record card like this:

Perio grading by sextant

1st Sept 2016

2	**1**	**0**
1	**2**	**1**

5th Jan 2017

1	**0**	**0**
1	**1**	**0**

MAKING A DIAGNOSIS

Toothache is a very general term – there are many possible causes for each problem and patients do not always describe pain in the same way – so you need to build up a picture of the problem by asking questions and checking for tenderness.

Joseph has already said that he has:

- *pain in a tooth on the lower right*
- *it came on about a week ago*
- *it hurts when bitten on and aches continuously*
- *but is not especially sensitive to hot or cold.*

EXAMINE THE AREA

Touching the sore area is a good way to find out how serious the problem is. Push gently against each tooth in the Lower Right quadrant to see if any of the teeth are loose. In this case, all are firm except for the LR6, which has slight movement.

Now use the blunt end of an instrument e.g. mouth mirror, to gently tap against a few of the teeth including the one you suspect:

Joseph indicates pain when you tap the Lower Right 6 and confirms it is this tooth that hurts, when you ask him.

Tapping a tooth in this way is known as 'percussion of the tooth' and if the patient feels pain, it can be recorded as Tender To Percussion (TTP). This tooth shows obvious sign of decay – you can clearly see a hole and the tooth is slightly mobile. You ask Joseph about his habits and he tells you that he loves fizzy drinks and cakes. He is also a smoker (10 a day).

DIAGNOSIS

YOU KNOW THAT:	BECAUSE:
The tooth is badly decayed	There is a clear cavity
The nerve is dead	The tooth is no longer sensitive to hot and cold
There is an infection/abscess	The tooth is tender to percussion The tooth is mobile There is pus present
The general gum condition is good	Infection only visible around decayed tooth

You would now explain your findings to Joseph and recommend treatment. He requires an extraction of the LR6 under local anaesthetic.

OTHER THINGS TO LOOK FOR

When a patient presents with 'toothache' you should always consider a number of possibilities and you will learn with time and practice to recognise how different conditions can have similar symptoms. The following guide may be helpful as a reference for diagnosing toothache.

SYMPTOMS	POSSIBLE DIAGNOSIS
It hurts only after eating or drinking. You can see a cavity but the tooth does not hurt when you tap it	a cavity
Eating and drinking hurts. You can see that part of a filling has fallen out or is cracked and loose	cavity under an old filling
Tooth hurts when chewing food and may hurt when tapped but you cannot see a cavity and the tooth looks healthy	tartar between the teeth
Tooth hurts all the time, even when trying to sleep. Also hurts when you tap it and may feel a bit loose. May have pus discharge from surrounding gum	an abscess
Tooth hurts when breathing in cold air. Tooth recently knocked	cracked or broken tooth
Patient cannot open mouth properly. Steady pain and a bad taste coming from the back of the mouth	a new tooth growing in
Several top back teeth hurt when you tap them – recently had bad cold, can only breathe through the mouth	infected sinus

Remember:

The most common things occur most commonly.

Let's presume that you extract Joseph's tooth under local anaesthetic and all appears to be well. You would tell him to return if he has a problem otherwise ask to see him for a check up in twelve months time.

AFTER THE PATIENT LEAVES

Only when the examination/treatment is finished, should you remove your gloves and mask, disposing of them safely. As the patient leaves the surgery, you can now exit the contaminated area and move to the record keeping area to write notes. Remember to date your entry.

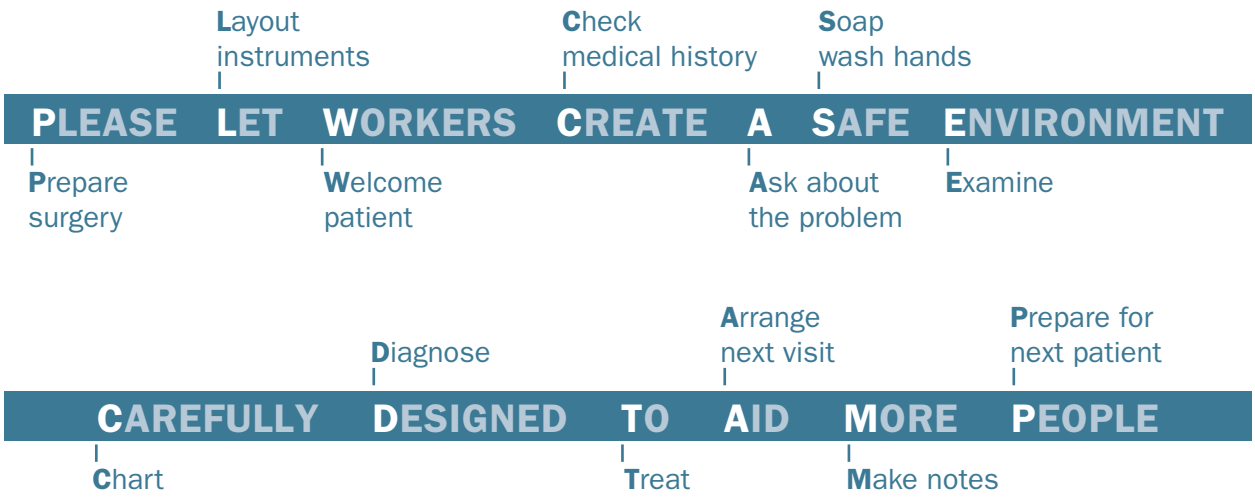
Example of how you might record the visit of Joseph

Shorthand	Longhand
Pc Pain ⌐	Patient Complained of Pain in the Lower Right Quadrant
TTP LR6	Lower Right 6 is Tender To Percussion
XLA	Extraction under Local Anaesthetic
OH Good	Oral Hygiene good
TCA 6/12	To Come Again in 6 months

Ideally, while you are making these notes, an assistant can be cleaning the contaminated area and sterilising the instruments.

Now you would prepare to see the next patient.

EXAMINATION PROCESS – SUMMARY



PRESCRIBING MEDICATION

ANALGESICS

ANALGESICS are drugs to be taken internally or externally for pain relief. Most dental pain is caused by inflammation so the most effective drugs usually combine analgesic and anti-inflammatory effects. Non-steroidal, anti-inflammatory drugs (NSAID's) can be used but these should be avoided during pregnancy.

ANALGESIC	DOSAGE	NOTES
Aspirin (NSAID)	**Adult:** 300-900mg 4 x daily as required Maximum 4g daily **Child:** Not recommended	- Analgesic and anti-inflammatory - Do not use if pregnant or breast-feeding - Not suitable for patients with: bleeding disorders, peptic ulcer, asthma, dehydration and allergic conditions
Ibuprofen (NSAID)	**Adult:** 200-400mg 4 x daily as required Maximum 800-1200mg daily **Child:** ***weighing over 7kg*** 20-30mg p.kg daily x divided doses	- Analgesic and anti-inflammatory alternative to aspirin - Do not use if pregnant or breast-feeding - Not suitable for patients with: peptic ulcer, asthma, dehydration and allergic conditions
Paracetamol	**Adult:** 500mg-1g every 4hrs Maximum 4g daily **Child:** ***1-5yrs*** 120-250mg ***6-12yrs*** 250-500mg 4 x daily as required	- Analgesic only – alternative to aspirin - Preferable for elderly patients - May cause liver damage in overdose
Eugenol (Oil of Cloves)	Few drops mixed with zinc oxide powder to form cement	- Temporary filling cement / analgesic properties - Can be applied externally to painful dry sockets - Some patients may be allergic to eugenol

CHAPT 6 page 75

ANTIBIOTIC

ANTIBIOTIC drugs (also called antibacterials) are used to treat bacterial infections.

The most common use of antibiotics in dental practice is for an abscess if the normal body temperature of 37°C is raised by 1.5°C or more. Antibiotic treatment for an abscess should be reviewed after 5-7 days provided that the temperature has returned to normal, the abscess has drained and swelling is reducing. Prolonged use of antibiotics weakens their effectiveness and may increase side effects.

! IMPORTANT !

Do not use antibiotics without a defined clinical need.

Oral medicines are generally taken with water and after food unless stated.

ANTIBIOTIC	DOSAGE	NOTES
Phenoxymethyl Penicillin (PenV)	**Adult:** 250-500mg, 4 x daily x 5-7 days **Child:** ***1-5yrs*** 125mg/5ml syrup 4 x daily x 3-5 days ***6-12yrs*** 250mg/5ml syrup 4 x daily x 3-5 days	- Before meals and at bedtime - Avoid in penicillin allergic patients
Amoxicillin	**Adult:** 250-500mg, 3 x daily x 5-7 days **Child:** ***1-5yrs*** 125mg/5ml syrup 4 x daily x 3-5 days ***6-12yrs*** 250mg/5ml syrup 4 x daily x 3-5 days	- Before meals and at bedtime - Has a wider range of antibacterial action than penicillin - People allergic to penicillin will also be allergic to amoxicillin
Erythromycin	**Adult:** 250-500mg 4 x daily x 5-7 days **Child:** ***1-5yrs*** 125mg/5ml syrup 4 x daily x 3-5 days ***6-12yrs*** 250mg/5ml syrup 4 x daily x 3-5 days	- For women who are pregnant or breast-feeding and are allergic to amoxicillin or penicillin.
Tetracycline	**Adult:** 250-500mg 4 x daily x 5-7 days see page 29	- Before meals - Avoid dairy products e.g. drinking milk during use - Do not use if pregnant or breast-feeding - Do not give to children under 12
Doxycycline	**Adult:** 200mg on first day then 100mg daily x 5-7 days see page 29	- Avoid exposure to sunlight during use - For people who are allergic to amoxicillin or penicillin - This is a longer acting form of tetracycline - Do not use if pregnant or breast-feeding - Do not give to children under 12
Clindamycin	**Adult:** 150-300mg 4 x daily x 5-7 days **Child:** 3-6 mg per kg bodyweight 4 x daily x 5-7 days	- Not often used for oral infections except osteomyelitis - Stop immediately if diarrhoea develops
Metronidazole	**Adult:** 200-400mg 3 x daily x 3-7 days **Child:** ***5-12yrs*** 100mg 3 x daily x 3 days	- Not to be taken with alcohol - Used as an alternative to penicillin and erythromycin - Do not use if pregnant or breast-feeding - Useful for perio problems e.g. Vincent's infection – Acute Necrotizing Ulcerative Gingivitis (ANUG)

CHAPT 3 page 29

CHAPT 7 page 85

ANTIFUNGAL

CHAPT 7 page 90

ANTIFUNGAL agents are used to treat fungal infections such as candida albicans (oral thrush).

ANTIFUNGAL	DOSAGE	NOTES
Nystatin	**Adult & Child:** (100,000 units = 1 lozenge) dissolved slowly in mouth, 4 x daily x 5-7 days, after food	- People with low immune systems will require higher dose (500,000 units, 4 x daily x 5-7 days)
Amphotericin	**Adult & Child:** 10mg lozenge dissolved slowly in mouth, 4 x daily x 10-15 days, after food	- Increase to 8 x daily if infection is severe

ANTISEPTICS

ANTISEPTICS discourage the growth of micro-organisms and are commonly used as mouthwashes.

ANTISEPTIC MOUTHWASH	DOSAGE	NOTES
Chlorhexidine Gluconate 0.2%	10ml rinse 2 x daily Hold in the mouth for 1 min then spit out	- For treatment of gingivitis & mouth ulcers - Wait 30 mins between using this and eating/drinking
Hydrogen Peroxide 6%	15ml (diluted in half cup of warm water) rinse 2-3 x daily Hold in the mouth for 2-3 mins then spit out	- Useful in treatment of Acute Necrotizing Ulcerative Gingivitis (ANUG) and rinsing dry sockets - Do not use for more than 3 days - Boil water first and allow to cool
Povidone-Iodine 1%	10ml rinse up to 4 x daily Hold in mouth for 30 sec then spit out	- Useful for minor gum infections - Do not use if pregnant or breast-feeding - Do not use for more than 14 days
Salt Water	Mix small spoon of salt in cup of warm water Hold in mouth for 30 sec then spit out and repeat 3 - 4 x daily	- Boil water first and allow to cool - Effective for many oral conditions and general healing
Do not swallow mouthwashes		

BEFORE PRESCRIBING

ALWAYS:

- *Ask patients if they are allergic to penicillin or other drugs*
- *Read medicine guidance notes*
- *Be aware of expiry dates*
- *Rotate supplies: use oldest medicines first*

WWW.

Check: www.emc.medicines.org.uk for current advice.

PRACTICE MANAGEMENT

ROLE OF AN ASSISTANT

It is important to make the role of an assistant very clear so that you can work together and not confuse each other, especially for cross infection procedures and record keeping.

Assistant duties usually include:

- gathering patient record details
- preparing supplies and instruments
- charting records
- cleaning and sterilising instruments and surfaces
- safe disposal of waste
- safe storage of supplies and instruments.

It is helpful for an assistant to note patient details and chart records so that you do not contaminate clean hands with a dirty pen or a clean pen with dirty hands BUT the dental worker should be solely responsible for writing up notes concerning diagnosis and treatment and for checking that patient information is accurate.

HOW TO MANAGE A SESSION OF TREATMENTS

If you are going to run regular sessions, you need to consider how to make the best use of your time, how to make the best use of your instruments and equipment and how to prioritise patients in pain.

Option 1: **See, diagnose and treat each patient in turn.**
This option best suits situations with limited numbers of patients or limited sets of instruments or where people have travelled a long distance and cannot return easily.

Option 2: **See and diagnose each patient in turn. Plan a separate return session for those requiring treatment.**
This option best suits situations with a large number of patients or where you have the opportunity to see patients again in a day or two.

BASIC TREATMENT	AVERAGE TIME TO ALLOW
Oral examination and charting	Average 10-15 minutes
Simple scaling of the teeth	Average 15-20 minutes
Simple extraction (i.e. non surgical) under local anaesthetic	Average 15-20 minutes (5 mins each for injection, extraction and aftercare)

You will get quicker with experience but it only takes one problem to throw timings out so don't overestimate what can be achieved.

Best Use of Resources

If you have a limited number of instrument sets/sterilisation facilities, it may be better to see and treat each patient in turn so that you perform as much as possible with each set of instruments before they need to be sterilised for the next patient.

Group Treatments

If you have a lot of patients who need an exam and a simple scaling, this could take 45-50 minutes for each one. If you are able to do the examinations on one day and schedule the scaling treatments for another, you will be able to see more patients on day one and predict how many you can treat in set times for the following sessions.

Triage Sessions

If you have a lot of patients it may be worth conducting what is known as a 'triage' session first – this involves an initial (question and answer) assessment of all patients before they come into the dental examination area. Ask each patient why they have come, if they are in pain, if so, how severe is the pain? A trained assistant could conduct the triage session while the dental worker gets the session underway.

Patients in Pain

You might decide to see the pain patients first but be careful with this approach. Pain patients should ideally be seen and given relief as soon as possible but if they are always given priority over those who manage their oral hygiene well enough to avoid toothache, this could send out the wrong message.

Decide a policy for prioritising patients that will encourage them to improve and stay responsible for their own oral health.

Not every pain is an emergency

Not every emergency begins with pain

COSTINGS

As soon as you move from basic oral healthcare instruction to conducting examinations and treatments, the implications for cost and sustainability dramatically increase. Be realistic about what you can afford so that you can sustain the services you offer.

Start simply then gradually build up your equipment store to suit the dental needs of your community.

WORKING WITH OTHER PROFESSIONALS

The process of arranging for a patient to see another worker, either for specialised treatment or advice, is known as referring. Whenever you refer a patient on to another place or to a doctor, it is helpful if you write a brief letter explaining why you are asking for them to be seen.

Keep it simple – say what you saw and if appropriate, give the letter to the patient to take with them.

Referral Letters are helpful for both specialist and patient:

For the Specialist: So they are clear about what you saw, why you have referred and if you have prescribed anything

For the Patient: So they know that you are passing them on with a specific request and not simply abandoning them.

IF IN DOUBT – DO REFER

Sample Referral Letter

Include your details so they can contact you if necessary

Dear _____ (name) _____ or To whom it may concern

This patient: _____ (name) _____ DOB: _____

presented to me today with: _____

I found indications of: _____

and I would be most grateful if you could see and treat this patient.

I prescribed _____ Date: _____

Signed: _____

TREATMENT DAY BOOK / ACCIDENT BOOK

In addition to making notes on the patient record cards, it is useful to note details of each session in a day book. This helps if you need to refer back to a particular day. It also gives information about how your time is being used and how many patients are due to come again so you can plan future sessions.

TREATMENT DAY BOOK

DATE	PATIENT NAME	TIME	TREATMENT
03.01.2017	José Gonzalez	7am	Exam TCA 1/7
	Samuel Nyoni	7.30	Exam Scale
	Beatrice Choy	8.00	Exam XLA TCA 1/7

It is also advisable to keep an Accident/Incident book in the clinic so that you can record any potentially dangerous events that affect staff or visitors. This helps to ensure that safe and correct procedures are being followed and can also provide a record if any problems later arise.

