Diabetes Update

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FootHealth June 2010

Programme

- Diabetes Update (milestones)
  - National Guidance / Initiatives
  - Professional Practice
    - The High Risk Neuropathic Foot
    - The High Risk Neuroischaemic Foot
  - Research & Development

Evolution of Knowledge

St Vincent Declaration 1989

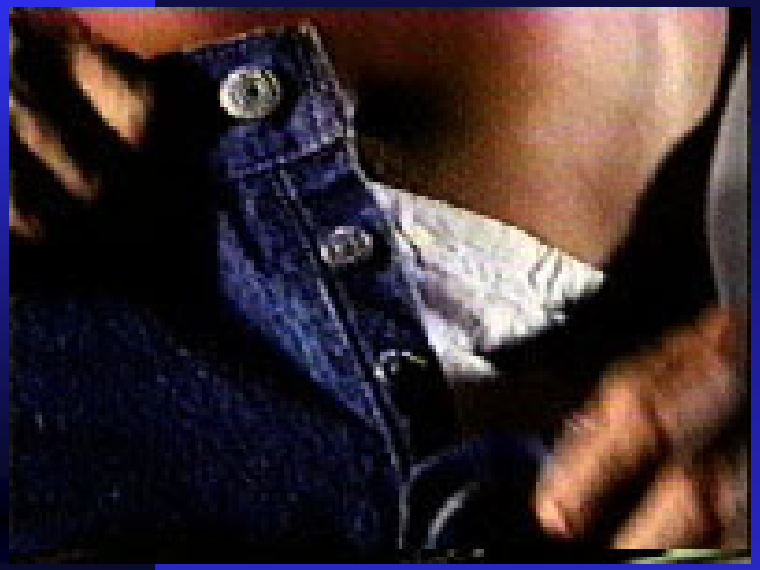
Implement effective measures for the prevention of costly complications:

- Reduce new blindness due to diabetes by one third or more.
- Reduce the number of people entering end-stage diabetic renal failure by at least one third.
- Reduce by one half the rate of limb amputations for diabetic gangrene.

Inter/national Developments

- International Consensus on the Diabetic Foot (1999)
- SIGN Guideline 55 (2001)
- SIGN Guideline 116 (2010)
- CREST Guidelines (NI)
- National Service Framework (2003)
- National Institute Clinical Excellence (2004)

Evolution of Knowledge



Lopalop.com

(and the species)

Diabetes: A health crisis

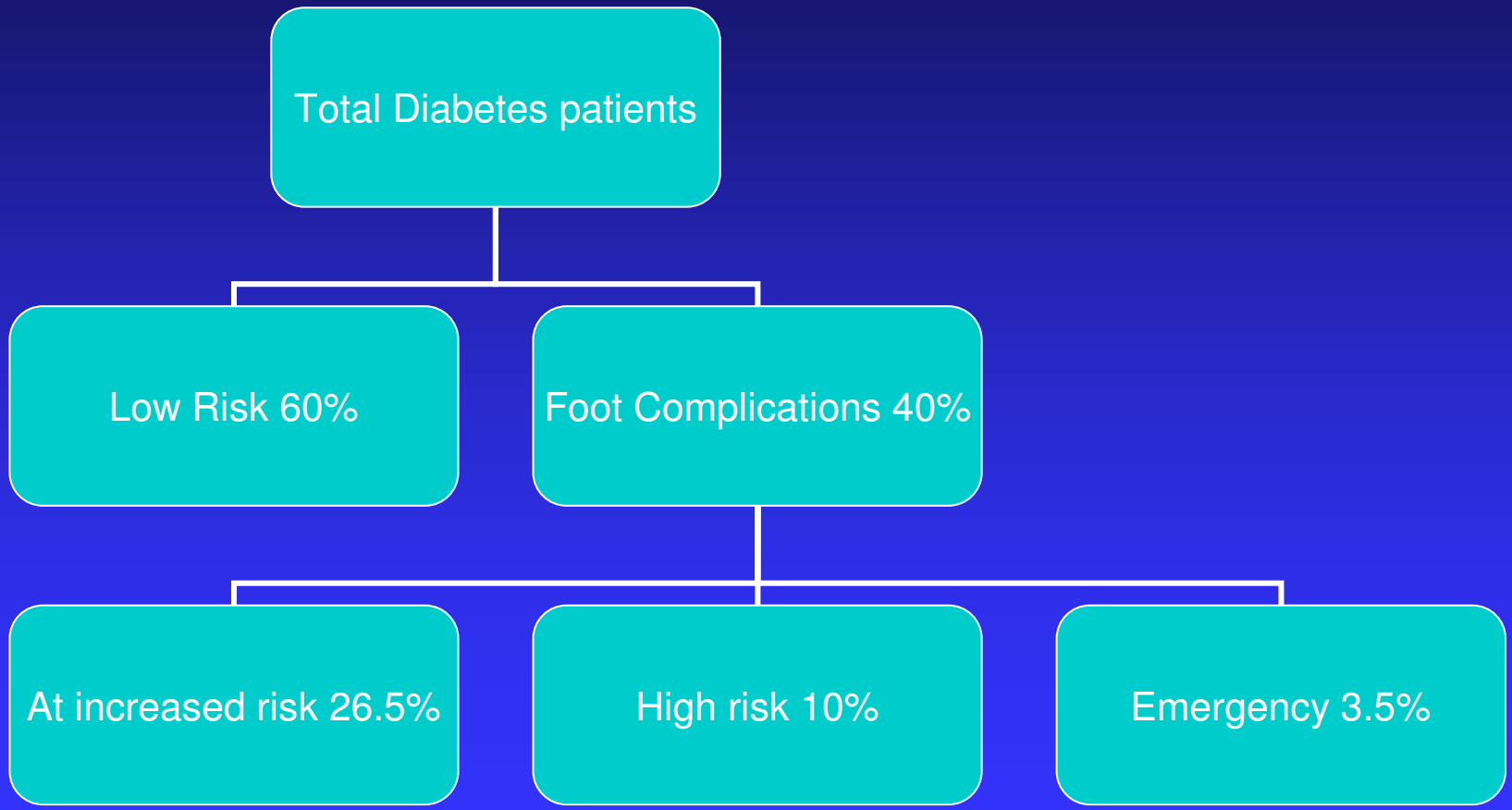
- 2.2 million diagnosed in UK
- 4% of population
- Approximately 750,000 undiagnosed
- Primarily T2DM

Diabetes: A health crisis 2

- More than 100,000 people diagnosed with T2DM every year in UK
- 275 people every day
- 12 people every hour
- One person every five minutes

Diabetes UK 2007

NIHCE Commissioning Estimates (2006)



NICE Clinical Guideline 10 2004

Low Current Risk	Normal sensation, palpable pulses
At Increased Risk	•Diagnosed neuropathy •Absent pulses •Other risk factor
High Risk	History of : ulceration Diagnosed with •neuropathy and/or absent pulses •with deformity OR skin changes (erythema, callus, skin thickening)
Footcare emergencies	•New ulceration; swelling; discolouration, signs of infection

Competences

- Diabetes Competence Framework
- National Minimum Skills Framework for Commissioning of Foot Care Services for People with Diabetes 2006

Competences

Description	
Routine basic assessment and care of the foot without any ulcer / lesion.	Low risk
Expert assessment and care of the foot 'at increased risk' and some high risk but without any ulcer / lesion	'at increased & high risk'
Expert assessment and management of foot ulceration or lesion (eg. Acute Charcot foot)	emergency
Management of the person whose ulcer/lesion has resolved	high risk

National Minimum Skills Framework for Commissioning of Foot Care Services for People with Diabetes 2006

Competent to;

- Identify patients
- Refer patients
- Treat patients
- Educate patients
- Monitor own performance / CPD

Identifying patients

- Screening
- Risk classification
- Quality & Outcomes Framework (QOF)

Primary Care

Quality & Outcomes Framework (QOF)

- Introduced in 2004
- Performance related pay
- Practice income related to achievement of specific indicators for 10 clinical areas
- Diabetic Foot 2 indicators
- DM9 and DM10

Quality & Outcomes Framework DM9

- The percentage of patients with diabetes with a record of the presence or absence of peripheral pulses within the preceding 15 months.