ACCIDENT BOOK

DATE	PERSON(S) INVOLVED	TIME	HOW ACCIDENT OCCURRED	ACTION TAKEN: BY
2.2.17	Amina Patel	10am	Accidental needlestick injury through glove – used needle	Injury washed & dressed. Needle discarded. Appt made for testing. ARV treatment started.* Signed: (name)
4.3.17	Julia Ngoi	2pm	Accidental needlestick injury through glove – sterile/ un-used needle	Injury washed & dressed. Needle discarded. Signed: (name)

See chapter 6 for detailed advice on needlestick injuries. CHAPT 6 page 64

* For information on ARV drugs visit: http://hivinsite.ucsf.edu/

CHAPTER 6:
TREATMENTS AND PROCEDURES

This chapter includes guidance notes for the following:

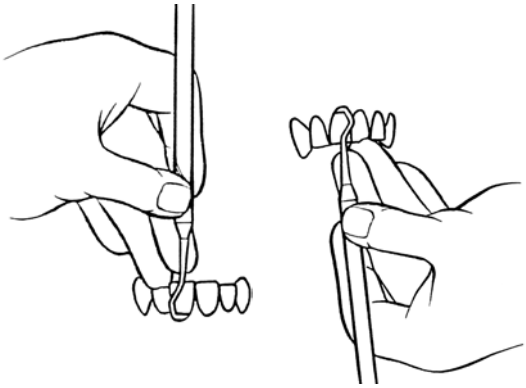
- SCALING TEETH
- INJECTIONS IN THE MOUTH
- FIRST AID FOR FAINTING
- EXTRACTING TEETH
- COMPLICATIONS AFTER EXTRACTION

SCALING THE TEETH

As previously mentioned, many patients who complain of sore and bleeding gums have tartar/calculus around the teeth. This may be seen as yellow or black deposits (above or below the gum margin) on the surface of a tooth. To relieve pain symptoms and help prevent progress of periodontal disease, this needs to be removed by a process known as scaling.

Scaling teeth is time consuming and requires patience but it is worth doing provided that the patient accepts responsibility for maintaining good oral health. Always ensure that they understand and agree to this before offering the treatment.

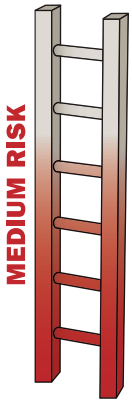
INSTRUMENTS FOR SCALING



There are many different types of instruments that can be used for scaling, ranging from straight to curved blades. Choosing the right tool is usually a matter of individual preference and/or availability.

The most important thing to remember is to adopt a technique that will remove as much tartar as possible without damaging the gums.

SCALING TECHNIQUE



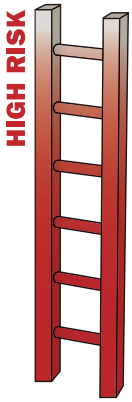
It is most important to remove the deep tartar which starts just below the gum. The gums may bleed a lot during scaling but take care not to dig the instrument into the gum. Tartar sticks firmly to the teeth so removing it can often cause mild pain.

The flat edge of the instrument can be scraped against the tooth to remove tartar. The sharp point of the instrument will help to remove tartar from between the teeth.

Always work away from the gum, towards the crown of the tooth.

If the pain is excessive, it is advisable to do the scaling under a local anaesthetic – this is known as Root Planing.

ROOT PLANING

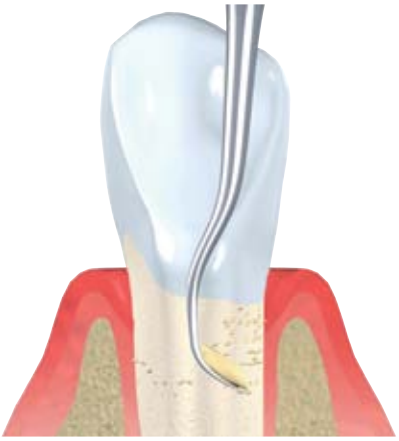


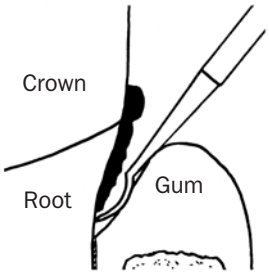
This refers to scaling in the gum pockets if tartar is present along the root of a tooth.

The deeper the pockets, the more likely the need for local anaesthetic.

After scaling, the patient should rinse the mouth thoroughly and be shown how to clean the teeth correctly.

If the gum disease is so advanced that one or more teeth is loose it is not worthwhile scaling and the only successful treatment is extraction.





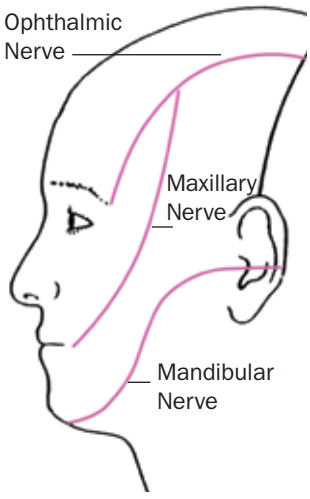
Root planing

Scaling is not recommended as part of the first phase of primary oral healthcare because it is so time consuming and people can quickly get used to the notion of letting a dental worker keep their teeth clean for them!

Scaling should only be offered as part of an oral health programme with patients clearly demonstrating a commitment to maintaining their own oral hygiene.

It may be worth training specific staff to perform scaling treatments and hygiene monitoring as a separate task if your community has need for this.

INJECTIONS IN THE MOUTH



Main branches of trigeminal nerve

Tooth extraction or deep scaling can be painful so, where possible, these procedures should be done using local anaesthetic.

The sensation of pain is felt when nerve messages travel from an affected part of the body to the brain.

A local anaesthetic injected into the vicinity of a nerve, blocks these messages to produce temporary anaesthesia.

All perception of pain in the local area is lost but other sensations such as pressure or vibration can still be felt.

Anaesthesia means the complete loss of feeling.

Analgesia means the loss of pain only.

In theory, local anaesthesia should strictly be called local analgesia but the former term is in common use.

PREPARING FOR INJECTIONS

Local anaesthetic is most commonly delivered through a syringe, either:

- a **metal syringe** with cartridges of anaesthetic solution or
- a **disposable plastic syringe**, drawing solution from a drug vial (bottle).

Plastic syringe with drug vial and disposable needle

Fine gauge **needles** must be used for oral tissue and should be safely discarded immediately after use.

Anaesthetic solutions are available in 2 ml cartridges for use with metal syringes. Each cartridge should be used for one patient only and then safely discarded.

Metal syringe with cartridge and disposable needle

When vials are used with plastic syringes, any needle that draws the solution from the bottle must be sterile. If a second dose is required for the same patient, another sterile needle must be used – this avoids the risk of contaminating the solution in the vial.

Always remember to remove air bubbles before giving an injection.

The most commonly used solutions are:

- 2% lignocaine (xylocaine) usually includes adrenalin
- 3% solution of prilocaine (citanest)

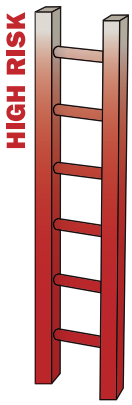
Citanest should be used for patients with thyroid problems or on anti-depressant drugs. It should not be used for women in the first 3 or final 3 months of pregnancy. If in doubt, check with a doctor.

LOCAL ANAESTHETICS – MAXIMUM DOSES

AGE GROUPS	WITHOUT VASOCONSTRICTORS	WITH VASOCONSTRICTORS
body weight kg	**No. cartridges = ml**	**No. cartridges = ml**
Child (4-5) yrs up to 15kg	1 (2ml)	2 (4ml)
Child (8-9) yrs up to 30kg	2 (4ml)	5 (10ml)
Adult 70kg	5 (10ml)	10 (20ml)

Adrenalin acts as a vasoconstrictor to keep the solution localised. Blood vessels contract and trap the anaesthetic in place to prolong its effect.

General Reminders



- Cartridges and needle supplies come from the manufacturers in pre-sterilised form and are ready for use
- Re-usable syringes should always be sterilised in an autoclave
- Always use safety guards if available to prevent needle-stick injury
- Use long needles for nerve block injections, short needles for others
- Used needles should never be re-used on a new patient
- An injection of cold solutions can be painful so cartridges should be stored at room temperature
- A glass of mouthwash or water should be provided for the patient as local anaesthetic solutions have a rather unpleasant taste.

THERE ARE TWO WAYS TO ANAESTHETISE AREAS OF THE MOUTH:

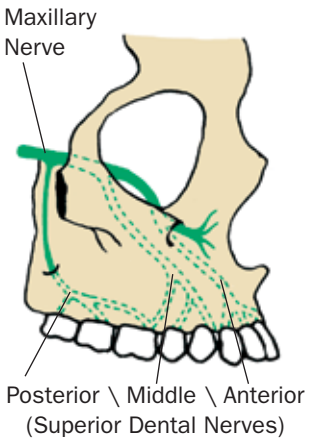
THE INFILTRATION METHOD – applies anaesthetic to the nerve branch endings.

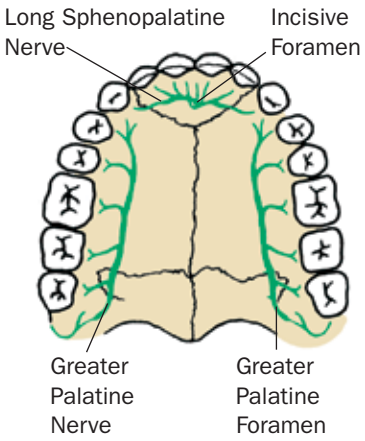
A local infiltration injection is given above the tooth or teeth to be treated.

The needle is inserted into the soft tissue above the gum.

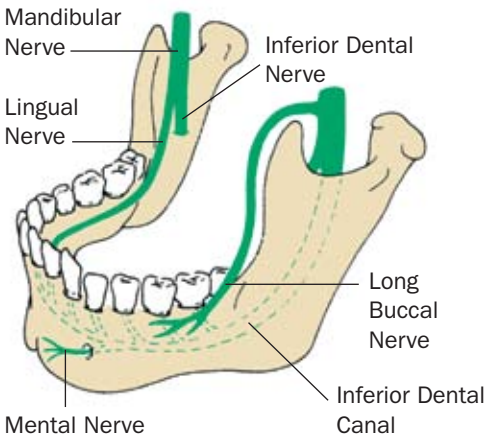
The solution soaks through pores in the bone and anaesthetises the nerve supply for those teeth at the site of the injection.

Branches of the **Trigeminal Nerve** supplying the **maxilla** (upper jaw)





Branches of the **Trigeminal Nerve** supplying the **mandible** (lower jaw)



THE NERVE BLOCK INJECTION – applies anaesthetic to the trunk of the nerve.

A nerve block injection anaesthetises the nerve before it enters the jaw. It is used when several teeth in one quadrant need to be anaesthetised or when local infiltration cannot work.

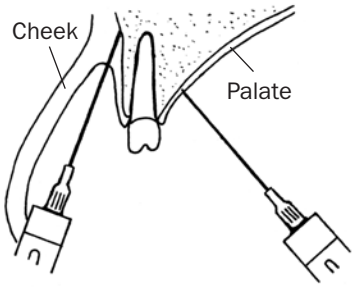
The inferior dental nerve and the lingual nerve lie very close together at the back of the jaw. When the Nerve Block injection is given, it has the effect of anaesthetising all the lower teeth and the lingual gum on one side, together with half the tongue.

It also numbs the lower lip so once the patient confirms numbness here, you can be sure that all the lower teeth on that side are also numb. The gum on the buccal side of the lower jaw remains unaffected by the nerve block injection as it has a separate nerve supply so infiltration will also be required to numb this area.

THE INFILTRATION METHOD

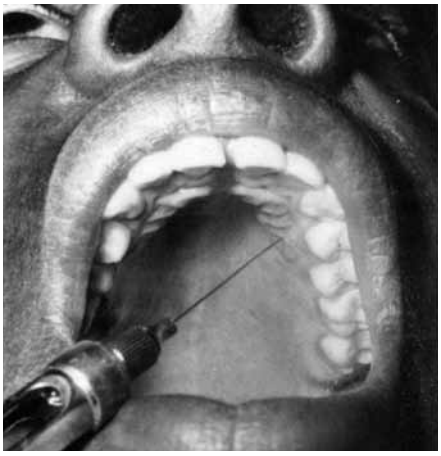
For the Upper Teeth

For each upper tooth, two injections are needed, one on the inside and one on the outside. Infiltration injections are so called because as the anaesthetic solution is delivered, it seeps through the bone and infiltrates the nerve supply to a particular tooth or teeth.



Syringe sites for upper teeth

Infiltration Injection: Upper Teeth



Buccal (outer)

Hold the cheek back with one hand so that you can clearly see the 'sulcus' – the point where the gum joins the cheek.

At this point above the relevant tooth, the needle is pushed in with its point aimed to lie at the same level as the top of the root.

Always consider how long the root of any particular tooth is likely to be so that the place, depth and angle of insertion can be estimated.

For front teeth it is possible to insert the needle in line with the tooth but for molars near the back of the mouth there is not enough room to make this possible so it must be approached from an angle.

Dosage: 1¼ ml (just over half a cartridge)

Palatal (inner)

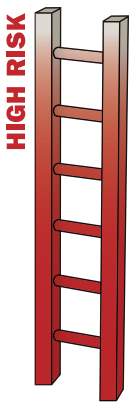
This injection must be shallow because the hard palate lies just below the mucous membrane of the soft palate.

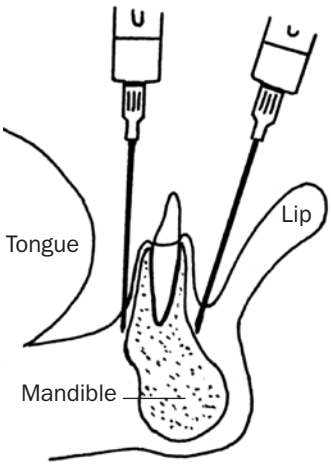
The needle is inserted opposite and 1 centimetre above the tooth.

The injection can be painful because this area is very sensitive. Warn the patient that they may feel some discomfort and advise them to take a deep breath as you deliver the solution.

As the insertion can only be shallow it's not possible to put much solution into the gum but it is still necessary to press the syringe handle quite hard.

Dosage: ¾ ml (just under half a cartridge)



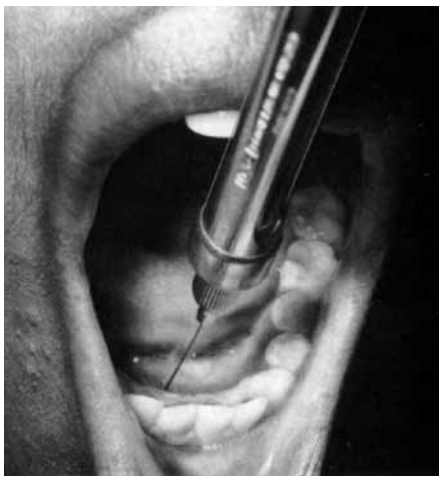


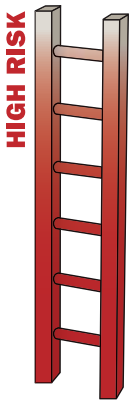
Syringe sites for lower front teeth

THE INFILTRATION METHOD

For the Lower Front Teeth (canines and incisors)

The principle here is the same as for the upper teeth.





Buccal (outer)

Hold the lower lip back with one hand so the sulcus can be clearly seen.

Push the point of the needle into the sulcus, next to the tooth to be extracted, to a depth of about 1 centimetre: the point should then lie against the outside of the lower jawbone and at the same level as the end of the root of the tooth.

Dosage: 1¼ ml (just over half a cartridge)

Lingual (inner)

The procedure for this is the same. You may need to hold the tongue out of the way if it blocks your view.

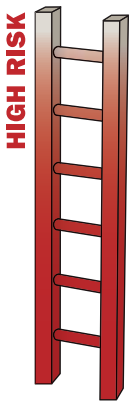
The needle is usually inserted into the floor of the mouth next to the inside of the lower jawbone for only a short distance.

A small swelling will occur as the injection is given but this should quickly reduce.

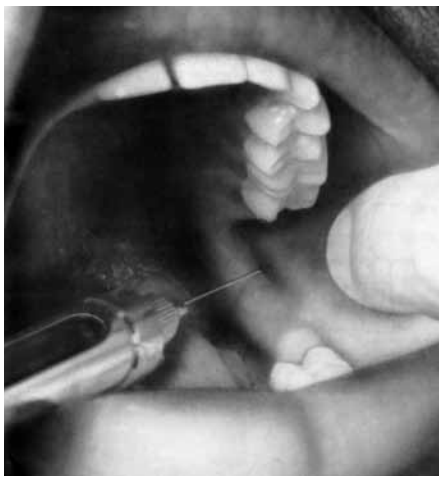
Dosage: ¾ ml (just under half a cartridge)

All Upper Teeth + Lower Canines & Incisors *Require* ***Infiltration Method***	***Lower Teeth: Premolars & Molars*** *Require* ***Infiltration Method*** *for the outside* ***Nerve Block Method*** *for the inside*

THE NERVE BLOCK INJECTION FOR LOWER MOLARS



This is what you see when the patient opens their mouth widely.



A fibrous band (known as the pterygomandibular raphe) is normally prominent – it connects the upper and lower jaws behind the teeth.