Quality & Outcomes Framework DM10

- The percentage of patients with diabetes with a record of neuropathy testing within the preceding 15 months.

Quality & Outcomes Framework

- Data freely available www.qof.ic.nhs.uk
- 2004 achieved 78-79%
- 2008/9 increased to 90-91%
- Exclusions

Quality & Outcomes Framework

- 2 new diabetic foot related indicators have been through consultation

Quality & Outcomes Framework

- First new indicator
- The percentage of patients with diabetes with a record of testing of foot sensation using a 10g monofilament or vibration (using a biothesiometer or calibrated tuning fork) within the preceding 15 months.

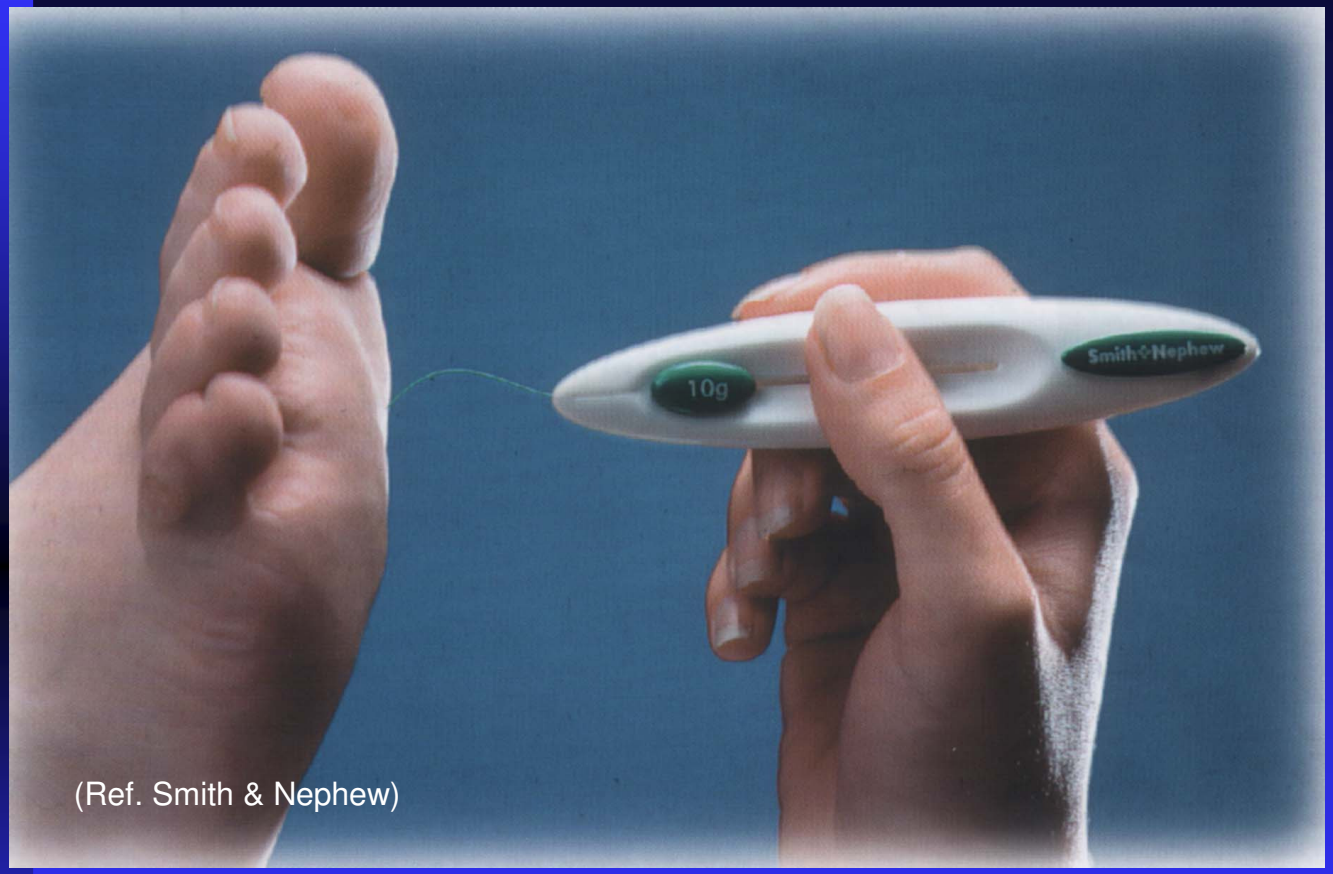
Neurothesiometer –
83% sensitivity
62% specificity

McIntosh et al 2003

Baileys Instruments

Calibrated tuning fork – Rydel Seiffer

10 gram Monofilament



93% sensitivity
86% specificity
McIntosh et al 2003

NICE 2004; 10 patients per session with an interval of 24 hours

Quality & Outcomes Framework

- Second new indicator
- The percentage of patients with diabetes with a record of a foot examination and risk classification.

Quality & Outcomes Framework

- Outstanding problem; no intermediate clinical outcome ie referral onwards to appropriate care based on findings of foot examination

Screening vs assessment

- Subjective
- Guidelines often unclear
- QOF driven
- Complications are ‘invisible’ or not perceived as serious
- Fast decision-making

Risk Factors for Ulceration

- HbA1c >7.5%
- Male
- Smoker
- Corns and callus/ skin changes
- Ischaemia
- Neuropathy
- Absence of pedal pulse
- Bony deformity eg. hammer toes, hallux valgus
- Amputee
- Foot ulceration – current or past
- Lives alone
- Poor eyesight

NICE Clinical Guideline 10 2004

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Footcare emergencies	•New ulceration; swelling; discolouration, signs of infection

Referring patients

- Who?
- Where?
- When?

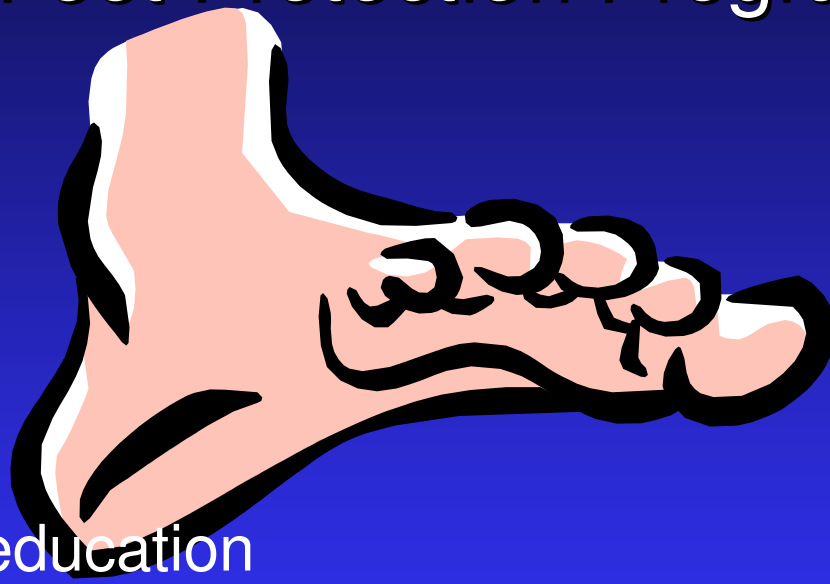
Decision-Making

- Low Risk Foot – GP Practice

•Agree a management plan including foot care education
•Review annually- neuropathy & vascular screening