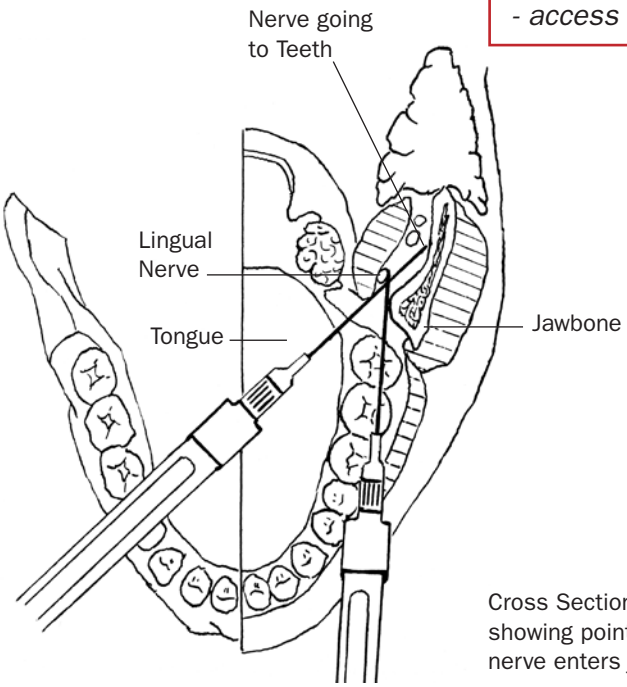
Just outside this is a depression, next to which you should be able to feel the lower jaw.

! WARNING !

We advise against attempting a nerve block injection unless you have:
- *seen it demonstrated*
- *done some under supervision*
- *access to a doctor.*

The Nerve Block Injection

1. Ask the patient to open their mouth as wide as possible
2. Place the first finger of your left hand, as shown, at the angle of the lower jaw and feel for the deepest point of depression of the bone. (This is called the coronoid notch)
3. Place the point of the needle at the same level as the centre of your finger nail and just outside the fibrous band
4. Check that the angle of the needle is correct. The syringe should be resting across the premolar teeth on the opposite side of the mouth



Cross Section Diagram showing point where nerve enters jawbone

5. Push the needle into the tissues until it comes up against the bone of the lower jaw which means it should be very close to the nerve you wish to anaesthetise
6. Withdraw the needle a little way and slowly inject over half the cartridge of anaesthetic
7. Withdraw the needle a little further until it's nearly out of the tissue. Now, to anaesthetise the lingual nerve, turn the needle round to lie along the molar and premolar teeth on the same side. Inject ¼ of the cartridge and then fully withdraw the needle.

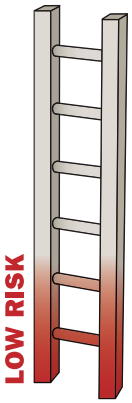
TESTING FOR EFFECTIVE ANAESTHESIA

Before starting to remove the tooth, wait for at least five or ten minutes to allow the anaesthetic time to work. People respond in different ways so test the area by pressing a probe against the gum on both sides of the tooth. If no pain is felt, the anaesthetic is probably working. If pain is felt, give a further injection on the side where it hurts and wait again to give it time to work.

For the nerve block injection the whole of one side of the face will feel 'heavy' and the lower lip and tongue will feel 'dead' on one side. When the tooth is successfully anaesthetised, extraction may then be carried out.

! WARNING !

Never push a needle completely into the tissues. If it did happen to break (extremely unlikely), it would be difficult to remove a buried needle. If a needle breaks and some part remains above the surface it can easily be removed with a pair of artery forceps. This should be done without delay and before allowing the patient to close their mouth. Whenever giving injections it is advisable to have a pair of forceps available.



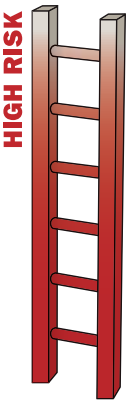
NEEDLESTICK INJURY

This sometimes occurs through an accidental prick from a syringe needle. It is a common hazard of dentistry, carrying various degrees of risk.

A prick from a sterile needle, not yet used on a patient, **carries no risk** and the puncture wound should be:

- allowed to bleed
- washed under running water
- covered with a waterproof dressing.

The needle should then be safely discarded. Make a note of this in your accident book.



A prick from a non-sterile needle, i.e. one that has already been used on a patient, **potentially carries serious risk** (even though no harm occurs in many cases).

Safely discard the needle and then follow this procedure:

- wash wound under running water to encourage it to bleed
- inform a senior staff member
- cover the wound with a waterproof dressing
- check the patient medical history for hepatitis or any other blood borne disease or carrier status.

Follow this up with two blood tests, 40 days apart. An infection such as HIV might not show in the first test but could appear in the second. Therefore it is also advisable to start taking a course of Anti Retro Viral drugs as a precaution until blood test results are known.

For information on ARV drugs visit:
http://hivinsite.ucsf.edu/

PATIENTS RECEIVING INJECTIONS

Always keep the patient informed about what you are doing, how it will feel and what they can expect in terms of numbness etc.

Nervous patients sometimes faint when receiving injections. For this reason never leave a patient alone while waiting for the injection to work.

A patient may also faint if the anaesthetic is accidentally injected into a blood vessel. This is quite rare but the use of an aspirating syringe (which shows if blood is flowing back into it) can help to indicate if this is happening.

Before leaving the clinic, patients must always be warned:

a) not to eat or drink anything hot on the anaesthetised side

b) not to smoke

until the anaesthetic has worn off – usually after a few hours – otherwise there is a chance that they could burn or bite the numb area.

FIRST AID FOR FAINTING

WHAT TO DO

Fainting is a temporary loss of consciousness caused by reduced blood supply to the brain and it is not uncommon in dental clinics.

Symptoms:
The patient may complain of feeling faint, sick, dizzy, hot and thirsty.

Signs:
The skin becomes very pale and clammy, the pulse weakens, there may be shivering or sighing. The pupils of the eye will dilate and then unconsciousness occurs.

Treatment:

1. Position the patient's head so it is lower than the feet to increase the blood flow back to the brain. If a patient falls to the ground – make sure they are comfortable – it may also help to raise the legs/feet just off the ground.

   Pregnant patients should be laid onto one side.

2. Recovery will usually occur within a few minutes and when they feel better, offer a glucose or sugary drink or a glass of water.

3. Keep the patient under continuous observation until they have left the surgery, just in case they have a relapse.

4. Make a note of the incident on the patient file.

EXTRACTING TEETH

The common term of 'pulling teeth' is misleading. In fact, 'pushing teeth' is closer to the truth.

Extracting teeth is an art – the art of learning to exploit the line of least resistance.

The skill is similar to removing a post set into the ground. If the soil is loose, the post-hole can easily be widened until the post comes out smoothly, but if it is hard and compacted, trying to pull or push against it is likely to cause it to break off above ground.

In the same way as soil differs, the texture of bone surrounding a tooth will vary in density between people and different age groups. Bone texture is usually most compliant and elastic in young people but this tends to decrease with age.

Teeth usually become more brittle as we get older so it is often said that extracting teeth in mature patients can be like trying to remove glass from concrete.

Primary teeth usually come out a little easier than permanent teeth.

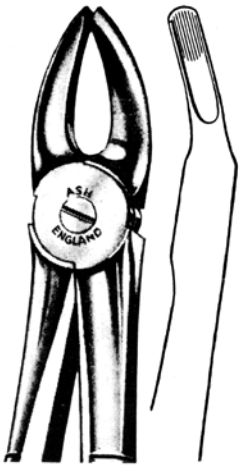
If you are extracting primary teeth, do not exert undue pressure and always be aware of the unseen permanent teeth forming just above or below.

DENTAL EXTRACTION FORCEPS

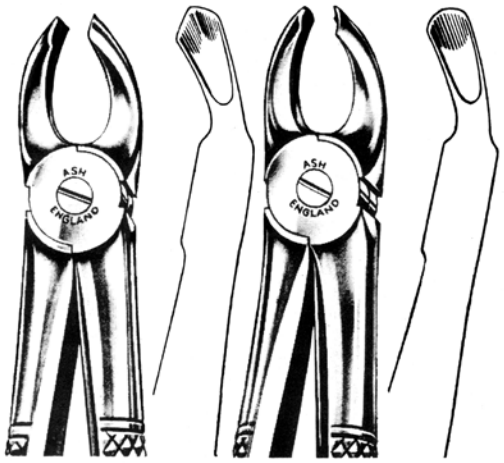
Skill at extracting teeth mainly comes with practice and like most tasks, it is made easier if you have the correct tools.

UPPER ANTERIORS

UPPER PREMOLARS



UPPER MOLARS



Right Side Left Side

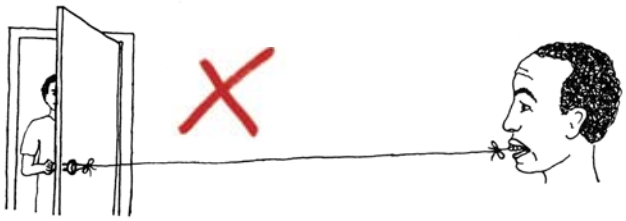
LOWER MOLARS

LOWER INCISORS, CANINES, PREMOLARS

There are numerous other types available for special purposes but these are not essential for general practice.

Forceps are differently shaped because they are designed to grasp the different shaped roots of a tooth and not the crown.

They have relatively short blades known as 'beaks' and relatively long handles – this enables considerable force to be applied and the 'power' of these instruments should never be underestimated.



POSITION OF OPERATOR

Easy access to the target tooth is essential and with the patient sitting up, all areas of the mouth are accessible from the right side.

Patients and operators come in all shapes and sizes so find out what works best for you.

Be prepared to move if it doesn't feel right.

For all upper teeth and those in the lower left quadrant – stand in front of the patient.

For the lower right quadrant – stand slightly behind the patient.

Allow enough room for a wide stance – if you stand too close this will encourage too much use of the wrist.

Upper Teeth

Lower Left Teeth

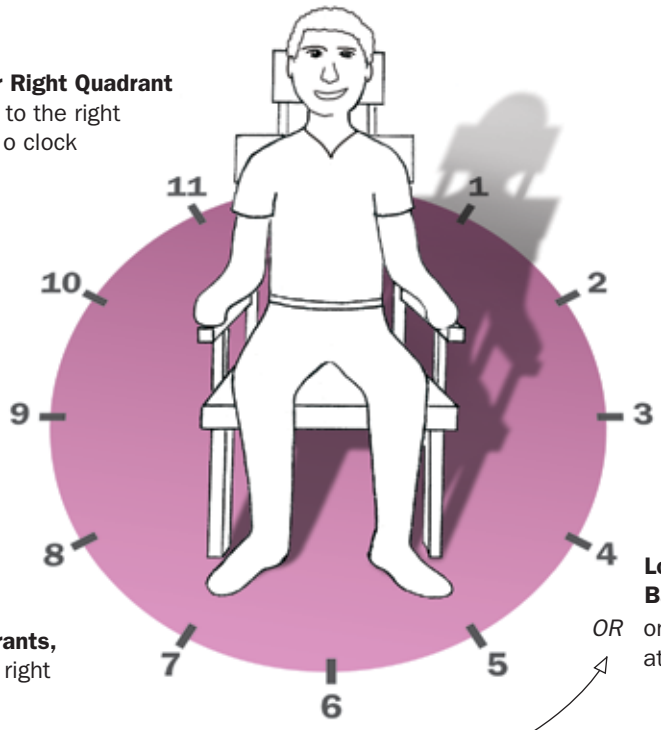
Lower Right Teeth

The height of the patient in relation to the operator is also important.

For lower extraction, the target tooth should be at the level of the operators elbow. For upper teeth it is better to raise the chair or lean the patient back a little bringing the target tooth closer to shoulder height.

If the patient is sitting – the operator can stand
If the patient is lying down, the operator may prefer to sit.

OPERATOR ACCESS – PATIENT SITTING



Position of Patient

In most cases, especially for the removal of difficult lower teeth, sitting the patient in an upright position is ideal.

Some teeth, (e.g. upper molars and premolars) are more easily approached if the patient is lying or half lying down.

Whichever position is used, the patient's head must be supported by a secure and comfortable headrest or ask someone to support the head.

GRIPPING THE FORCEPS

Having a correct grip is very important.

The ends of the handles should be against the heel of the hand to maximise the pressure and keep the instrument secure.

Place the right thumb just below the hinge to help control the width of the blades.

Place the little finger on the inside of the handles to help adjust the forceps onto the tooth – then it should be moved to the outside as the tooth is gripped.

Beginners Exercise

Using lower root forceps, pick up a pencil from a table, hold it gently and then replace it on the table – without crushing it.

This requires gentle release of pressure on the handles and opening of the blades using the little finger. The thumb helps with control.

Repeating this movement will help to get the feel of placing blades into the right position to grasp a tooth.

Gripping the forceps

APPLYING FORCEPS TO THE TOOTH

Use the left hand to move soft tissue (tongue, lips, cheek) out of the way and carefully apply the forceps to the tooth root.

The blades are designed to slide into the periodontal space, helping to separate the tooth from the gum and should reach as far along the root as possible.

One side of the tooth (lingual or palatal) is usually more difficult to access so it is best to position the blade on that side first.

Good placement at this stage is crucial so take your time and get it right.

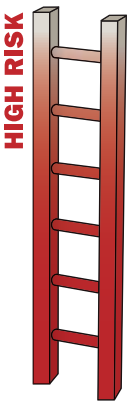
Once the beaks are in the correct plane between the root and the bone, force can be directed parallel to the central line of the tooth.

MOVING THE TOOTH

Having gripped the tooth, the first task is to loosen it and this requires the use of controlled force. The tooth, like the post in the ground, needs to have its bony socket expanded with smooth but positive effort. Rapid or jerky movements are more likely to fracture the tooth than loosen the root.

The power for this smooth, controlled force comes from the larger muscle groups of the shoulders, back and legs. By fixing the wrist, elbow and shoulder, this power can be brought to bear on the forceps by moving the whole body from the legs (if standing).

The most common mistake that beginners make is to use only the smaller muscles of the fingers and forearms which tire very quickly – this leads to a desperate, ineffective tugging and tires them even more – it may also break the tooth.



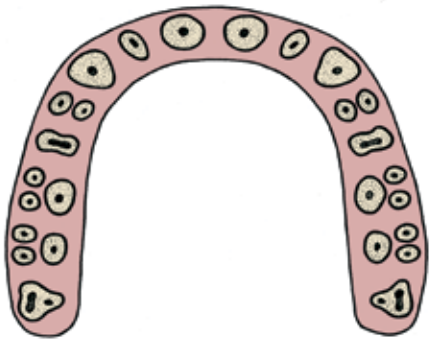
EXTRACTING UPPER TEETH

Different teeth need different relief based on their root patterns and getting a feel for this will come with experience. Before trying to remove a tooth you must consider how it sits in the socket and jaw so that you can apply force safely and efficiently.

In general:
- If a tooth has 1 root, you can turn or twist it
- If a tooth has 2 or 3 roots rock it back & forth
- Front teeth usually come straight out, up or down
- Back teeth usually come out towards the cheek.

Typical root pattern of upper teeth:

Cross section at mid root level



REFERENCE GUIDE: UPPER TEETH

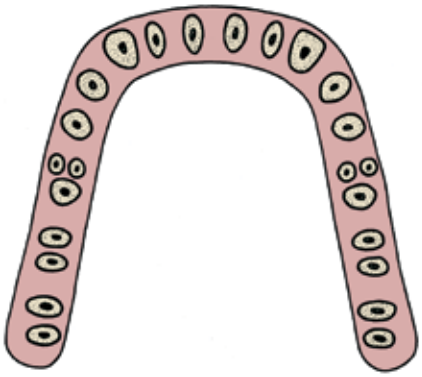
MAXILLA	ROOT PATTERN	DIRECTION OF MOVEMENT
Central Incisor	1 straight conical shaped root circular cross-section	rotation + upward force
Lateral Incisor	1 straight slender root oval cross-section: flattened mesio-distally	buccal + gentle rotation
Canine	1 sturdy long thick root triangular cross-section	buccal
1st Premolar	2 thin roots, very fragile 1 buccal and 1 palatal	wiggle and pull (the only tooth that can be 'pulled out')
2nd Premolar	1 strong root (usually)	buccal
1st Molar	2 thin buccal roots, 1 strong palatal root All 3 diverge markedly	buccal predominantly then disto-buccal twist to deliver
2nd Molar	2 thin buccal roots, 1 strong palatal root All 3 diverge markedly	buccal mainly then disto-buccal twist to deliver
3rd Molar	Root patterns vary	buccal – disto-buccal twist

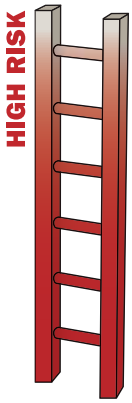
Upper Molars

As these teeth normally have three roots it is very important to select the correct forceps and position the beaks properly. The pointed beak is designed to grip the outer side of the crown, the point itself sliding down between the two outside roots.

EXTRACTING LOWER TEETH

Typical root pattern of lower teeth:
Cross section at mid root level





REFERENCE GUIDE: LOWER TEETH

MANDIBLE	ROOT PATTERN	DIRECTION OF MOVEMENT
Central + Lateral Incisor	1 thin root, oval cross-section flattened mesio-distally	buccal to lingual: figure of 8
Canine	1 long thick root triangular cross-section	buccal to lingual: figure of 8
1st and 2nd Premolar	1 round root	rotation
1st Molar	2 mesial roots, 1 distal	buccal to lingual: figure of 8
2nd Molar	Usually same as 1st molar	lingual to buccal: figure of 8
3rd Molar	Root patterns vary	lingual to buccal: figure of 8

Lower Teeth

Constant downward pressure is necessary and this is easier to apply if the patient is sitting in a low chair. Always support the jaw with your free hand. When the tooth is loose it may be pulled out towards the patients cheek.