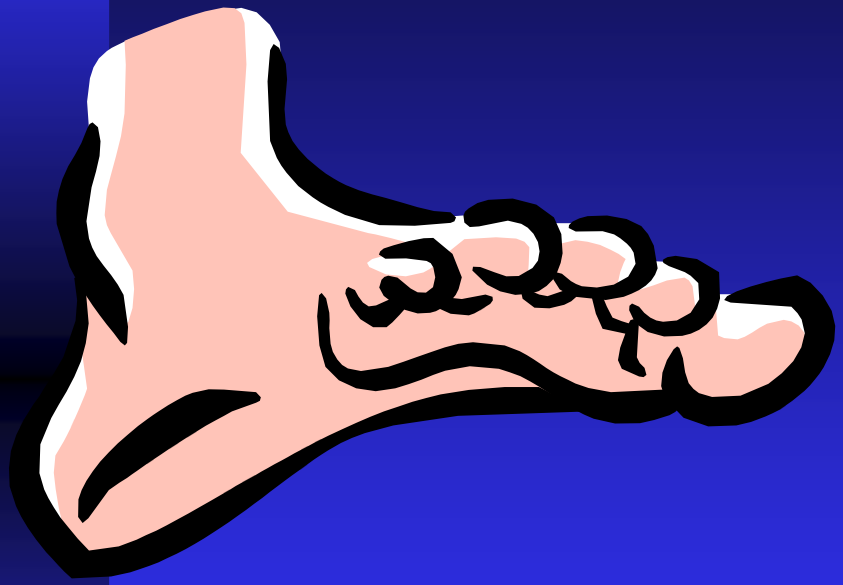
At Risk Foot

- Podiatry Foot Protection Programme



- Intensify foot care education
- Review the need for specialist footwear & insoles
- Frequent skin and nail care
- Review 1-3 monthly by FPP including palpation of pulses
- Special arrangements of people with disability including immobility

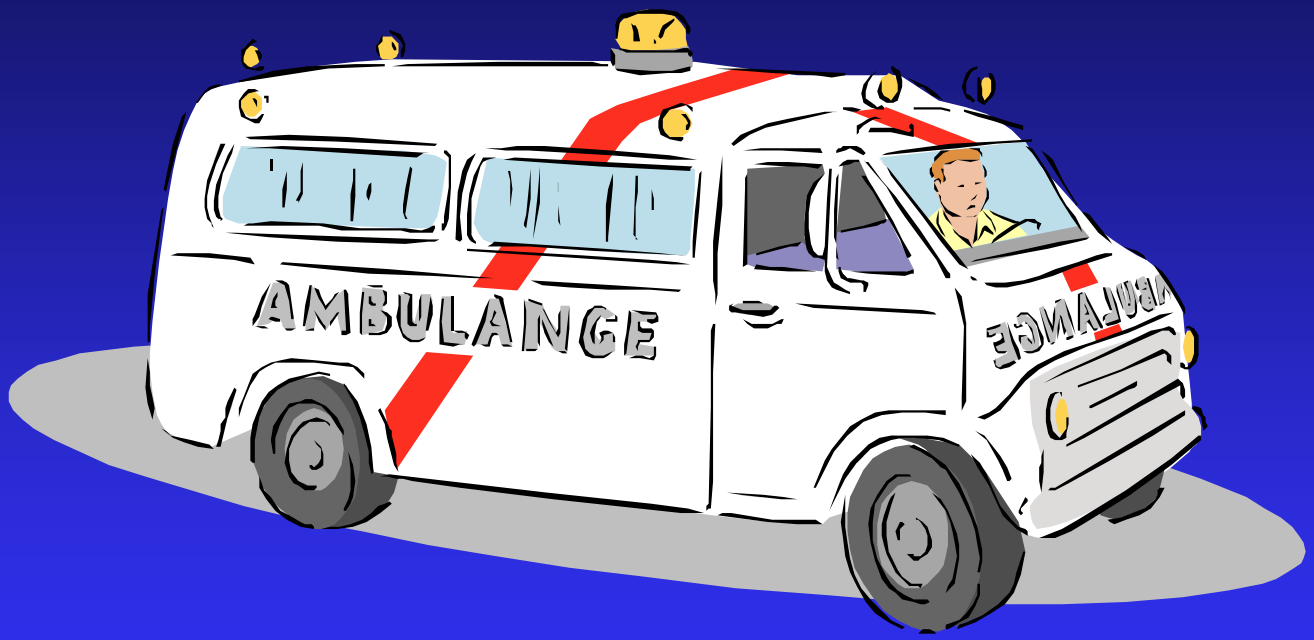
High Risk Foot



Neuropathy
High arch
Clawed toes

Treat as ‘at risk’ unless / until new: ulceration, discolouration, swelling, signs of infection

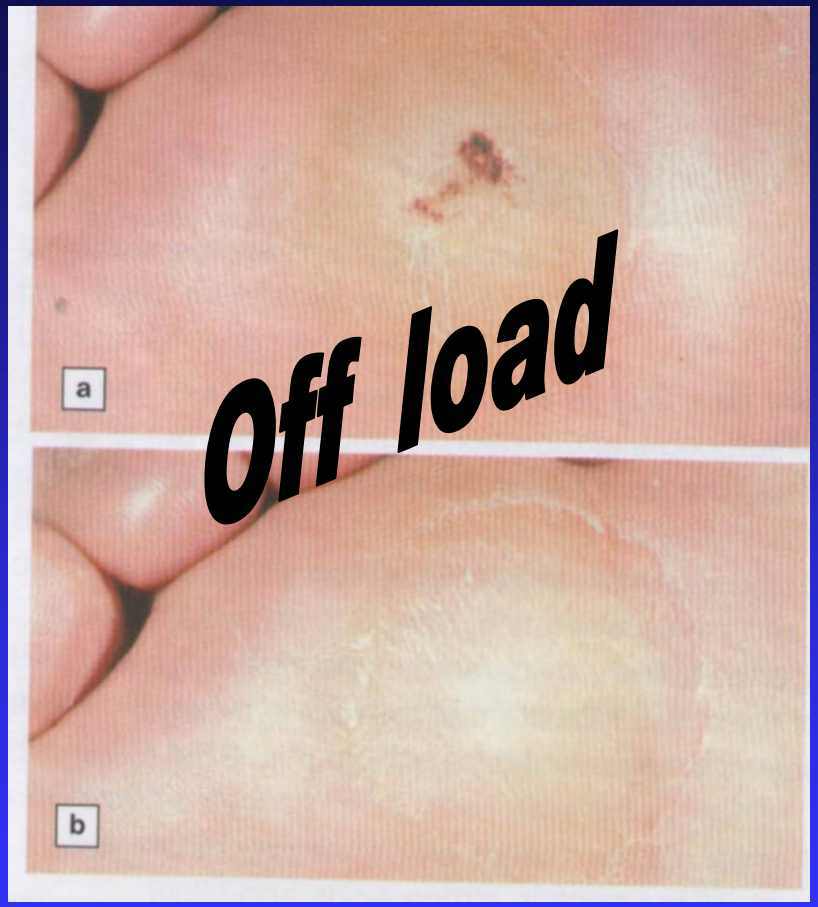
High Risk Foot……..Emergency



Specialist team /Diabetic Foot Clinic…….
Refer, Refer, Refer

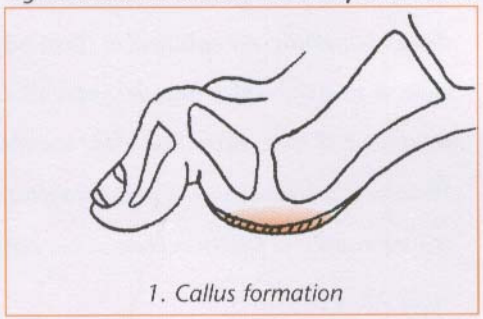
Prevention of ulceration

Debride

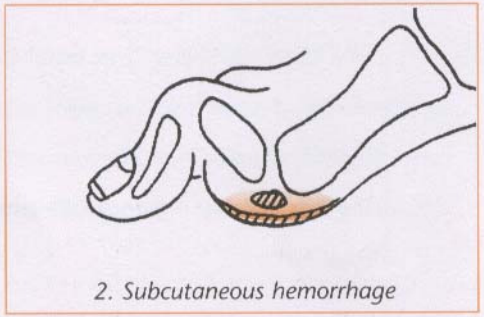


Extravasation – a precursor of ulceration

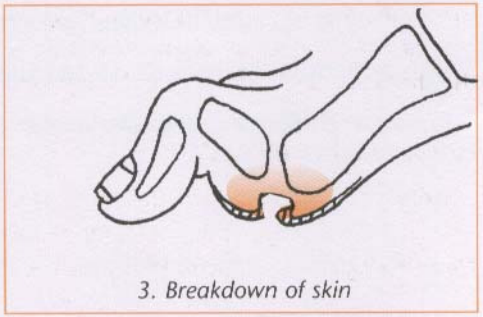
Fig 1. Illustration of ulcer due to repetitive stress



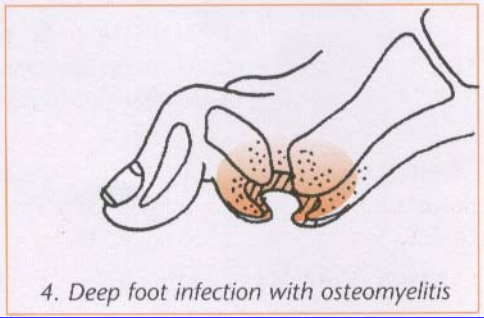
1. Callus formation



2. Subcutaneous hemorrhage



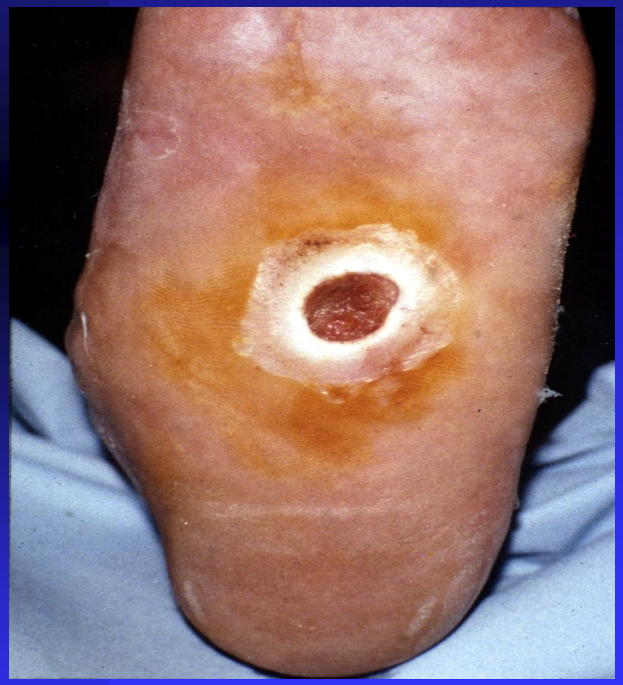
3. Breakdown of skin

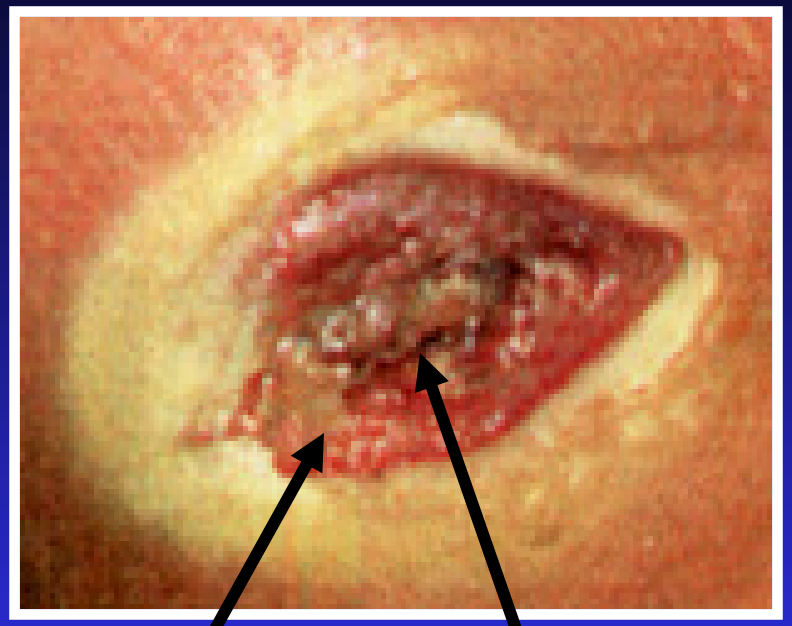


4. Deep foot infection with osteomyelitis

(Ref. International Consensus on the Diabetic Foot)

Neuropathic Ulcer





Site: Weight bearing areas with callus.

Access to Medicines

- Prescription Only Medicine (POM) Cert
- Patient Group Directions
- Supplementary Prescribing

Podiatrists - Administration

- The (then) Chiropodists' Board and the SCP negotiated with the Medicines Committee an enhanced list of POMs for access, sale or supply by appropriately qualified State Registered Chiropodists
  - The *Medicines (Pharmacy and General Sale Exemption) Amendment Order 1998*

POMs Cert

- Ibuprofen (amount sufficient for 3 days treatment where max dose is 400mg, max daily dose 1,200mg and max pack size is 3,600mg)
- Co-dydramol 10/500 tablets, an amount sufficient for 3 days treatment, with maximum packs size of 24 tablets
- Amorolfine hydrochloride cream up to 0.25% by weight in weight
- Amorolfine hydrochloride lacquer up to 5% by weight in volume

POMs Cert

- Topical hydrocortisone up to 1% by weight in weight
- Bupivacaine HCl with adrenaline where the maximum strength of adrenaline does not exceed 1mg in 200mls of bupivacaine
- Lignocaine HCl with adrenaline where the maximum strength of adrenaline does not exceed 1mg in 200mls of lignocaine
- Conditions:
  - (State) registered chiropodists only
  - Medicine must be pre-packed and sale or supply must be in the course of their professional practice

POMs Cert

- All Podiatrists post 2002-ish
- Podiatric Surgeons

Statutory Instrument 2006 No. 2807

- Article 4(2) and (4) of the newly agreed statute amends Parts I and III of Schedule 5 to the Prescription Only Medicines (Human Use) Order 1997 (the POM Order) to extend the list of prescription only medicines which may be sold, supplied or administered by chiropodists and podiatrists in the course of their professional practice
  - Statutory Instrument 2006 No. 2807: The Medicines for Human Use (Administration and Sale or Supply) (Miscellaneous Amendments) Order 2006
  - The above may be downloaded from http://www.opsi.gov.uk/si/si2006/20062807.htm

Statutory Instrument 2006 No. 2807

- The new Order gives *"access to registered podiatrists against who's names are recorded in the relevant register, annotations signifying that they are qualified to use the medicines ……."*.
- The additional medicines are:
  - 1.0% Griseofulvin (P)
  - 1.0% Terbinafine (P)
  - Adrenaline
  - Levobupivacaine hydrochloride
  - Ropivacaine hydrochloride
  - Amoxicillin
  - Erythromycin
  - Flucoxacillin
  - Methylprednisolone
  - Tioconazole 28%
  - Silver Sulfadiazine

Society of Chiropodists and Podiatrists

- "*Whilst the new medicines are now available to members who are currently annotated on the HPC register, there is an updating requirement to ensure safe practice and professional indemnity cover: The level of training will vary depending on the Podiatrists current status on the HPC register.*"

  DJ Ashcroft

  16 November 2006


Clinical pharmacology
(HPC approved)
Starts 25th September 2008
Do you want Health Professions Council (HPC) entitlement to administer and supply Prescription Only Medicines (POMs)?
Successfully completing this five-day masters level module will qualify you to do so.
Topics covered include
• Antimicrobials
• Analgesics
• cardiovascular, endocrine and rheumatology pharmacology
• legal and ethical issues of supplying POMs
For more information or to book your place contact Yvonne McGreal:
01273 643818
mscpod@brighton.ac.uk
www.brighton.ac.uk/sohp
University of Brighton
Enhance your career

Patient group direction (PGD)

- Defined as ‘a written instruction for the sale, supply and/or administration of named medicines in an identified clinical situation. It applies to groups of patients who may not be individually identified before presenting for treatment’ DoH 2004
- The healthcare professional is responsible for assessing that the patient fits the criteria set out in the PGD

PGDs when to use…….

- First contact services
- Immunisations

- Where it is legally possible
- When it is appropriate

Who can do it?