Lower 3rd Molars (wisdom teeth) can be difficult to remove so we advise referral to an experienced dental surgeon.

TAKE YOUR TIME

IF YOU RUSH AND SQUEEZE THE FORCEPS TOO TIGHTLY, THE TOOTH MAY BREAK.

AFTER THE EXTRACTION

When the tooth comes out, examine the roots carefully – check to see if any part has broken off or been left behind.

Check the Socket
- carefully inspect the socket in good light
- clear socket with gentle suction if available
- avoid deep prodding in case you damage the nerve
- squeeze the socket between finger & thumb to reduce distortion

Rinsing
- allow one rinse to wash blood away
- avoid further rinsing until the following morning
- quick, painless healing needs a blood clot to form in the socket

Stop the Bleeding
- place a gauze pack directly over the socket (not over the adjacent teeth) and ask patient to bite on this
- leave the gauze undisturbed for 5-10 minutes – discourage the patient from talking during this time

Rest
- allow the patient to sit quietly until the bleeding has stopped and a clot begins to form
- tell the patient to avoid heavy physical work or exercise for the rest of the day

Food and Drink
- ideally avoid these until the numbness wears off
- avoid hot or cold food and drink until the next day
- avoid heavy chewing on the area until the next day

Mouth Bathing and Tooth Brushing
- next day, gently rinse the area with warm salt water (1 teaspoonful salt in cup of warm water)
- always rinse gently so as not to dislodge the blood clot
- resume normal tooth brushing around extraction area as soon as discomfort allows.

CHAPT 5 page 53

COMPLICATIONS AFTER EXTRACTION

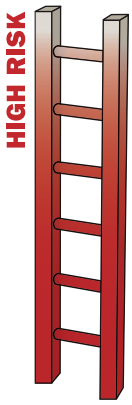
BLEEDING

If there is excessive bleeding immediately afterwards, place a pad of damp gauze or cotton wool over the socket and ask the patient to bite on it for half an hour. Pressure usually stops the bleeding.

If a patient returns later that day with further bleeding, try the above method again but if it fails, place a few tight sutures across the socket. This usually deals with the most persistent ‘bleeders’.

Another method is again to ask the patient to bite on a damp pad of gauze placed over the socket and then to apply a bandage for several hours (usually overnight) to keep the mouth firmly closed. The bandage can be made from a long narrow length of strong cloth and should be passed beneath the chin and round each side of the face to tie firmly on top of the head.

Placing a Suture



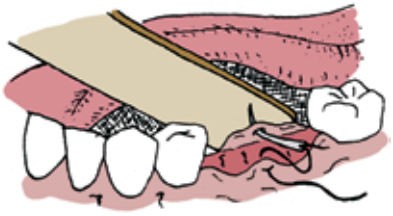
If you are extracting two or more teeth in a row or if there is excessive bleeding, the gum may need to be joined together using a 'suture' (needle and thread).

You will need: Suture needle
Suture material (thread)
Needle holder (haemostat)
Scissors

All items must be sterile and remember to wear gloves.

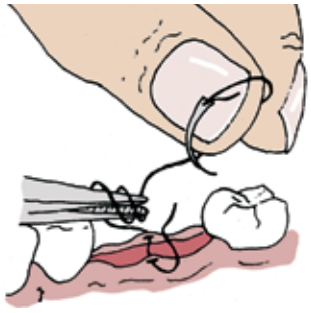
If more than one suture is required, start with the space nearest the front of the mouth and then work towards the back.

HOW TO PLACE A SUTURE



STEP 1
Thread the needle, grasp the holder and pass the needle through the loose gum (whichever part moves most easily).

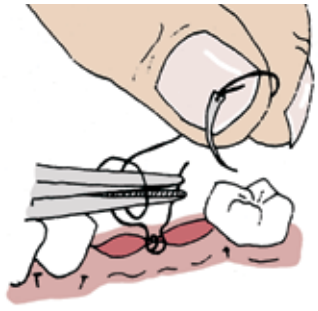
Then pass it through the more firmly attached gum. Protect the tongue with a spatula or a dental mirror.



STEP 2
Pull the thread through both gums until 4 cm remains loose on the starting side.

Wrap the piece of thread that's attached to the needle around the beaks of the holder, twice.

Grasp the free end of the thread with the tips of the needle holder. Take the needle in your finger & thumb and pull the holder in the opposite direction. The thread will slide off the beaks and form the first knot. Tighten the knot.



STEP 3
Tie a second knot by wrapping the thread once again around the beaks of the holder in the opposite direction to the first time.

Again grasp the free end and pull the two ends in opposite directions. The second knot is formed over the first knot.

STEP 4
Cut the threads so that about ½ cm is left free. (Too long and they will catch on the tongue – too short and they may untie.)

Cover the area with cotton gauze and have the patient bite onto it.

Ask the patient to return 1 wk later to have the suture removed.

BROKEN ROOTS

Occasionally roots will break during extraction. If the bottom 3rd remains, it is better to leave it alone as healing will usually occur naturally.

If a large piece of root remains, you can try to remove it with an elevator hand instrument.

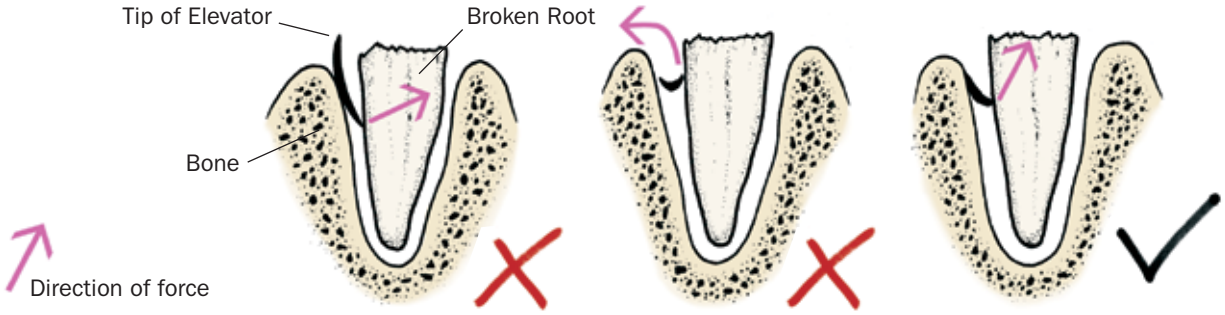
How Elevators work

Forceps enable a tooth to be grasped on two sides so that force can be applied directly to it and through it, onto the jaw bone.

An elevator applies force in between a tooth and the surrounding bone of the jaw.

Elevators act like wedges – one side applies force to the tooth (application point) and the other side applies an equal and opposing force to the bone (fulcrum).

You cannot exert much directional control with an elevator. This makes them suitable for removing broken roots since they enable the root to move along its own path, whereas forceps literally 'force' the direction.



Elevators come in different sizes and must fit to be effective: too thick and it will not gain access or lift – too thin and it will have no effect.

Elevators can also be used to break down the gum attachment or expand the bony socket where necessary so that forceps can be better applied.

Holding an elevator

Using Elevators Safely

The fulcrum for elevation should always be the bone. An adjacent tooth of similar size can also be used **but only if** that tooth is also being extracted. Elevators must be held firmly but they must be steered with gentle control.

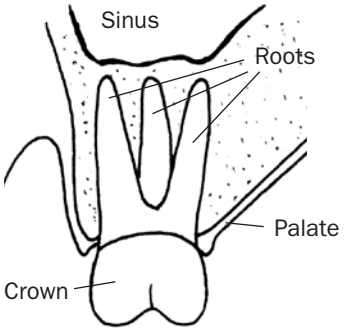
Hold the butt of the handle in the heel of the hand to exert parallel force along the instrument.

The index finger should extend down the shaft towards the tip to control direction and placement – this also acts as a 'stop' in case the instrument slips.

Thumb and remaining fingers grasp the handle to give rotation – gentle rotational movement allows controlled force to be applied to the root.

Place the elevator between the root and the socket and while pressing firmly, lever it a little each way, moving the instrument towards the bottom of the socket. It should act like a wedge to move the root out of the socket.

For upper premolar and molar roots very little upward pressure should be applied to avoid pushing the root further into the socket – the bone at the base of the sinus is very thin. If the root does not come easily it is better to leave it alone.



If it begins to move towards the sinus **stop immediately** and inform the doctor because if it passes into the sinus this could become infected. If you are in any doubt, do not use the elevator on upper premolars and molars.

A Broken Root that cannot be removed

If this is causing much pain or infection give the patient a course of anti-biotics and then refer them to a hospital with dental surgical facilities.

CHAPT 7 page 81

DRY SOCKET

This is a very painful condition, first noticed a few days after the extraction.

There is no blood clot in the socket and often it is filled up with food.

The patient will be in considerable pain and a foul smell will come from the socket.

Treatment

You will need to clean the socket to remove any food debris.

CHAPT 5 page 53

Either: use a syringe with warm water (which has been boiled and then cooled) and a dilution of hydrogen peroxide

or you can also use a pair of tweezers and a small ball of cotton wool, soaked in warm water.

After cleaning, soak a small piece of cotton wool or gauze in strong antiseptic (or zinc oxide/eugenol) and place it in the socket. A solution containing iodoform is very effective.

If possible, see patient again in 1-2 days to check healing, repeat the cleaning and refresh the dressing.

This process may need to be repeated for up to 10 days – but the pain should improve after 1-2 days.

Analgesics should be given.

TEMPORARY FILLINGS

As we stated at the beginning, this manual presumes that workers will have access to basic hand tools and materials but not to compression drills. Hand operated drills are useful (in trained hands) to clean out decay but the regular practice of inserting fillings is not encouraged unless this can be done in a fully equipped surgery setting where compression drills are available.

Sometimes though, it is useful to insert a temporary filling particularly if a patient has to travel in order to get further help.

Filling Materials

Some filling materials come direct from the manufacturer in paste form and ready for insertion. Others can be mixed using a powder and liquid, e.g. Zinc oxide and Eugenol.

Mixing Materials

Always mix on a smooth, flat, sterile surface such as a glass slab. Use a metal spatula to introduce the powder into the liquid until it forms a thick but moveable paste. It usually takes more powder than you think but add this slowly until you learn how much is required.

Preparing the Tooth

Before any filling is inserted, the hole or cavity in the tooth must be cleaned. Use a dental excavator that has a fine shaft and a small spoon-like tip to scrape out any food debris and soft decay. If possible, try to make the base of the cavity wider than the top so that the filling is more likely to stay in place.

Inserting the Filling

- Having cleaned the tooth, it is important to keep it dry and clean while you mix the filling material. To do this, place a pad of cotton wool between the side of the tooth and the cheek
- For lower teeth, also place cotton wool between the tongue and the inside of the tooth
- Hold these pads with the fingers of one hand
- Dry the cavity with a small piece of cotton wool held in a pair of tweezers in the other hand
- When the cavity is dry, insert the filling with a small flat bladed instrument and pack it down into the cavity
- Remove the pads of cotton wool and ask the patient to bite firmly down on the filled tooth
- Trim away any excess.

If you do not have an excavator to remove decay, a temporary filling can still give relief from pain. Most temporary fillings harden fairly quickly on contact with saliva but they are not designed for long-term use and will slowly dissolve. Sometimes they last many weeks or even months but patients should always be advised to have temporary fillings replaced with permanent material.

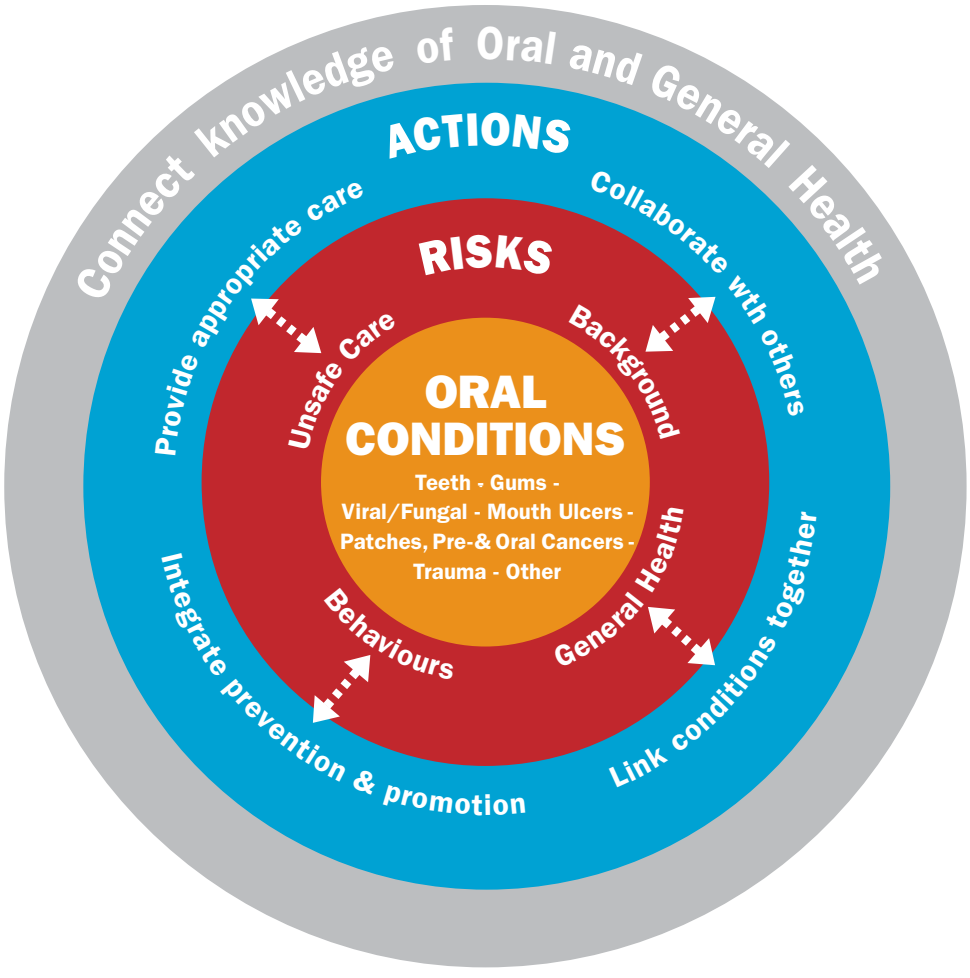
CHAPTER 7:
ORAL CONDITIONS

This chapter:
- INTRODUCES AN OVERVIEW OF GOOD PRACTICE
- SUMMARIZES GROUPS OF ORAL CONDITIONS
- OUTLINES ASSOCIATED RISKS

INTRODUCTION

INTRO page 5

Healthcare workers can add oral healthcare to their existing knowledge base, and so help to increase the capacity of services in areas where they are under-resourced. Connecting knowledge of oral healthcare and general healthcare is good practice, as referred to in the WHO's Basic Package of Oral Care (BPOC). Oral conditions are affected by oral health risks, and actions are needed to respond to these. An overview of good practice is shown in the diagram. Whatever your role in oral healthcare you need to be mindful of this good practice.



Good practice in oral healthcare in low resource communities

The target is to deal with **7 GROUPS OF ORAL CONDITIONS**. These conditions are unhealthy states of the mouth that may be diseases, illnesses or injuries:

TEETH – from early decay to severe infection

GUMS – infections of the gums from mild through to severe

VIRAL/FUNGAL – common infections in the mouth caused by these

MOUTH ULCERS – examples of minor and major ulcers

PATCHES, PRE- & ORAL CANCERS – patches, pre-cancers and cancers with some examples

TRAUMA – variety of minor traumas in the mouth

OTHER – some other conditions that are sometimes seen.

Each condition is described in terms of:

BRIEF DESCRIPTION
WHAT TO LOOK FOR
POSSIBLE TREATMENTS & PREVENTION
ASSOCIATED RISKS TO HEALTH.

There are **4 MAIN RISKS** that connect to one another, which need to be considered, as risks are things that negatively impact on health and well-being.

- **Background** – at country, community and individual levels
- **General Health/Immune System and Medication Effects** – relating to Communicable and Non Communicable Diseases
- **Behaviours** – diet, hygiene, smoking and chewing, alcohol use, and injuries
- **Unsafe Care** – unsafe treatment and unsafe cultural practices.

There are **4 MAIN ACTIONS** that work together to deal with their associated risks. These actions are broad strategies and ways of working.

- **Collaborate with others** – connect with organizations and people at country, community and individual levels
- **Integrate prevention and promotion** – join up educational programmes of oral and general health
- **Link conditions together** – see the holistic interactions between oral and general diseases
- **Provide appropriate care** – provide safe and suitable care.

To understand good practice and the following summary of oral conditions, clinical healthcare workers will need to read the whole of the Manual, read around the subject, attend suitable training, and engage in life-long learning.

Good practice is based on the idea of connecting knowledge in oral healthcare with that of general healthcare. Clinical healthcare workers might be involved in the early stages of identification of potential oral problems, referral, working in teams with dentists and doctors carrying out oral healthcare, and perhaps initial treatment where appropriate. Remember this manual is not a diagnostic tool, however it may assist in teaching and learning.