- Registered member of professional body, acting within code of conduct
- (currently midwives, nurses, pharmacists, optometrists, podiatrists, radiographers, physiotherapists, paramedics)
- Individual practitioner must be named
- Only fully competent, trained HCPs should use a PGD

Background to Non Medical Prescribing (Nursing)

- 1985 RCN approached
- 1986 Cumberledge Report
- 1989 Crown Report (1)
- 1992 Primary legislation
- 1994 ACT amended
- 1999 Crown Report (2)

Background to Non Medical Prescribing (Nursing 2)

- 2001 Independent Prescribers
- 2003 Nurse Prescriber Extended Formulary
- 2003 Medicines and Healthcare products Regulatory Agency
- 2004 Controlled drugs (CDs)
- 2008 Extension to all CDs

Background to Non Medical Prescribing (Pharmacists and Podiatrists)

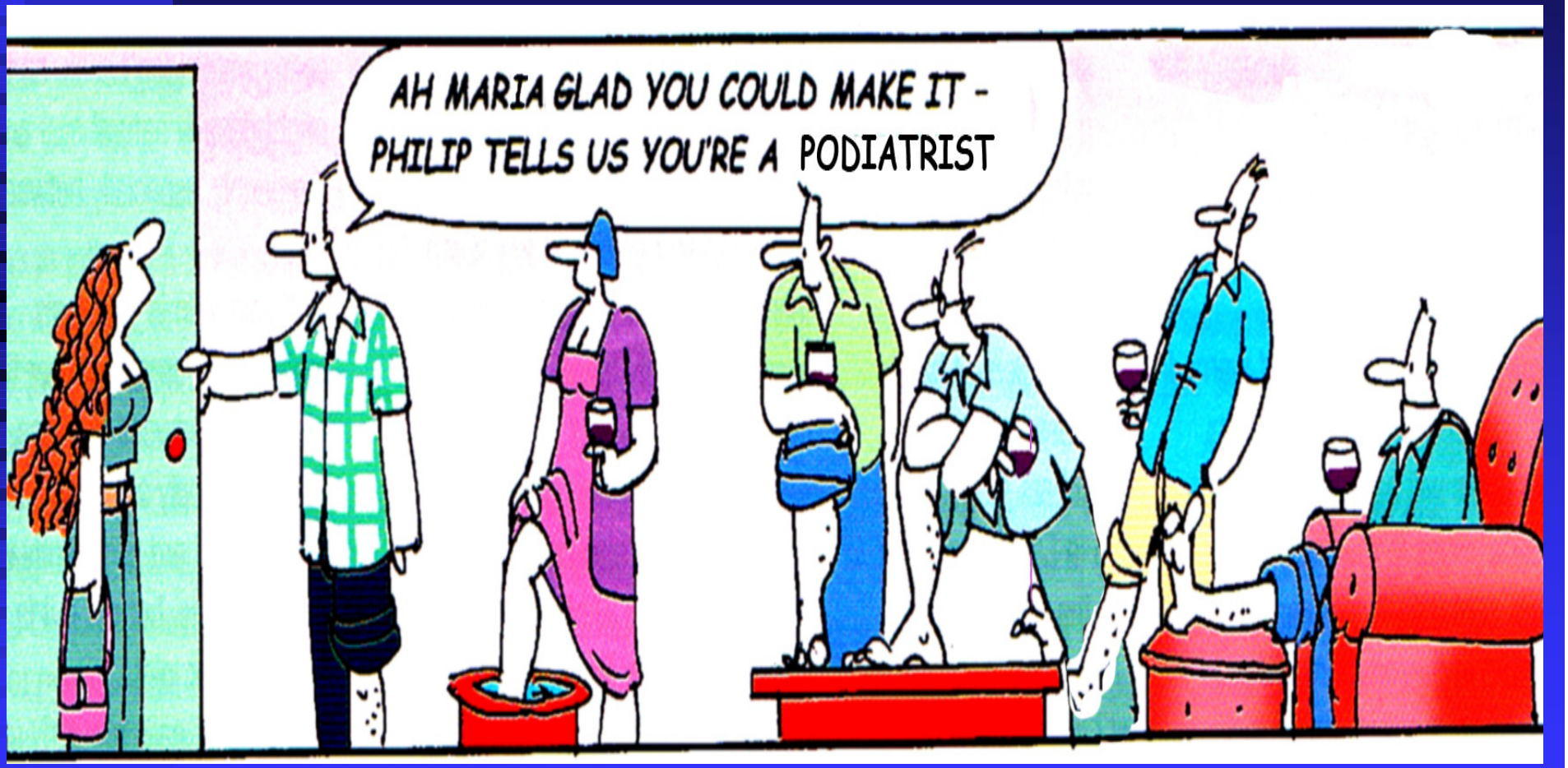
- 1999 Independent prescribers vs dependent prescribers
- 2003 Supplementary prescribing for nurses and pharmacists
- 2004 Allied Health Professions

Number of Non-medical Prescribers (NMPs) by type

April 2010	
Community Practitioner Nurse Prescribers	26277
Nurse Independent Prescribers	16197
Pharmacist Independent Prescribers	631
Pharmacist Supplementary Prescribers	418
Optometrist Independent Prescribers	28
Physiotherapist Supplementary Prescribers	151
Podiatrist Supplementary Prescribers	113
Radiographer Supplementary Prescribers	20
Total	**43835**

(source National Prescribing Centre)

Rare Breeds


AH MARIA GLAD YOU COULD MAKE IT -
PHILIP TELLS US YOU'RE A PODIATRIST

Supplementary prescribing

- Defined as ‘A voluntary partnership between an independent medical and supplementary prescriber, to implement an agreed patient specific Clinical Management Plan (CMP) with the patient’s consent’

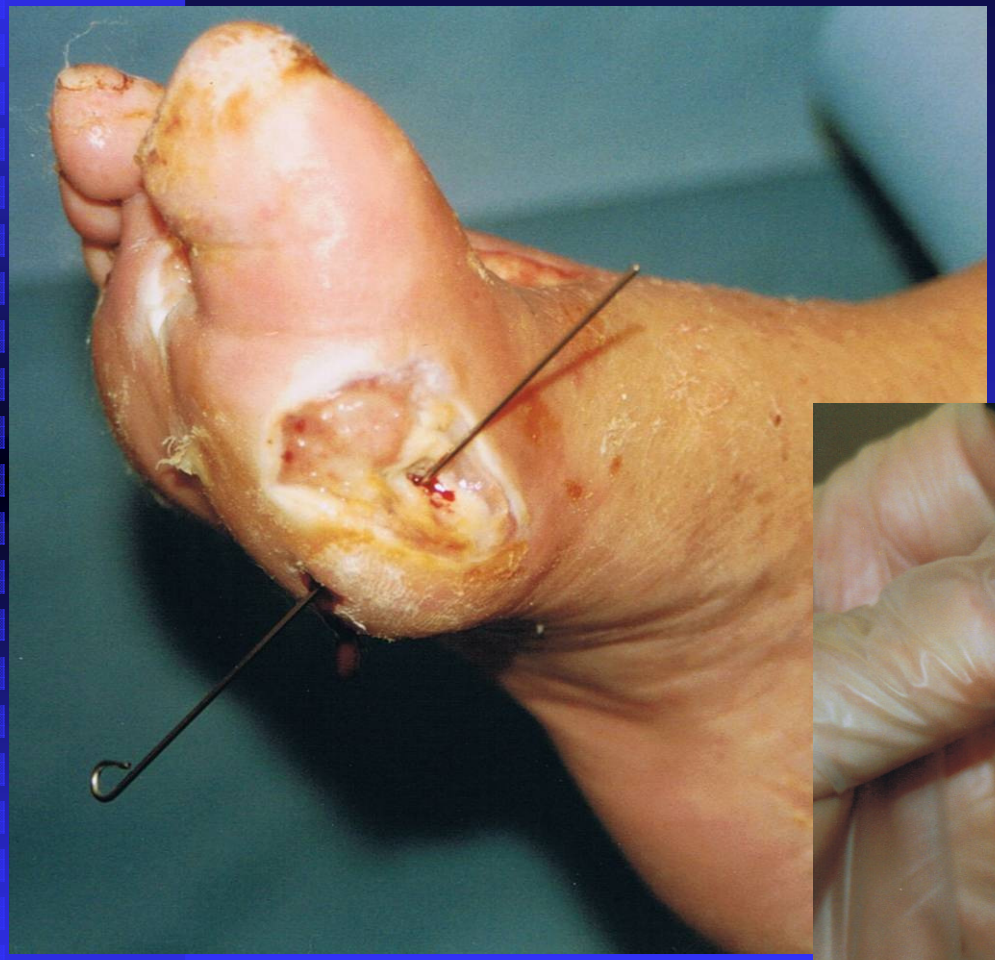
Independent and Supplementary Prescribing An Essential Guide