TEETH

DENTAL CARIES (TOOTH DECAY) AND PULPITIS (TOOTHACHE)

Dental caries, more commonly known as tooth decay or cavities, is caused by regular intake of sugary foods and drinks and bacteria naturally found in the mouth. The bacteria build up at the gum line and on the teeth in a sticky film known as plaque. The plaque breaks down sugars in the mouth and converts them to acid. The acid gradually destroys the tooth enamel and the dentine layer underneath. As the dentine and enamel break down, cavities are created. This leads to inflammation of the tooth nerve tissue leading to pain known as pulpitis and commonly called toothache.

CHAPT 2 page 21

WHAT TO LOOK FOR

- Look for dark patches on the teeth – these usually occur first on the tops, on the sides and around the necks of the back teeth (molars & pre-molars).
- The teeth may develop sensitivity to sweet, hot or cold food or drink. When a cavity becomes large this will usually cause pain and toothache.

CHAPT 2 page 22

TREATMENT

The ideal treatment for dental caries involves removing the decay using a compression drill and filling the cavity with dental material to restore the tooth. This treatment is both specialised and costly. One method which can be used when a compression drill is not available is Atraumatic Restorative Technique (ART) which can be applied using hand instruments to remove decay. In many low resource situations, removal (extraction) of the tooth may be the only realistic option.

PREVENTION

See Oral Health Promotion Chapter 3

RISKS

General Health/Immune System: Stomach acid from vomiting, reflux or eating disorders

Behaviour: **Diet -** sugar rich foods, frequent snacking, and fizzy drinks
Hygiene - poor cleaning of teeth and gums, not enough fluoride.

Decay on front surface of tooth

Decay on top and on side of tooth

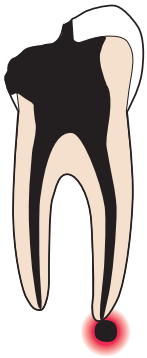
Extensive decay in all teeth

Gross decay leaving root in gap

Soft red swelling at base of root

Yellow liquid of pus from abscess

DENTAL ABSCESS



Abscess at base of root

As decay breaks down the dentine, bacteria begin to infect the pulp (nerve tissue) and pus can form between the end of the root (apex) and the jawbone. Abscesses cause severe pain because pressure on the nerve increases as the pus increases. If left untreated, a dental abscess may burst through the skin of the face, or into the mouth. This may leave a channel (a sinus tract), through which the pus can discharge.

WHAT TO LOOK FOR

- Tooth hurts when it is tapped gently
- Pain all the time, even when trying to sleep
- A sore swelling on the gum near where the root ends
- Swollen gums around the tooth, or swelling & reddening of the face on the same side
- Fever and trismus (inability to open jaw/mouth).

CHAPT 5
pages 49-50

The spread of an infection from a dental abscess can progress to cellulitis and Ludwig's angina.

Cellulitis can occur when a tooth or gum infection spreads through layers of skin to areas of the face, head and neck. This can be serious if not treated promptly because the infection can develop suddenly and may spread quickly throughout the body.

Swelling of cheek and under lower jaw from dental abscess

Spreading infection leading to cellulitis in cheek

LUDWIG'S ANGINA

Ludwig's angina is a serious infection. Cellulitis is present in the floor of the mouth, under the tongue, and spreads across the lower jaw from one side to the other. This is potentially life threatening because if left untreated the swelling can obstruct the airways.

WHAT TO LOOK FOR

- Difficulty in swallowing and/or breathing
- Fever, general weakness and tiredness
- Neck pain with redness and swelling
- The tongue may be swollen or raised out of place by a floor of the mouth infection.

CHAPT 6 pages 66-72

TREATMENT

The most effective treatment for a **dental abscess** is removal (extraction) of the tooth.

An **abscess with cellulitis** may require antibiotics and referral to hospital or removal of the pus and the cause: usually by incision and drainage and extraction of the tooth.

With **Ludwig's angina,** if the swelling blocks the airway, a breathing tube may be put through the mouth or nose and into the lungs. Antibiotics are usually given through a vein and specialist surgery may be needed to drain fluids that are causing the swelling. Extraction of the tooth that caused the infection can then be carried out.

Ludwig's angina: Spread of infection under jaw (submandibular)

Ludwig's angina: Tongue lifted and firm

PREVENTION

See Oral Health Promotion Chapter 3

RISKS

General Health/Immune System: HIV/AIDS, diabetes, leukaemia

General Health/Medication Effects: such as steroids

Behaviour: **Diet -** sugar rich foods, fizzy drinks
Hygiene - poor cleaning of teeth and gums.

CHAPT 6 page 75

DRY SOCKET

When a tooth is lost or removed a blood clot forms in the empty socket. Sometimes, after a couple of days, the clot can dislodge or dissolve creating a dry socket which leaves the bone exposed to whatever enters the mouth: air, food, fluid etc.

Loss of blood clot with exposed bone

WHAT TO LOOK FOR

- Dry socket is a very painful condition, usually noticed a few days after an extraction
- The socket has no blood clot and is often filled up with food
- A foul smell will come from the socket.

TREATMENT AND PREVENTION

Clean the socket with salt water to remove any food debris and give painkillers. If possible, see patient again in 1-2 days to check healing. To prevent a dry socket from developing, the patient should be aware of possible medication effects, stop smoking 24 hours before and after the extraction. Ensure the person taking the tooth out is experienced and gives appropriate post-extraction advice.

RISKS

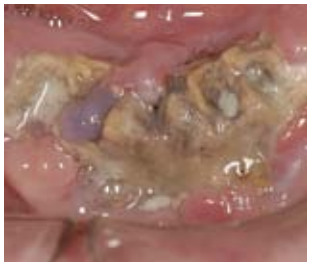
General Health/Medication Effects: Patient taking steroids or contraceptive pill

Behaviour: **Hygiene -** poor oral hygiene or socket rinsed too vigorously after extraction

Smoking and chewing - increases the risk of dry socket

Unsafe Care/Unsafe Treatments: Greater than usual trauma during the tooth extraction.

Pus oozing from sinus



Severe exposure of bone and pus present

OSTEOMYELITIS

Osteomyelitis is a bone infection, which can be caused by bacterial spread from a tooth abscess. The condition is more commonly seen in the mandible (lower jaw) than in the maxilla (upper jaw).

WHAT TO LOOK FOR

- Deep pain in the jaw with bone exposed and inflamed, sometimes with pus
- Local firm swelling of the jaw with redness and hot to the touch
- Feeling generally ill, possibly with fever
- Drainage of pus through the skin (in chronic osteomyelitis)
- Numbness of the lower lip when mandible is affected
- Bad breath (halitosis)
- Trismus – inability to open the jaw/mouth.

TREATMENT AND PREVENTION

Refer to hospital for specialist treatment involving intravenous antibiotics and care of damaged tissue. Treating the infection early with an awareness of patient's general health may prevent osteomyelitis.

RISKS

General Health/Immune System: Diabetes, circulation problems and sickle cell disease

General Health/Medication Effects: Bisphosphonates.

GUMS

PERIODONTAL (GUM) DISEASE

Gums (also known as gingiva) can be irritated and damaged by a build-up of plaque where the gum line meets the tooth. Gum disease is a condition where the gums become swollen, sore or infected. In a mild form this is called gingivitis, in an advanced form it is usually called periodontitis. If the plaque is not removed effectively, the harmful bacteria will progressively damage the gums and the bone supporting the teeth. Eventually the bone support is reduced to a point where the teeth become mobile and can then drop out.

Red and inflamed gingiva

Lots of plaque and inflamed gingiva

Calculus (tartar), plaque with loose teeth

WHAT TO LOOK FOR

- Healthy gingiva (gums) are firm, pink, show little sign of plaque and do not bleed
- Gingivitis (mild gum disease) – slightly inflamed gums, red around the tooth/gum margin with occasional bleeding
- Periodontitis – plaque is present, gums are soft and swollen, darker in colour and bleed on pressure
- There may also be deposits of calculus around the teeth, loose teeth (due to bone loss), bad breath, pus and old blood collecting around the teeth.

CHAPT 6
pages 57-58

TREATMENT

To keep gums healthy and prevent disease, remove plaque daily by effective and thorough tooth cleaning. Gingivitis can still be reversed by surface cleaning, removal of plaque and improved oral hygiene. Periodontitis can only be stabilised by thorough deep cleaning (root planing), requiring local anaesthetic.

PREVENTION

See Oral Health Promotion Chapter 3

RISKS

General Health/Immune System: Stress, clenching or grinding teeth, cardiovascular disease, diabetes, HIV/ AIDS, rheumatoid arthritis and genetics

General Health/Medication Effects: Oral contraceptives, anti-depressants, and certain heart medicines

Behaviour: **Diet -** malnutrition
Hygiene - ineffective cleaning of teeth and gums
Smoking and chewing - one of the most significant risk factors to gum health.

Inflamed and swollen gingiva at back of last tooth

PERICORONITIS

Pericoronitis is an inflammation of the gum around a partially erupted tooth most commonly seen in the lower third molars of young adults.

WHAT TO LOOK FOR

- Inflammation situated next to the last lower molars (wisdom teeth)
- It may only last a short time as the wisdom teeth erupt but it can persist if they are impacted and unable to come through the gum completely
- Common symptoms and signs are pain, bad taste, inflammation and pus from the gum around the tooth
- Pain can also be made worse if an upper tooth is biting down onto the inflamed gum.

TREATMENT

Clean the area around the tooth using a syringe of warm antiseptic (e.g. hydrogen peroxide) or salt water. Give pain relief. Antibiotics may be prescribed if there is no improvement or if the infection spreads.

CHAPT 5
page 53

Tell the patient to keep the mouth clean and rinse the area with warm salt water or chlorhexidine mouthwash, 4 x daily, after meals.

The patient may need to visit a dental surgeon to have the last molar removed as this is sometimes the only way to permanently cure the inflammation. Removal of the upper tooth can sometimes also help.

RISKS

Background: Commonly affects young adults

Behaviour: **Hygiene -** difficult area to keep clean.

ACUTE NECROTIZING ULCERATIVE GINGIVITIS (ANUG)

ANUG is also known as Vincent's infection or trench mouth. This is a painful bacterial infection and ulceration of the gums.

WHAT TO LOOK FOR

- Symptoms often begin suddenly
- The gums are red and puffy, very painful and bleed in response to any pressure
- Crater like ulcers are seen along the margins of the gums next to one or more teeth. They may have a white covering, bleed easily or ooze pus
- The mouth is very sore and the patient may not wish to eat
- The patient has bad breath (halitosis)
- Sometimes the patient feels generally unwell and may have a temperature.

TREATMENT

CHAPT 5 page 53

Antibiotics, ideally metronidazole, are prescribed for most cases. Rinsing the mouth with warm salt water after meals is also helpful and the patient needs to keep the mouth clean so if it is too sore for a brush, use cotton wool to wash the teeth. Alternatively hydrogen peroxide or chlorhexidine can be used to rinse or irrigate the gums. Ensure that the patient is having a balanced diet, especially in child cases.

PREVENTION

See Oral Health Promotion Chapter 3

RISKS

General Health/Immune System: Stress, infections of mouth, teeth, or throat, weakened immune system, HIV/AIDS, diabetes

Behaviour: **Diet -** poor nutrition
Hygiene - poor cleaning
Smoking and chewing - ANUG occurs most frequently in heavy smokers.

Loss of shape in gums between teeth

Inflamed gums with loss of shape

Ulcerated and necrotic (dead) gum tissue in HIV patient

Extensive swelling of gums due to anti-epileptic drug phenytoin

OTHER GUM SWELLINGS

GINGIVAL OVERGROWTH

Drug induced gingival overgrowth can be seen in some people taking anti-epileptic medications, drugs for high blood pressure and certain drugs that suppress the immune system.

WHAT TO LOOK FOR

- The gingival tissues, especially in the front are enlarged, of normal colour and not tender.

TREATMENT AND PREVENTION

Careful attention to cleaning of teeth and gums

RISKS

General Health/Medication Effects: Effects of anti-epileptic, blood pressure, and immune suppressant drugs

Behaviour: **Hygiene -** poor cleaning

Soft red overgrowth of gingival tissue

PREGNANCY EPULIS

WHAT TO LOOK FOR

- In the later stages of pregnancy, some women will develop a localised swelling on the gum, known as a pregnancy epulis or pregnancy granuloma. This is a harmless swelling that appears red and inflamed, may bleed easily and is generally not painful.

TREATMENT AND PREVENTION

It may be removed, but if left alone, the epulis will usually become smaller or disappear after childbirth.

RISKS

General Health/Medication Effects: Hormonal effects of pregnancy

Behaviour: **Hygiene -** poor cleaning.

LEUKAEMIA

Leukaemia is a cancer of the blood or blood cells of which there are many types.

WHAT TO LOOK FOR

- One of the first signs of leukaemia may be swelling and bleeding from the gingiva (gums). Common general signs are tiredness, fever, losing weight, easy bleeding or bruising, night sweats and bone pain.

TREATMENT AND PREVENTION

Leukaemia affects the whole body and there is a variety of ways to treat it. Good dental cleaning and possible use of warm salt rinses or chlorhexidine mouthwash may reduce the inflammation and soreness present.

RISKS

Background: Age, gender, genetics, pesticides and industrial chemicals

General Health/Medication Effects: Previous cancer treatment

Behaviour: **Smoking and chewing -** increased risk of acute myeloid leukaemia.

All gingiva enlarged and bleeding in Leukaemia

Inflamed gingiva

Enlarged gingiva


Crusted blisters on lips


Fluid filled blisters


Herpetic ulceration on tongue of HIV/AIDS patient

VIRAL/FUNGAL

COLD SORES

Herpes Simplex: Fever blisters

Herpes labialis, commonly known as cold sores, is an infection caused by the herpes simplex virus. It is characterized by small and usually painful blisters on the skin of the lips, mouth, gums or on the skin around the mouth. These blisters are commonly called cold sores or fever blisters.

WHAT TO LOOK FOR

Infection occurs in two stages, most people get stage 1 as a child and develop stage 2 as adults.

- **Stage 1** Blisters form on the inside of the mouth then develop into painful ulcers. The gums become swollen and deep red and often the tongue is furred. After this clears, the virus lays dormant until another infection reactivates it.
- **Stage 2** A blister or cluster of blisters forms on the edge of the lip. The cluster then bursts to become an encrusted cold sore. Sufferers may feel a tingling sensation or numbness as the blisters form. Sores usually heal after 1-2 weeks.

TREATMENT

Mild cases of the first infection need no treatment. If it recurs, treatment with an antiviral drug e.g. aciclovir can be useful. For sores outside the mouth, covering the area with a dry powder e.g. baby powder, helps to ease pain.

Cold sores are common and while they present no serious risk they are highly infectious. The main danger is that during the first infection when the body has no immunity or resistance to the virus, it can easily be spread: e.g. touching the ulcers and then touching the eye can lead to a corneal ulcer. Oral/genital contact can lead to herpes genitalis. Keep fingers and hands away from sores and always wash the hands before and after touching the face and eyes.

RISKS

Background: Exposure to sunlight

General Health/Immune System: HIV/AIDS, weakened immune system, contact with infected people e.g. kissing, stress, menstruation

General Health/Medications: - that suppress the immune system.

SHINGLES

Herpes Zoster

Herpes zoster, commonly known as shingles, is the same virus that causes chicken pox. After the initial exposure, the virus lies dormant in certain nerve fibres. It may become active again as a result of various risk factors.

WHAT TO LOOK FOR

- A painful blister-like rash and inflammation of the skin. The rash usually forms on one side of the face and mouth following the line of a neural pathway up to the midline of the face
- The nearby lymph nodes are usually enlarged and tender
- Acute phase lasts for about a week but the pain continues until the blisters start healing
- Flu-like symptoms (fever, headache, fatigue)
- Red, sensitive, sore skin with blisters
- Pain (may be burning or throbbing), itching and tingling.

TREATMENT

There is no cure for shingles, but medication may be prescribed to ease symptoms and shorten the length of the infection. If severe, the antiviral drug aciclovir (800mg 5 x daily x 7-10 days) may help. An analgesic may also be given to reduce pain.

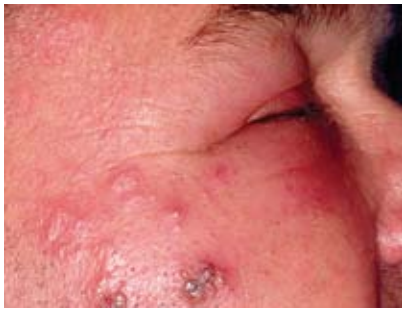
RISKS

General Health/Immune System: HIV/AIDS, cancer, ageing, stress; virus spread can lead to chickenpox in people not vaccinated against chickenpox.

General Health/Medication Effects: Undergoing cancer treatments, prolonged use of steroids, and drugs that suppress the immune system.

Crusted blisters following nerve path

Lesions on palate limited to one side



Skin lesions following nerve path

White plaques that can be wiped away

Red patches on tongue

ORAL THRUSH

Candida Albicans

Oral thrush is the common name for candida albicans. This fungus microbe is naturally present inside the mouth, but if resistance to infection is low, it can multiply to become out of control.