Molly Courtenay and Matthew Griffiths 2006

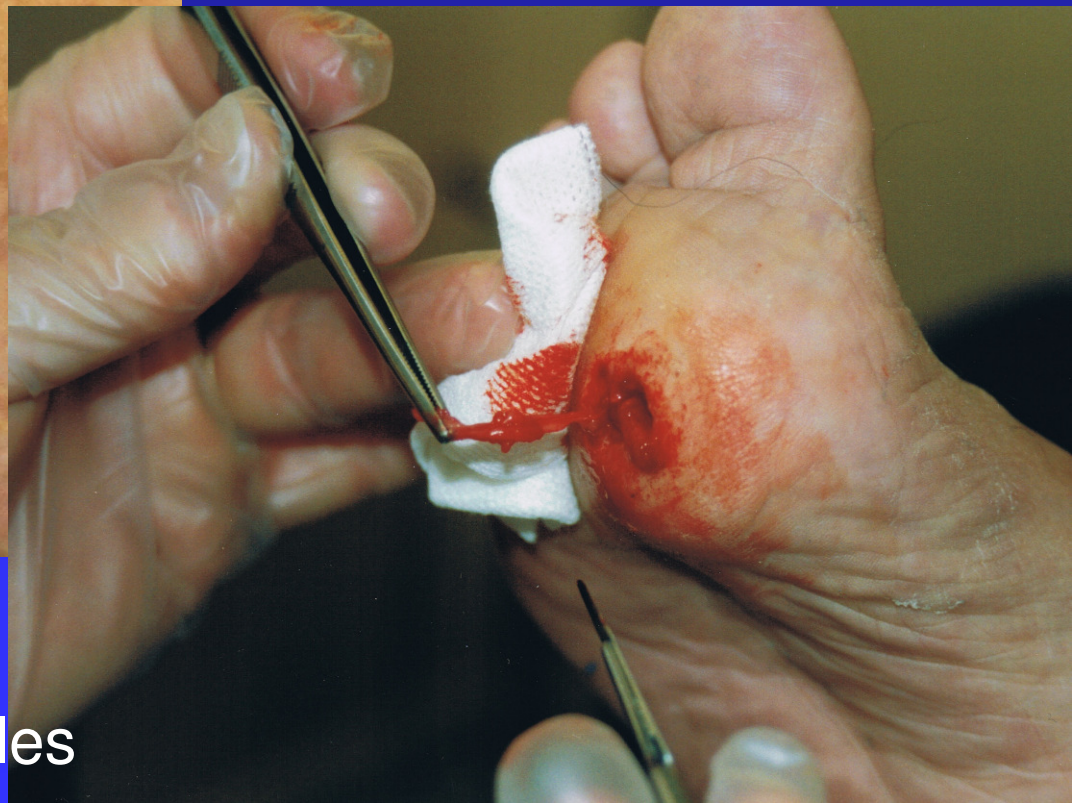
Criteria for supplementary prescribing

- Independent prescriber must be a doctor/dentist
- Supplementary prescriber must be qualified (completion of a recognised Independent and Supplementary Prescribing course)
- Clinical management plan (CMP) must be in place
- Shared access to patient record

Supplementary Prescribing

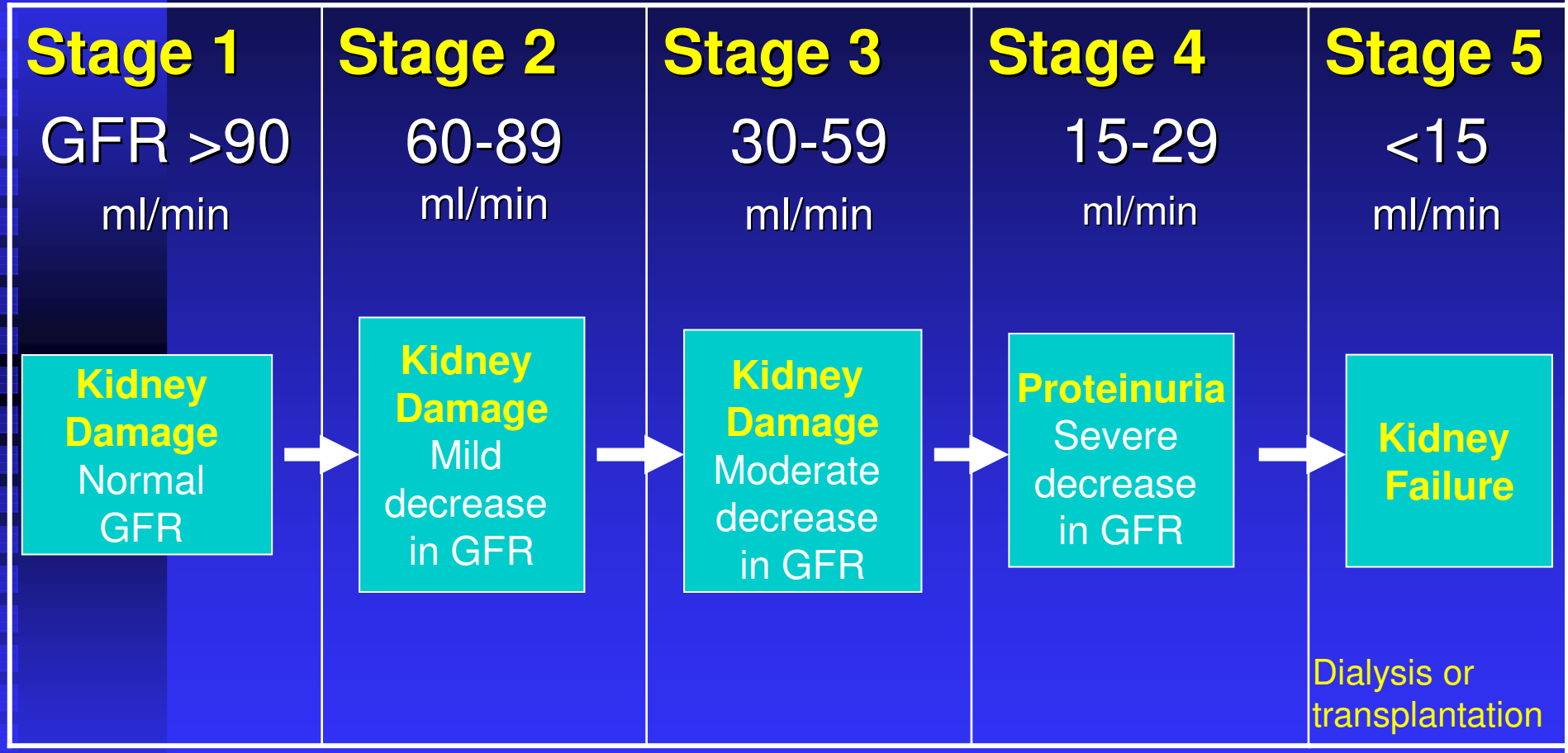


Bone and joint involvement



Deep swabs/ tissue samples

Stages of Chronic Kidney Disease



GFR = Glomerular filtration rate (ml/min)

Diabetes and renal disease

- National Diabetes Audit June 2010
- Between 2003-2009 20% increase in people with diabetes needing dialysis or a kidney transplant

Extension of Podiatrist & Physiotherapist Prescribing to Independent status

- Scoping Report July 2009
  - IP for Physiotherapists & Podiatrists
  - Supplementary Prescribing Dietitians
  - List of Exemptions for Orthotists
- Working with MHRA to prepare public consultation about IP
  - Governance issues
  - Education and training

CPD tip

- NPC support materials
  - Non-medical prescribing – A quick guide for commissioners

    http:www.npc.co.uk/prescribers.resources/NMP Quick Guide.pdf
  - www.npci.org.uk


timefortea

Features of Chronic DFUs

Impaired Wound healing

Intrinsic factors

Extrinsic factors

HbA1c

- Glucose sticks to the haemoglobin molecule of red blood cells
- This makes glycated haemoglobin-HbA1c
- The more glucose in the blood the more glycated haemoglobin there is
- Red blood cells live for 8-12 weeks

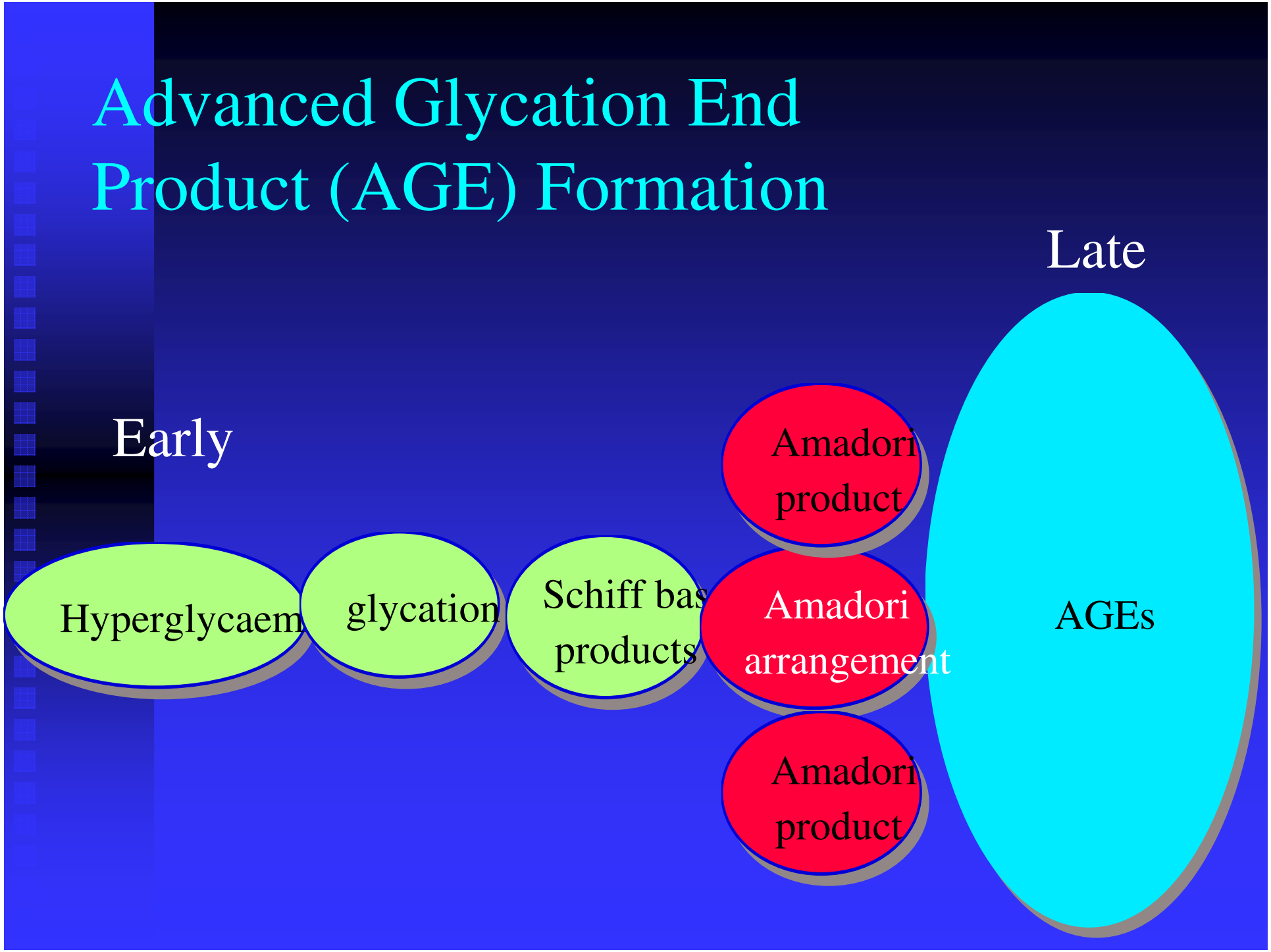
HbA1c

- So measuring your HbA1c can tell you how high your blood glucose has been on average over the last 8-12 weeks
- Hence it is a measure of diabetes control over that period of time
- It is not the same as the blood glucose level
- Currently it is being reported in two measurements
- The old units of %
- The new units of mmol/mol

Guide to new HbA1c Values

DCCT HbA1c	IFCC HbA1c
%	mmol/mol
6.0	42
7.0	53
7.5	59
8.0	64
9.0	75

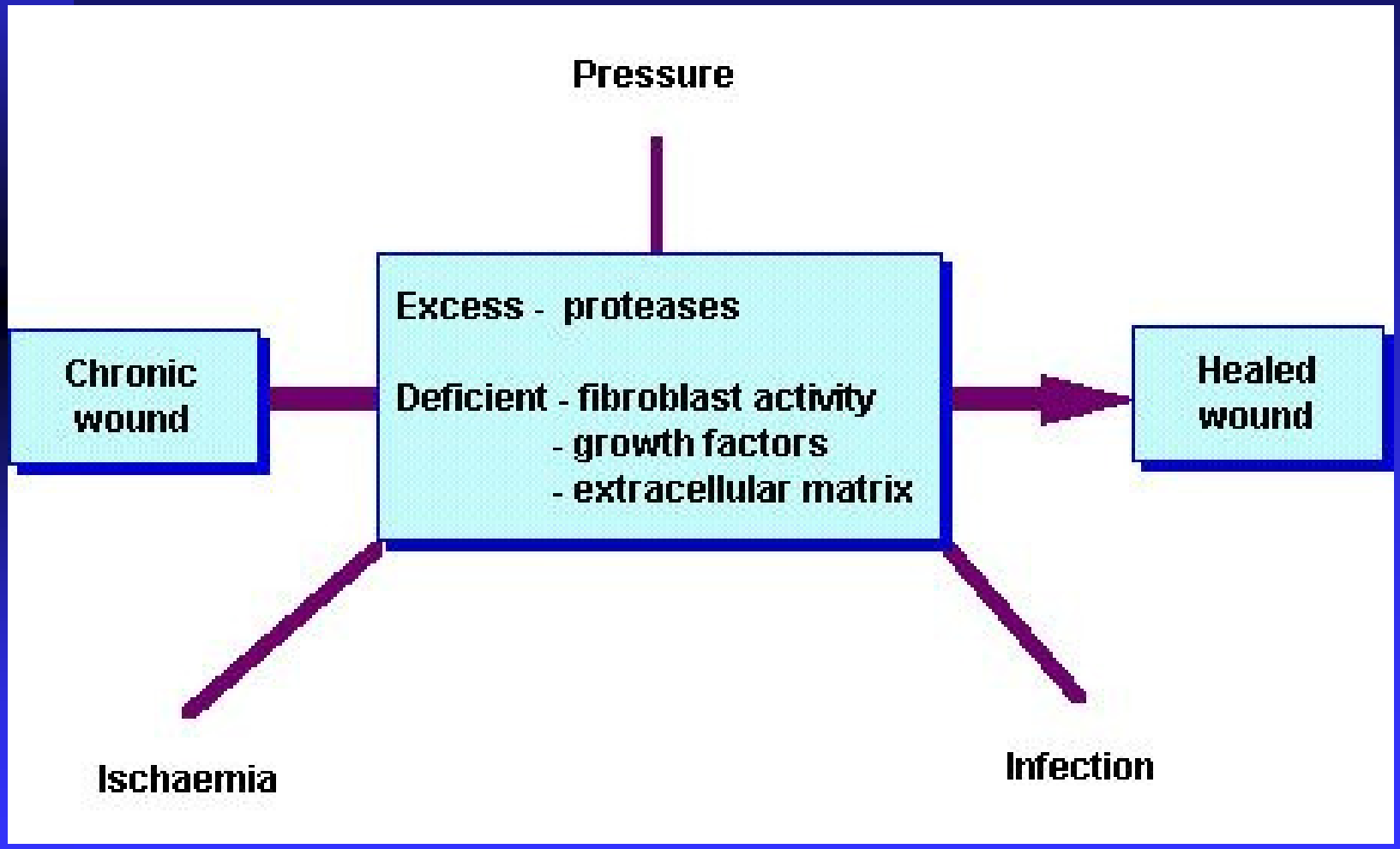
Advanced Glycation End Product (AGE) Formation



Impact of Diabetes on Wound Healing

- AGE receptors on
  - macrophages
  - endothelial cells
- Increased Matrix MetalloProteases – reduced Growth Factors
- Effect on collagen

Intrinsic & extrinsic features of chronic Dfus.