WHAT TO LOOK FOR

- White, yellow or sometimes red patches, most often appearing on the roof of the mouth and on top of the tongue. If they are rubbed off (e.g. when eating or cleaning teeth) they leave a painful raw area that may also bleed
- Patient complains of a burning or swelling feeling in the mouth especially when eating spicy food
- There may also be cracks at the corners of the mouth that are painful and sometimes bleed.

TREATMENT

Gently scrub the tongue and gums with a clean cloth or soft brush 3 - 4 times daily. Then rinse with salt water and spit out. Prescribe an antifungal drug and mouthwash.

CHAPT 5
page 53

RISKS

Background: Occurs most commonly in the very young or the elderly

General Health/Immune System: HIV/AIDS (70-80% incidence), impaired immune system

General Health/Medication Effects: Long term antibiotic use

Behaviour: **Diet -** malnutrition.

Red inflamed hard palate

Red inflamed mucosa at back of mouth

White plaques that can be wiped away

MOUTH ULCERS

RECURRENT APHTHOUS STOMATITIS

Mouth ulcers are the common name for recurrent aphthous stomatitis. Mouth ulcers can take many forms. Any shallow breach of the skin or mucous membrane is called an ulcer. A minor aphthous ulcer is a small (less than 0.5cm), whitish, painful sore on a soft tissue area within the mouth. A major aphthous ulcer (larger than 0.5cm) is a more severe form.

WHAT TO LOOK FOR

- Mouth ulcers are usually round sores that appear on the inside cheeks, lips, tongue or gums
- They can be white, red, yellow or grey in colour and swollen
- There may be more than one mouth ulcer and they may spread or grow
- Mouth ulcers should not be confused with cold sores. Cold sores often begin with a tingling, itching or burning sensation around your mouth
- Most common ulcers heal within 10 days. If a generally painless ulcer has not healed after 3 weeks, this could be an early sign of cancer and the patient requires specialist referral.

CHAPT 5
page 53

TREATMENT

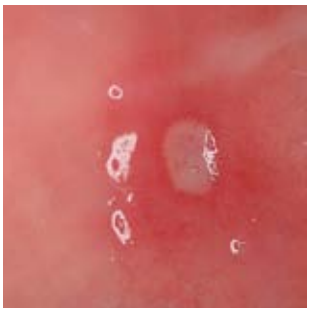
Keep the area clean using a simple salt mouthwash or chlorhexidine to control infection and enable it to heal. No medicine will give complete relief so make sure the patient is aware of this.

In people infected with HIV, the ulcers take much longer to heal, especially in people taking a medicine used to weaken HIV e.g. AZT (zidovudine).

RISKS

General Health/Immune System: HIV/AIDS, stress, allergies, hormones, viral infections, vitamin B12 or iron deficiency, weakened immune system.

Behaviour: **Diet -** acidic or spicy food
Physical impacts - accidentally biting the tongue, hot food.


Minor ulcer


Minor ulcers from herpes infection


Small round ulcer on mucosa


Major aphthous ulcer on mucosa


Major aphthous ulcer at back of mouth

PATCHES, PRE-CANCERS AND ORAL CANCERS

Some oral conditions may or may not lead to oral cancer lesions (leukoplakia and erythroplakia), some are precancerous (oral submucous fibrosis) and others are types of oral cancer (squamous cell carcinoma and Kaposi's sarcoma).

White patch on gum margin

White patch in buccal mucosa

White patch in buccal mucosa

Leukoplakia of tongue

PATCHES

WHITE PATCHES/LEUKOPLAKIA AND RED PATCHES/ ERYTHROPLAKIA

Leukoplakia is a clinical term for a white patch that will not peel off and cannot be identified. When it is identified then it is called by its clinical name. Some examples of conditions in which leukoplakia is seen are smoker's keratosis, traumatic/frictional leukoplakia, hairy leukoplakia and lichen planus. Most leukoplakia patches are noncancerous, however a small number of cases (5%) can show signs of cancer. A reddened patch within the oral mucosa is called erythroplakia and can occur along with leukoplakia. Although erythroplakia is less common than leukoplakia, it carries a significantly higher risk (50%) of cancerous cell changes.

WHAT TO LOOK FOR

- Location is usually on the tongue but may be on the inside of the cheeks
- Skin lesion colour is usually white or grey or may be red
- Texture of lesions may be slightly raised or thick with a hardened surface
- There might also be secondary candida (fungal) infection
- At first there is no discomfort but once the patch is well formed it feels rough and stiff and may be sensitive to hot or spicy food
- It sometimes forms to protect an area made sore by rubbing from a rough tooth or denture (traumatic/frictional leukoplakia), or reaction to the heat of inhaled smoke (smoker's keratosis)
- Hairy leukoplakia of the mouth is an unusual form of leukoplakia that is seen mainly in people who are HIV-positive. The symptoms of hairy leukoplakia are painless, fuzzy, white patches on tongue.

TREATMENT

In a case of trauma, dealing with the source of irritation, usually sees most cases heal within a week or two – e.g. rough teeth or dentures can be filed smooth. For smoker's keratosis, advise the patient to stop smoking. Generally, if the patch has not cleared up within 3 - 6 weeks, then this is a cause for concern, and the patient would need to be referred for a small tissue biopsy.

RISKS

General Health/Immune System: HIV/AIDS

Behaviour: **Smoking and chewing -** higher risk of leukoplakia and oral cancer
Alcohol - combined with smoking further increases risk of cell changes
Physical impacts - chronic trauma from tooth, denture or heat from smoking.

PRE-CANCERS

A precancerous or premalignant lesion is where there is an increased risk of cancer being present if the condition is left untreated.

ORAL SUBMUCOUS FIBROSIS

Oral submucous fibrosis is a precancerous condition of the oral mucosa. It has been established that chewing or smoking habits relating to chilli, areca nut, betel quid and tobacco, cause oral submucous fibrosis.

Limited mouth opening

Fibrous bands of submucous fibrosis

WHAT TO LOOK FOR

- This is marked by stiffening of the oral mucosa and development of fibrous bands and results in a restricted mouth opening
- It is not reversible nor is there any effective cure
- The patient may also complain of a burning sensation in the mouth
- As the disease progresses, the jaws become rigid to the point that the sufferer is unable to open their mouth
- Incidence of the disease is higher in people from India, South-East Asia, South Africa and the Middle East.

PREVENTION

If the disease is detected at a very early stage, stopping the harmful habit is sufficient, however most patients with this condition present with severe disease.

RISKS

Behaviour: **Diet -** consumption of excessive amounts of red chillies and nutritional deficiencies
Smoking and chewing - chewable tobacco has substances that harm the oral mucosa and destroy its elasticity
Alcohol - combined with smoking, the risk of oral submucous fibrosis increases.

Thick Smoking Burn on surface of tongue

REVERSE SMOKING BURN

Reverse smoking is common practice in some parts of India and in some Latin American countries, where the lighted end of a cigar or cigarette is held inside the mouth and the smoke is then inhaled. In areas where reverse smoking is popular, oral cancer rates are high.

WHAT TO LOOK FOR

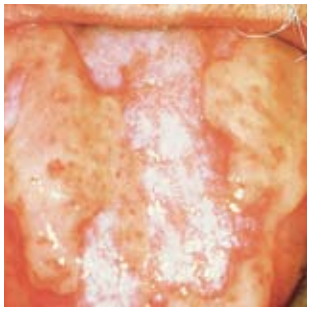
- There can be many changes to the palate and or surface of the tongue, such as elevated white patches, red areas and ulcerations.

TREATMENT

The best treatment is to stop the addictive habit of smoking. In low resource countries smoking cessation initiatives need to be appropriate and affordable, involve the community, and need to be integrated into general healthcare services.

RISKS

Behaviour: **Smoking -** in areas where reverse smoking is popular, oral cancer rates are high.



Ulcerative lichen planus of tongue

Lacy white lines on buccal mucosa

ORAL LICHEN PLANUS

Oral lichen planus is a disorder of the skin and mucous membranes. Most common in middle aged and elderly women, half of whom are also likely to have the condition on their skin.

WHAT TO LOOK FOR

- Most commonly starts as a number of small pale pimples, gradually joining to form a fine, white (leukoplakia), lacy network of slightly raised tissue
- Can also take the form of shiny, red, slightly raised patches
- Most common on the inside of cheeks and sides of the tongue
- Patients complain of sore mouth, may have dry metallic taste but some also remain unaware of the condition.

TREATMENT

Any colour or texture changes to the inside of the mouth that do not clear up within 3 weeks should be referred to a doctor. This disease tends to persist and recur and the effects can at best be minimised rather than cured. The initial attack may last for weeks to months, resolve itself and then recur for years. Keep the mouth healthy by regular cleaning. Anti-inflammatory tablets or mouthwash can give some relief.

RISKS

Background: Occurs in or after middle age in women and is less common in children

General Health/Immune System: Hepatitis, human papilloma and herpes virus

General Health/Medication Effects: Allergy to chemicals and systemic drugs such as for malaria, diabetes and blood pressure

Behaviour: **Physical impacts -** trauma from sharp teeth, cheek or tongue biting.

ORAL CANCER

Oral cancer takes different forms but the term is generally used to cover any abnormal malignant tissue growth in the mouth or on the lips.

WHAT TO LOOK FOR

- Mucosal lesion, lump or ulcer – seen on the tongue, lip or cheek
- Usually pale coloured but can also be dark or discoloured
- May be a deep, hard edged crack in the tissue possibly with bleeding
- Usually painless, initially
- May develop a burning sensation or pain as the tumour advances
- Additional symptoms can include tongue problems, difficulty with swallowing, mouth sores and abnormal taste.

PREVENTION

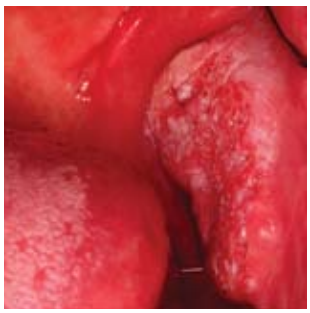
- Minimise or avoid smoking or tobacco use
- Minimise or avoid drinking alcohol
- Eat a balanced diet
- Practice good oral hygiene
- Have dental problems corrected
- Have the mouth examined once a year – many oral cancers are first discovered during routine dental examinations
- If you suspect the presence of oral cancer, refer the patient to a specialist because early detection is very important.

RISKS

Behaviour: **Diet -** malnutrition
Smoking and chewing - this is associated with 70 - 80% of oral cancers
Alcohol - heavy intake (combined effect greater with smoking).

For more information about Oral Cancer visit: oralcancerfoundation.org

Ulcer with raised margins on side of tongue



Squamous cell carcinoma of buccal mucosa

Squamous cell carcinoma behind last tooth (retromolar)

Squamous cell carcinoma of tongue

SQUAMOUS CELL CARCINOMA

Most oral cancers are squamous cell carcinomas. Mouth cancer is more common in men than in women, developing between 50-74 years of age. This is thought to be due to the fact that, on average, men drink more alcohol than women.

WHAT TO LOOK FOR

- A sore on the lip or in the mouth that does not heal
- A lump or thickening on the lips or gums or in the mouth
- A white (leukoplakia) or red (erythroplakia) patch on the gums, tongue, or lining of the mouth
- Bleeding, pain, or numbness in the lip or mouth
- Change in voice
- Loose teeth or dentures that no longer fit well
- Trouble chewing or swallowing or moving the tongue or jaw
- Swelling of jaw
- Sore throat or feeling that something is caught in the throat
- Squamous cell carcinoma usually develops in areas of leukoplakia (white patches that do not rub off)
- Lip and oral cavity cancer may not have any symptoms and is sometimes found during a regular dental examination.

TREATMENT

If the cancer has not spread beyond the mouth or oropharynx – the bit of your throat at the back of your mouth – a complete cure may be possible using surgery alone. If the cancer is large or has spread to your neck, surgery, radiotherapy and even chemotherapy may be necessary to control it.

RISKS

Background: Excessive sun exposure to face and lips

General Health/Immune System: Human papilloma virus (HPV), HIV/AIDS

Behaviour: **Smoking and chewing -** tobacco, chewing areca nut, betel quid, paan and qat

Alcohol - excessive alcohol increases risk of developing oral squamous cell carcinoma.

KAPOSI'S SARCOMA

Kaposi's sarcoma is a malignant tumour of the connective tissue, which is mainly seen in people with HIV/AIDS or those with genetic vulnerability.

WHAT TO LOOK FOR

- Orally, it occurs as painless red or purple patches in the mouth looking like bruises
- It commonly affects the hard palate, gingiva and tongue though it can occur elsewhere on the body.

TREATMENT

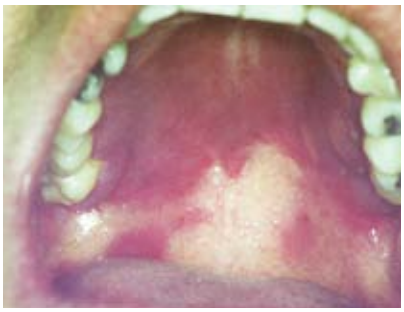
Refer the patient to a health worker or doctor experienced with the problems of HIV/AIDS.

RISKS

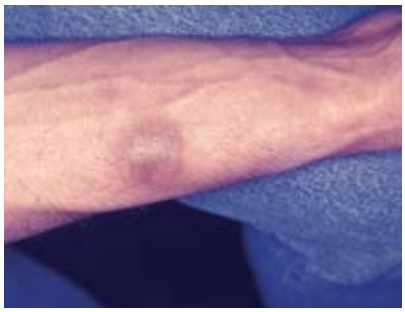
Background: Seen more in men of specific genetic types, such as those of Ashkenazi Jewish descent or from the Mediterranean or equatorial Africa

General Health/Immune System: HIV/AIDS, human herpes virus (HHV-8).

Gingiva with Kaposi's sarcoma



Flat purple lesion on hard palate



Flat brown lesion of Kaposi's sarcoma

Diffuse white patches on palate

Inflamed salivary ducts on palate

TRAUMA

SMOKER'S KERATOSIS

Smoker's keratosis is a painless white patch in the mouth of someone who is a regular smoker. This thickened white/grey lesion of the hard palate is caused by tobacco and heat from smoking a pipe, cigar, or cigarettes.

WHAT TO LOOK FOR

- Commonly, these patches occur on the palate (roof of the mouth) as a white 'tile-like' pattern with little red spots and are painless
- Smokers may already have a white patch (leukoplakia) or a red patch (erythroplakia) elsewhere in the mouth
- Please note that persistent white patches due to smoking may be considered potentially malignant.

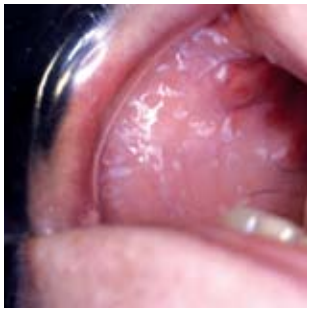
TREATMENT

Smoker's keratosis is not considered a pre-cancerous lesion, however, the patient should be encouraged to stop smoking, and the oral mucosa should be checked periodically.

The outlook for smoker's keratosis is good, but the patient is at increased risk of developing cancer in other locations in the mouth or in the upper aerodigestive tract.

RISKS

Behaviour: **Smoking and chewing -** chemicals in tobacco may act as irritants; pipe smoking produces more heat on the palate than any other form of smoking.



Damage to cheek where aspirin placed

White surface where aspirin placed

CHEMICAL BURN

Chemical burns are primarily either acid or alkaline.

WHAT TO LOOK FOR

- Aspirin sucked for toothache will cause a mucosal burn; injury may be represented by redness, swelling, and pain, with a whitened area (leukoplakia) where the tablet was placed.

TREATMENT

Remove irritant and deal with toothache. Advise the patient against such a practice.

RISKS

Unsafe Care/Unsafe Treatments: Cultural practices that have oral implications vary in different countries and regions e.g. car battery acid placed on tooth to alleviate pain or aspirin placed in mouth.

TOOTH SURFACE LOSS

TOOTH EROSION

Tooth erosion is loss of tooth substance due to acid. This can arise from stomach acid, reflux, vomiting or the frequent intake of fizzy drinks and acidic food, including pickles.

Smooth tooth surface and enamel loss

WHAT TO LOOK FOR

- The tooth enamel will show signs of erosion and the teeth may be sensitive to hot and cold drinks.

TREATMENT AND PREVENTION

Advise patients to reduce frequency of intake of fizzy drinks and sour foods. Patients should also avoid cleaning teeth for at least 30 minutes after having such food/drink to allow acid to dilute in mouth, and rinse mouth with plain water. After every episode of vomiting, patients should rinse their mouths with plain water.

TOOTH ABRASION

Tooth abrasion is wear of teeth caused by an external agent like vigorous brushing with a hard tooth-brush or using crushed coal or ash to clean teeth, a common habit among some communities.

Severe wear at neck of tooth

WHAT TO LOOK FOR

- Abrasion is almost always on the side of a tooth
- Abrasion is usually ditch or wedge shaped and can be quite deep.

CHAPT 3
pages 31-32

TREATMENT AND PREVENTION

Advise the patient to use soft cleaning instruments and teach them correct cleaning techniques.

TOOTH ATTRITION

Tooth attrition is wear of teeth caused by one tooth moving against another.

Severe wear on occlusal surfaces

WHAT TO LOOK FOR

- It affects occlusal (biting) surfaces and those between the teeth (interproximal)
- There may be a habit of grinding teeth (bruxing)
- Loss of many teeth so teeth remaining are more worn down.

RISKS

General Health/Immune System: Reflux acid from stomach, eating disorders, diseases of salivary glands, diabetes

General Health/Medication Effects: Reduction in salivary flow as a side effect of drugs

Behaviour: **Diet -** frequent use of acid drinks and food (fruit juices, fizzy drinks, citrus fruits)
Alcohol - alcohol abuse
Physical impacts - grinding teeth (bruxing), fewer teeth present in mouth.


Replacement of tooth

KNOCKED OUT/AVULSED TEETH

Initial treatment to head trauma should always be to check, restore and maintain an adequate airway and stop any bleeding.

The nerves and blood vessels of a knocked out tooth cannot be repaired but if it is put back into the socket, the root of the tooth can re-attach to the bone.

TREATMENT

Permanent teeth that have been knocked out (avulsed) should be held by the crown, not by the root. Rinse them with a sterile solution to remove debris, (milk is the best substitute, if available) and then compress the tooth/teeth back into their sockets.

If a patient is storing a tooth while awaiting treatment, the best solutions to use, in order of preference, are:

1. milk
2. saline
3. saliva
4. bottled water and least suitable is tap water

Teeth re-implanted within 15 minutes have a 98% chance of being retained after further attention by a dentist. If this is not possible then it may be best not to reimplant the tooth.

HERE'S WHAT TO DO TO HELP SAVE YOUR TOOTH:

STEP 1: Pick the tooth up by the crown only (do not touch the root)
STEP 2: Lick the tooth clean if dirty, or rinse in water. Do not scrub it
STEP 3: Stick the tooth back in position (adult teeth only).

NEVER TRY TO RE-INSERT A BABY TOOTH!

RISKS

Behaviour: **Alcohol -** misuse can lead to violence and anti-social behaviour
Physical impacts - unsafe playgrounds, workplace, road accidents and violence.

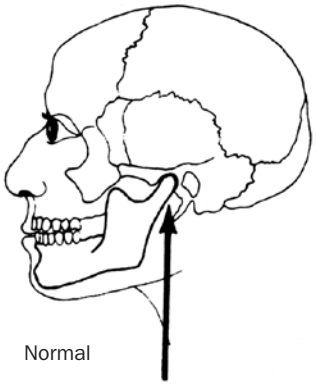
WWW.

For more information about Dental Trauma visit: iadt-dentaltrauma.org

DISLOCATED JAW

A dislocated jaw occurs when the mandible is displaced from one or both of the temporomandibular joints.

This can happen when the jaw is opened wide and then cannot be closed. Often occurs in people who are missing several back teeth: e.g. when yawning.



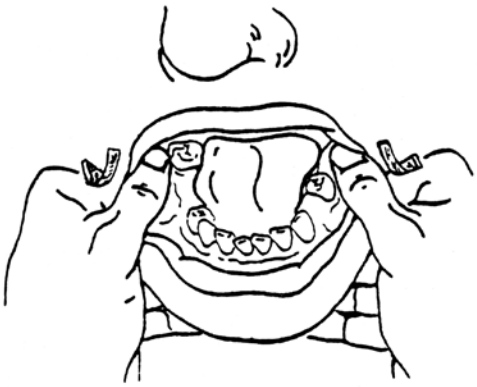
Normal

Dislocated

WHAT TO LOOK FOR

- Inability to close jaw, stuck in open position
- Inability to close teeth together
- Inability to close lips easily
- Lower jaw looks long and pointed forward
- Pain when you press on the joint in front of the ear
- Cannot speak clearly
- When extracting a tooth, pressing against the jaw can sometimes dislocate it.

TREATMENT



1. Find a way to support the patient's head e.g. sitting on the floor with their head against a wall.
2. Kneel in front of them. Place your fingers under the jaw, outside the mouth.
3. Place thumbs inside the mouth, beside the last molar tooth on each side – do not put them on top of the molars – you may get bitten!
4. Tell the patient to relax; if the muscles are tight they'll resist the jaw being replaced. Press down on the side of the lower molars to force the mandible downwards and backwards. Press down before you press back. The jaw should click back into place and the patient should feel immediate relief.
5. Once it is back in position, hold it there until you feel the muscles relax. Support the jaw with a head and chin bandage for 3-4 days. Prescribe analgesia if required. Refer if not successful.

RISKS

Background: Laughing, vomiting, singing, eating and dental treatment

Behaviour: **Physical impacts -** fighting, sports injuries, and car accidents.

Child with cleft lip

Adult with cleft palate

OTHER

CLEFT LIP AND CLEFT PALATE

Cleft lip and cleft palate present in a wide variety of forms and combinations. They are the most common physical birth abnormality and occur once in every 500 - 1000 children.

WHAT TO LOOK FOR

- Cleft lip and palate ranges from puckering of the lip to a complete gap, involving the floor of the nose, and may be associated with the hard and/or soft palate. It results from incomplete facial development during pregnancy.

TREATMENT

It can be treated with surgery shortly after birth with highly successful results. Parents will need reassurance and help with feeding the infant.

RISKS

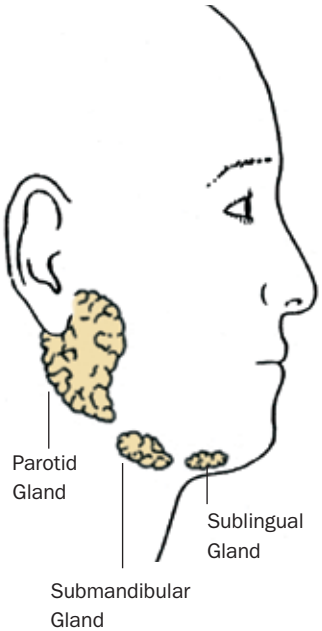
Background: Family history of cleft, gender, genetics

General Health/Immune System: Diabetes or obesity before and during pregnancy

General Health/Medication Effects: Epilepsy medication during the first 3 months of pregnancy and other medications

Behaviour: **Smoking and chewing -** may increase risk of cleft palate
Alcohol - more likely to occur in pregnant women who drink alcohol.

SALIVARY GLAND INFECTION



Salivary Glands, commonly known as spit glands, are located in front of the ear and under the jaw on each side of the head. Saliva enters the mouth through ducts on the inside of each cheek and under the tongue. The major glands are found in and around the mouth and throat.

WHAT TO LOOK FOR

- Swelling on the face and around the area of the glands
- Pain gets worse when hungry or when food is seen or smelled
- Duct openings inside the mouth may be red, swollen or tender to the touch
- It is possible for a small stone to block a duct and cause infection. You may be able to feel the stone near where the duct enters the mouth.

TREATMENT

Reduce the infection and swelling first with a short course of antibiotics and analgesics. Apply a wet, hot cloth to the swelling as often as possible.

Give enough soft food to prevent the person from feeling hungry – this will also help to reduce pain. When the person feels better, a doctor can try to remove any obvious blockage. If in doubt, refer for specialist help.

RISKS

General Health/Immune System: Mumps, tumours, HIV/ AIDS, Sjogren's syndrome, diabetes, eating disorders (bulimia)

General Health/Medication Effects: Medications that cause dry mouth, radiation to head and neck

Behaviour: **Diet -** malnutrition
Hygiene - inadequate oral hygiene
Alcohol - can cause dehydration, which can cause spit gland infections.

DRY MOUTH (XEROSTOMIA)

Dry mouth or xerostomia is dryness in the mouth due to reduction in salivary flow or its qualities, which happens for many reasons.

WHAT TO LOOK FOR

- Patient complains of a dry mouth and may have difficulty talking, eating and swallowing
- May be caused by infected swelling in saliva glands or Sjogrens syndrome which dries mucous membranes
- Other causes of dry mouth include: allergies, breathing through the mouth at night, and mouth infections.

TREATMENT

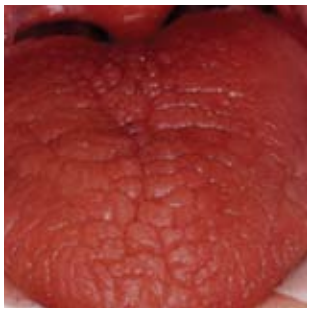
For help with eating if the mouth is very dry or sore, try the following:

- Eat soft foods in small pieces that are easy to chew and swallow
- Cook foods until they are soft and tender
- Mix foods with liquids to make them easier to swallow
- Keep a small bottle of drinking water with you all the time
- Use a straw to drink fluids
- Do not eat hot or spicy foods which can irritate a sore mouth
- If it is difficult to swallow, tilt the head back a little or move it forward
- Rinse the mouth with clean water often to remove food and germs

CHAPT 7
page 90

PREVENTION

Patients with persistent dry mouth are more prone to dental caries and gum disease as well as oral infections, particularly oral thrush. Consequently, good oral hygiene is required.



Tongue shiny, inflamed and fissured

Dry pale gingiva of dry mouth

Dry pale mucosa

RISKS

Background: Older people taking medication with health conditions that cause dry mouth

General Health/Immune System: Sjogren's syndrome, HIV/AIDS

General Health/Medication Effects: Antiretroviral drugs (ARVs), antidepressants, chemotherapy drugs and radiation treatments to head and neck and many other drugs

Behaviour: **Smoking and chewing -** tobacco use
Physical impacts - injury or surgery causing nerve damage to head and neck.

NOMA (CANCRUM ORIS)

Noma is gangrene of the face and primarily occurs in young, severely malnourished children, 2-5 years of age.

WHAT TO LOOK FOR

- Inflammation of the gums and inner cheeks where the inflamed area will ulcerate if not treated
- Ulcers develop a foul-smelling drainage as the facial tissues begin to die
- Eventual destruction of the bones around the mouth will cause deformity and loss of teeth
- In severe cases, the jawbone will be infected which can spread through the cheek to the face.

TREATMENT

Noma can be fatal if left untreated so get medical help quickly, in hospital if possible. Antibiotics and nutritional support can halt progression of the disease but once it has taken hold, extensive surgery may be required.

RISKS

Background: Extreme poverty, malnutrition, unsafe drinking water, extreme stress

Behaviour: **Diet -** malnutrition due to lack of access of healthy nutrition
Hygiene - poor sanitation and poor cleanliness.

WWW.

If you require more information about Noma search the web for "The Surgical Treatment of Noma" written by Kurt Bos and Klaas Marck or www.facingafrica.org

Extensive deep tissue destruction

Extensive deep tissue destruction

FLUOROSIS

CHAPT 2 page 20

Fluorosis is a change in the appearance of the enamel surface of all the teeth. The most common types do not affect the function of the tooth and do not cause pain. While lower concentrations of fluoride through drinking water and fluoridated salt, toothpaste, and milk, are protective for teeth, higher concentrations of fluoride lead to fluorosis.

Brown and white staining of all teeth

WHAT TO LOOK FOR

- Mild forms of fluorosis appear as white, lacy markings on the tooth's enamel
- Moderate fluorosis appears the same but covers more of the tooth
- When fluorosis is severe, the enamel may have a pitted appearance and brown spots
- Observe children's teeth erupting, as fluorosis is due to over exposing teeth to fluoride in the first 8 years of life.

TREATMENT AND PREVENTION

The first step is to assess the concentration of fluoride in the community in order to be able to evaluate whether it is too high or not. Measures can then be introduced to reduce the fluoride concentration if it is too high.

RISKS

Background: High levels of fluoride in local water supply – regularly found in 22 countries: most common in Asia, India and China

General Health/Medication Effects: Inappropriate use of fluoride containing toothpastes and rinses.

RISKS

It is well proven that general health supports oral health and oral health is essential to general health. Many general disease conditions also have oral manifestations that increase the risk of further oral disease and then in turn, these become risk factors for a number of general health conditions.

Oral health shares many risk factors with general health. One risk factor can affect several chronic diseases and most diseases have several risk factors. Some risk factors can interact, which increases their effects.

BACKGROUND RISKS

Background risks are factors that challenge people's health and well-being. There are many influences, although they can be considered at country, community and individual person levels.

COUNTRY

In low income countries there are many reasons for lack of treatment such as few resources, rural communities, and insufficient trained staff. Poverty leads to malnutrition, overcrowded living conditions, lack of sanitation and contaminated water, creating an environment for infectious diseases.

This is critical since general health affects oral health, and oral health affects general health. Globally, the main oral problem is dental caries and periodontal diseases, although there are other conditions, which can be prevented and controlled through action by individuals, communities, and professionals.

COMMUNITY

When working with a community it is important to ensure that you are aware of any national and regional health policies that are already in place. Are there any factors that you can influence regarding the promotion of good health, oral health and the prevention of disease? When you provide treatment it needs to be effective, appropriate, safe and sustainable.

For both prevention/promotion and treatment it is important to communicate and cooperate with healthcare teams, and integrate as much as possible with other groups such as schools, community leaders, local government, and the wider community.

Factors that may influence the provision of care include the availability of resources and services and the nature of the working environment e.g. rural/urban. It is important to understand any aspects of health and well-being that are particular to each community and it is vital to be sensitive to the living conditions that people find themselves in so you can give particular attention to those who are marginalised.

PERSON

The profile of each local population is significant because different oral conditions are more common in people with specific characteristics, such as age, gender, ethnicity/genetics. The young and the elderly tend to be high risk groups, although there are some oral conditions that affect middle-aged people.

Men and women can have different lifestyles that affect their oral health and these lifestyles can change over time. Some specific oral conditions tend to be associated with particular ethnicities and genetic backgrounds. For example, the inherited disease of sickle cell anaemia is seen in sub-Saharan Africa, and 70% of the world's children with the disease are born there. Similarly, some conditions can more commonly arise in certain groups: e.g. dislocated jaw in singers.

ACTION:	***Collaborate and communicate with national and local communities and people to understand the environment in which you are working.***

GENERAL HEALTH/IMMUNE SYSTEM RISKS AND MEDICATION EFFECTS

Approximately half of all deaths worldwide each year are caused by communicable diseases (CDs). The main infectious diseases are HIV/AIDS, tuberculosis, and malaria. There are other communicable diseases that have distinctive oral signs and symptoms.

The four main non-communicable diseases (NCDs) globally are cardio-vascular diseases (e.g. heart attacks and stroke), cancers, chronic respiratory diseases, and diabetes.

COMMUNICABLE DISEASES – INTERACTIONS WITH ORAL HEALTH

In the case of communicable diseases, our main concern is their effects on the mouth.

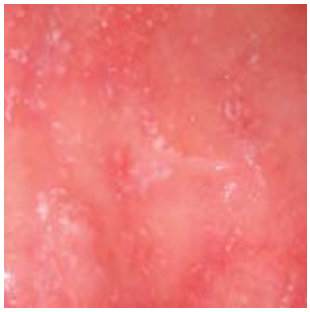
HIV/AIDS

HIV stands for Human Immunodeficiency Virus which if untreated can lead to the disease AIDS (Acquired Immuno Deficiency Syndrome) and this attacks the body's immune system.

People with HIV are likely to have more problems inside the mouth, and therefore need more regular and careful help from dental workers. Infections in the mouth affect soft skin tissue and can also cause ‘dry mouth’ especially for those taking ARVs (antiretroviral drugs) and this also increases the chance of tooth decay and gum disease. Some of these oral conditions relating to HIV are referred to in the chapter.

TUBERCULOSIS (TB)

Tuberculosis is a bacterial infection and is one of the top ten causes of death worldwide. 95% of cases and deaths occur in low income



Measles: White spots on mucosa

countries. TB is a leading killer of people who are HIV-positive. Tuberculosis generally affects the lungs and can also occur in the mouth involving the tongue.

MALARIA

Malaria is caused by a parasitic disease of the blood transmitted by the bite of a mosquito. Currently, more than half of the global population is at risk of malarial infection. Oral symptoms are due to the systemic effects of the disease and to the side effects of prescribed medications and traditional treatments. High fevers can lead to dehydration and a dry mouth (xerostomia) which if left untreated can lead to tooth decay and gum disease.

MEASLES

Measles is a very contagious viral disease and remains one of the leading causes of death among young children. The virus infects the mucous membranes and a common sign in the mouth is Koplik spots found especially on the inside of the cheek as tiny white spots. Measles is still common in many low income countries where more than 95% of measles deaths occur.

Neck swelling of child with mumps

MUMPS

Mumps is an infectious viral disease in children after the age of two but can also affect adults. The salivary glands swell and the patient has a raised temperature, feeling generally unwell.

TETANUS

Tetanus, commonly known as lockjaw, is a serious bacterial infection affecting the nervous system. Common first signs of tetanus are a headache and muscular stiffness in the jaw (lockjaw) and this condition requires immediate medical attention in hospital where antibiotics and anti-toxins may be given.

NON-COMMUNICABLE DISEASES – INTERACTIONS WITH ORAL HEALTH

Similarly, the interaction between non-communicable diseases and the mouth is complex and varied.

DIABETES

This disease can cause problems with the eyes, nerves, kidneys and heart, as well as other parts of the body. Diabetes can also lower resistance to infection and slow the healing process. The most common oral health problems associated with diabetes are tooth decay, periodontal (gum) disease, fungal infections, lichen planus, infection, delayed healing and taste impairment.

RESPIRATORY DISEASES

The drugs used in the treatment of patients with Chronic Obstructive Pulmonary Disease (COPD) can have implications orally, which may be associated with dry mouth or oral thrush. There is also increasing

evidence of a link between COPD and both periodontal (gum) disease and acid reflux. Poor oral hygiene may also increase the risk of developing pneumonia which is the single largest cause of death in children worldwide.

CARDIO-VASCULAR DISEASE

Periodontal (gum) disease is increasingly being linked to a higher risk of developing heart disease and or a stroke. This can also be worsened in diabetics and smokers, and further aggravated by risk factors of stress, diet, hygiene, smoking and alcohol.

CANCERS

All cancers share common risks and have specific symptoms depending on the type of cancer present. Cancer and its treatment can cause several complications to general health as well as to oral health. General health complaints include nausea, pain, fatigue, diarrhoea or constipation and weight loss to name a few. Oral health complaints can be dry mouth (xerostomia), taste changes, generalized soreness and ulcers in the mouth as well as sore gums and delayed healing due to a weak immune system.

MEDICATION EFFECTS

All medications have side effects which generally do not cause a problem or can be tolerated. When prescribing a drug you should be aware of its side effects.

Many drugs interact with other drugs and some combinations can be severe so it is important to have the full picture before you prescribe anything.

Before you give any medication it is important to check the patient's general health, such as: might they be pregnant, have they had any illness, are they already taking medication, and are they allergic to any medication?

Some drugs can have an increased effect in people with particular illnesses, and should be avoided.

Effects on general health

Side effects can range from minor to major. Common general side effects of medications are: tiredness, nausea, constipation, diarrhoea, vomiting, and skin reactions. A rare but serious allergic reaction is anaphylaxis, which needs immediate treatment.

Effects on oral health

Common oral side effects of medications are dry mouth which can lead to gum disease and bad breath, oral thrush, gum swelling (gingival over-growth), mouth ulcers, taste changes, and tooth discolouration.

ACTION:	***Take a holistic approach linking people's general health and oral health and be aware of drug side effects and interactions.***

BEHAVIOUR RISKS

Working with the local community to provide diets that are as balanced as possible for each area will therefore help both general and oral health.

DIET

Excessive sugar in the diet can lead to general health problems such as diabetes, and to oral health problems such as dental caries (decay) and periodontal (gum) disease. Sugar is likely to be present in fizzy and sweetened drinks, and in refined carbohydrate foods such as cakes, biscuits and sweets. Too much sugar in the diet, combined with other harmful habits such as smoking, excessive alcohol consumption, and abusing teeth by opening things with them or chewing on bones, leads to oral health problems.

In some settings, however, getting enough food to eat will be a higher priority for survival. If people are malnourished they are not getting a balanced diet. As a consequence of the lack of a balanced diet, people are likely to suffer from general health conditions such as scurvy and oral conditions such as bleeding gums.

Diet and oral hygiene are two closely related risk factors for dental caries (decay) and periodontal (gum) disease.

Working with local communities to establish regular and thorough cleaning routines using appropriate materials is the best aim.

HYGIENE

CHAPT 4
pages 31-32

Cleaning the mouth helps to keep it healthy by removing food and plaque, which can cause dental caries (decay) and periodontal (gum) disease. Everyone's mouth is their own responsibility and to keep it clean does not need a dentist.

In low resource communities it is important to use what is available, such as varieties of cleaning sticks. Tooth brushes are also useful provided they are readily available, affordable, and are sustainable.

Local cleaning agents, such as powdered charcoal or salt, need to be used with care as they are highly abrasive. Ideally, fluoride toothpaste is best but only if it is readily available, affordable and sustainable.

SMOKING AND CHEWING

Tobacco use is responsible for the death of one in ten adults worldwide and has been estimated to account for over 90% of cancers in the oral cavity. In low income countries smoking and chewing is more common, especially among the poor. Smoking cigarettes, pipes, cigars, and bidis, as well as using snuff, are common forms of addictive tobacco use. Chewing substances, with or without tobacco, such as areca nuts, betel quid, qat, and paan are also addictive and have similar adverse effects on oral health.

General health conditions associated with smoking and chewing are:

- Coronary heart disease, heart attack, stroke
- Peripheral vascular disease (damaged blood vessels)
- Damage to lungs leading to conditions such as: bronchitis, emphysema, pneumonia
- Cancers – most commonly lung cancer

Oral health conditions associated with smoking and chewing are:

- Stained teeth, bad breath and reduced sense of taste
- Increase in severity of periodontal (gum) disease
- Delayed wound / extraction healing (dry socket)
- White and red patches (leukoplakia, smokers keratosis, submucous fibrosis, reverse smoking burn)
- Mouth cancer - oral cancers are associated with tobacco smoking especially combined with heavy alcohol intake

The risks of tobacco use greatly increase when it is combined with alcohol or areca nut.

Stopping or reducing tobacco use and alcohol consumption will reduce the risk of oral cancers, periodontal disease and tooth loss, and will improve general health.

ALCOHOL

Drinking alcohol in moderation can be enjoyable for many people, but drinking excessively can have a harmful effect and lead to serious health problems.

General health conditions associated with heavy alcohol drinking

- Cancers of the mouth, throat and oesophagus
- High blood pressure, heart disease, stroke
- Liver disease, pancreatitis, gout, brain damage
- Anxiety, depression and poor concentration

Oral health conditions associated with heavy alcohol drinking

- Dental caries (decay) – sugars and acids within the drink
- Periodontal disease – increased severity of gum disease
- Dental erosion – heavy drinking can lead to frequent vomiting and the vomit is extremely acidic, also many drinks such as beer are very acidic
- Injuries to mouth or face, through violence, falls or accidents

People who use both alcohol and tobacco are at an especially high risk of cancer.

Ideally alcohol intake should be reduced, which may require support from the community.

PHYSICAL IMPACTS

Physical force or foreign objects can cause injuries to the face, mouth and jaw.

Occasions where oral/facial injuries occur:

- Self-injury from biting cheek or tongue, ill-fitting dentures or incorrect teeth cleaning
- Sports or recreational activities
- Work related tasks or unskilled home repairs and maintenance
- Motor vehicle crashes
- Fights or falls

Alcohol is a common contributor to motor vehicle crashes, fights and falls.

The risk of oral/ facial injuries can be reduced by greater awareness of how to avoid physical impacts to the face, mouth and jaw.

Common oral/facial injuries include:

- Mouth ulcer from biting cheek or other trauma in the mouth
- Fractured or knocked out (avulsed) teeth
- Dislocated or fractured jaw

Across the world, up to 40% of children in the age range 6 to 12 years old are affected by dental trauma due to unsafe playgrounds, unsafe schools, road accidents, or violence.

Using protective equipment for sports (e.g. face masks) and travel (e.g. seat belts) and providing safe physical environments can significantly reduce the risk of facial injuries.

For more extensive facial injuries the initial treatment should always be to check, **restore & maintain an adequate airway and arrest any haemorrhage** – then refer to a specialist (maxillofacial surgeon).

ACTION:	***Provide oral health promotion and prevention programmes that integrate with general healthcare.***

Sinus and an infected incision made by a local 'traditional healer' at the angle of the mandible to relieve the swelling.

UNSAFE CARE

When providing any treatments you should ensure that you do no harm. In low resource communities it is essential that principles of safe care and good practice are maintained at all times. Unsafe care is to be avoided, and can result from either unsafe treatments and/or unsafe cultural practices

UNSAFE TREATMENTS

Studies in low resource countries indicate serious shortcomings with regard to infection control and the sharing of knowledge and education in oral healthcare facilities. Whilst some local practitioners may be well meaning, inappropriate surgical procedures undertaken with unclean instruments and limited knowledge of cross infection control can have serious consequences for clinical treatments.

Treating patients with unclean instruments can spread infection leading to more complex oral infections such as osteomyelitis or Ludwig's angina. This in turn can lead to general septicaemia which can sometimes lead to death.

ACTION:	***It is vital to have good cross infection control and sufficient resources and knowledge to provide appropriate care.***

CHAPT 4
pages 33-34

UNSAFE CULTURAL PRACTICES

More than 80% of Africans rely on traditional medicine and indigenous knowledge to meet their health needs. This is understandable because traditional medicine is usually more accessible, affordable, culturally and socially acceptable and most people prefer it to the 'expensive' and less familiar, conventional Western medicine.

Some cultural practices are unsafe in themselves, and may also be linked with a lack of general cross infection knowledge and practice. Examples of such unsafe cultural practices are sharpening, engraving, and inappropriate removal of teeth, and Infant Oral Mutilation (IOM).

Practices that have oral implications vary in different countries and regions so it is important to be aware of any such practice that might impact on your own community.

Teeth sharpening, engraving and removal

Tooth sharpening is the practice of manually sharpening the teeth for spiritual or aesthetic purposes. It is commonly seen amongst some African communities, Mayans, Aborigines, Vietnamese, Sudanese and others. In some communities, healthy teeth may be engraved or even removed for cultural reasons.

Infant Oral Mutilation (IOM)

IOM is the traditional practice of removing tooth buds.

In some communities, a traditional healer will carry out this practice on infants (usually aged between 1 week – 6 months). This unsafe cultural practice is carried out based on misinformed understanding of general health conditions in children such as teething, fever and diarrhoea. It involves cutting the gums and then removing tooth buds, most commonly the canine teeth. This practice is likely to be carried out using non-sterile instruments e.g. razor blade or weaving hook and it carries a high risk of infection.

IOM can result in damage to the adult tooth buds, and infection spread can lead to septicaemia, and sometimes to death.

ACTION: ***Discourage communities from continuing harmful habits and customs.***

Child's primary canine tooth buds removed

Images courtesy of Dentaid

MEDICAL HISTORY

Taking a complete medical history from a patient is always advisable but it is essential prior to active dental treatments such as scaling and extraction.

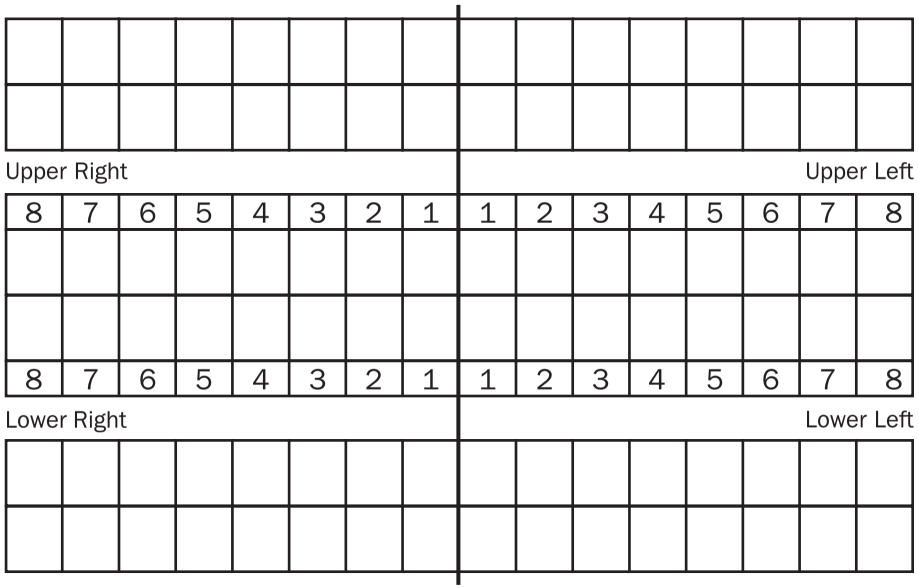
This list shows relevant medical issues and their implications in the dental setting.

RELEVANT MEDICAL HISTORY	IMPLICATIONS	MANAGEMENT
Rheumatic fever **Valvular disease of the heart**	Susceptible to infective endocarditis (heart infection) following dental treatment which involves bleeding	Give antibiotic cover before invasive treatment. Ask doctor to advise on required dose.
High blood pressure	Excessive bleeding after extraction	Take blood pressure prior to extraction. If less than 180/100, you may proceed.
Low blood pressure	Anaemia; susceptible to fainting	Suture after extraction if required
Heart disease **Stroke**	Patient may experience angina (heart pain) which may be increased by stress	Minimise trauma and stress
Asthma	Medications may increase the risk of caries Stress may induce asthma attacks	Advise patients to rinse mouth after taking medication. Minimise stress. Ensure patient has inhaler, if relevant.
Chest or lung disease	May indicate history of bronchitis or emphysema	Treatment time and stress should be minimised
Depression	Check, if any, which type of medication is being used	Some antidepressants cause adverse reaction with adrenalin in local anaesthetics
Allergy	Medications that patients are allergic to, must be known and recorded	Allergy to penicillin is common – if this occurs, tell patient to cease the medication and refer to a doctor
Cancer	Possibility of chemotherapy or radiotherapy following cancer treatment	Radiotherapy of the head and neck can make patients susceptible to bone problems, following extraction of teeth. Therefore, antibiotic cover is advised before treatment
AIDS	Risk of post-operative infection Risk of spread of infection to operator, staff and other patients	Antibiotic cover may be required. CIC precautions must be strictly adhered to

RELEVANT MEDICAL HISTORY	IMPLICATIONS	MANAGEMENT
Hepatitis	Jaundice Risk of spread of infection to operator, staff and other patients.	CIC precautions must be strictly adhered to. Otherwise, suitable for routine treatment.
Epilepsy	Fits	Check that patient has taken usual medication and food before treatment.
Pregnancy	Keep trauma and stress to a minimum to protect the mother and developing child. Ensure that a balanced diet is being supported with good oral hygiene.	Avoid active treatment during the first 3 and final 3 months of pregnancy. All drugs (except paracetamol at reduced dose) should be avoided.
Arthritis	Drug therapy may include non-steroid-anti-inflammatory drugs	There may be prolonged bleeding following extraction. Position the patient comfortably
Diabetes	Patient will be on insulin or hypoglycaemic drugs	Unpredictable reactions. Stress should be minimized. Ensure patient has taken medication and food. Morning appointments preferred. May need antibiotic cover after extractions. **Refer difficult cases**
Anti-coagulant therapy Example: warfarin **Bleeding disorders**	Prolonged, uncontrolled bleeding	**Refer patient**
Cirrhosis of the liver	Patient may have difficulty in processing anaesthetics	Avoid lignocaine or give reduced dose if in doubt, refer the patient
Immuno-suppressed states **Long-term corticosteroid therapy, leukaemia**	Post-operative infections thrombocytopenia	**Refer patient**

BIBLIOGRAPHY

‘Simple Dental Care for Rural Hospitals’	by David J Halestrap
‘Where there is no dentist’ ISBN: 0 942364 05 8	by Murray Dickson
‘Tooth Extraction – A Practical Guide’ ISBN: 10: 0723610711	by Paul D Robinson
‘Surgery: A manual for rural health workers’ Dental section ISBN: 9966 874 615	by Peter Bewes by Stephen Bazlington
‘Textbook for Dental Nurses’ 9th edition ISBN: 1 4051 1963 2	by H Levison
‘Concise Illustrated Dental Dictionary’ ISBN: 0 723610142	by F J Harty
‘The surgical treatment of noma’ ISBN: 978 90 71736 15	by Kurt Bos & Klaas Marck



Date	Treatment notes	Date	Treatment notes

PATIENT DENTAL RECORD CARD - *Confidential*

Name: _____ Sex: M / F

Address/Location: _____ Age: _____

_____ Date of Birth: _____

Phone: _____ Occupation: _____

Are you registered with a doctor or clinic? Yes ☐ No ☐

If yes, please give details: _____

Medical History	**YES**	**NO**
Are you allergic to antibiotics?	☐	☐
Do you have any other allergies?	☐	☐
Are you taking any tablets, pills, medicines or drugs?	☐	☐
Do you suffer from high or low blood pressure?	☐	☐
Do you have any heart or breathing problems?	☐	☐
Have you ever suffered from jaundice or hepatitis?	☐	☐
Have you ever suffered from rheumatic fever?	☐	☐
Do you have diabetes or epilepsy?	☐	☐
Are you aware of any blood problems? e.g. hepatitis, HIV	☐	☐
Have you ever had any serious illness?	☐	☐
Do you smoke? if so, how much?	☐	☐
Do you drink alcohol? if so, how much?	☐	☐
Any other general health issues we need to know?	☐	☐
Have you visited a dental worker within the last 2 years?	☐	☐
Women only:		
Have you been pregnant in the last 12 months?	☐	☐
Is there any chance that you may be pregnant now?	☐	☐

Notes

Patient signed: _____ Date: _____

"I could have done with a copy of Teeth Relief's Oral Health Manual when I was working for the Red Cross in Ethiopia. Everyone involved in healthcare in low resource settings needs to understand the basics of oral healthcare."

Dr Dame Claire Bertschinger,
Course Director for the Diploma in Tropical Nursing,
London School of Hygiene and Tropical Medicine, UK

TEETH RELIEF

Registered Charity Number 328326

ORAL HEALTH MANUAL

General healthcare programmes cannot be truly effective unless they address the fundamentals of oral health. This manual should be viewed as practical reference material to support and address oral health issues within the Primary Health Care approach. It is written to support healthcare workers, those with a role in educating communities, and dental care professionals who volunteer to help. The manual covers:

- Oral anatomy and dental disease
- Oral health promotion
- Cross Infection Control, examination, and basic treatments
- Oral conditions

This second edition builds on the well-received first edition printed in 2007, by substantially expanding on oral conditions, and their risks and associated actions.

Teeth Relief is committed to improving oral healthcare in low income communities by making knowledge of oral health a fundamental part of health education. We are a small specialist volunteer driven registered UK charity.

ISBN 9781999757618

www.teethrelief.org.uk