Tip, Top Toe!

increased

Increased pressure

(Ref. Irion 2002)

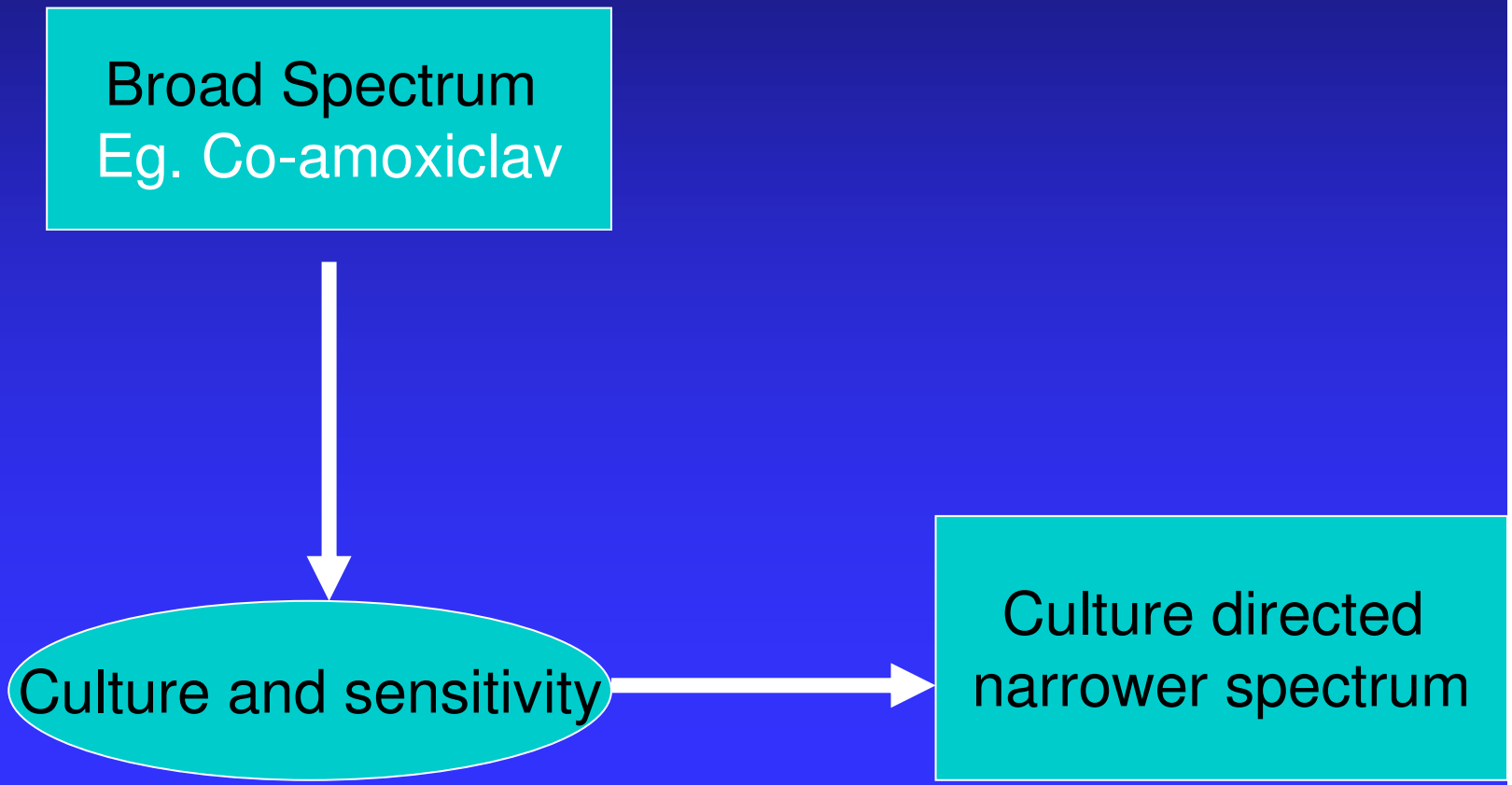
Trauma

(Ref. Jeffcoate & Macfarlane 1995)

(Ref. Edmonds & Foster 2005)

(Ref. Edmonds & Foster)

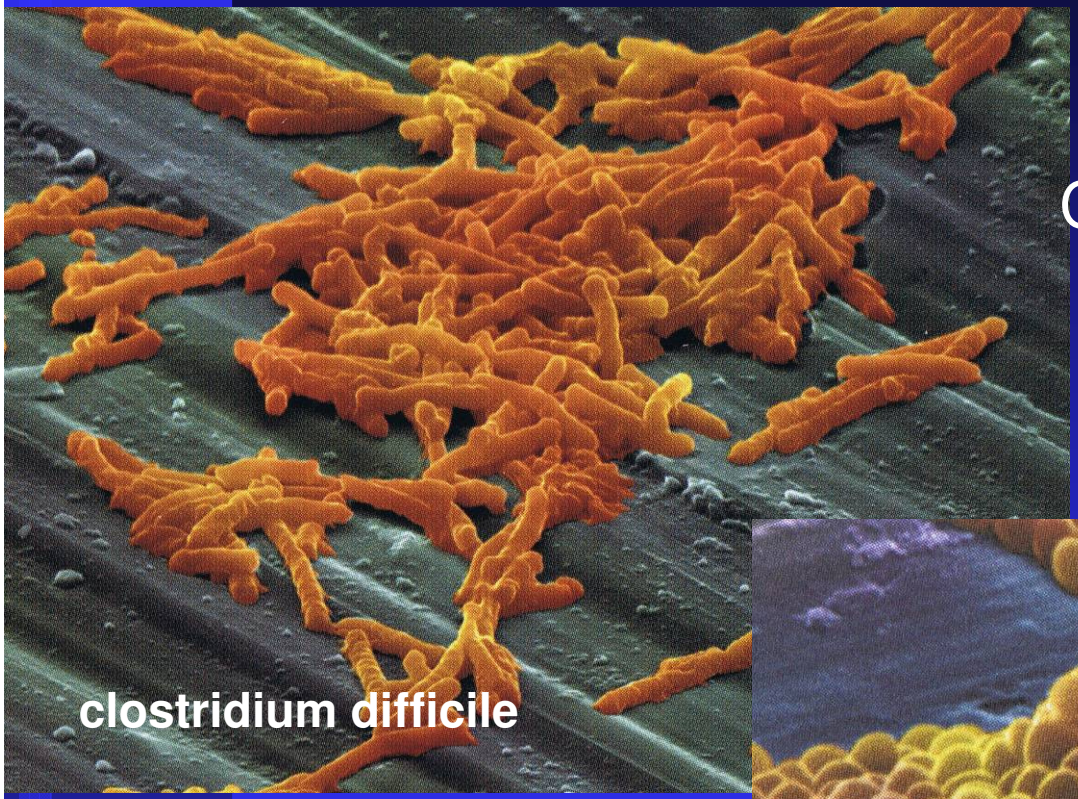
What antibiotic do I use?



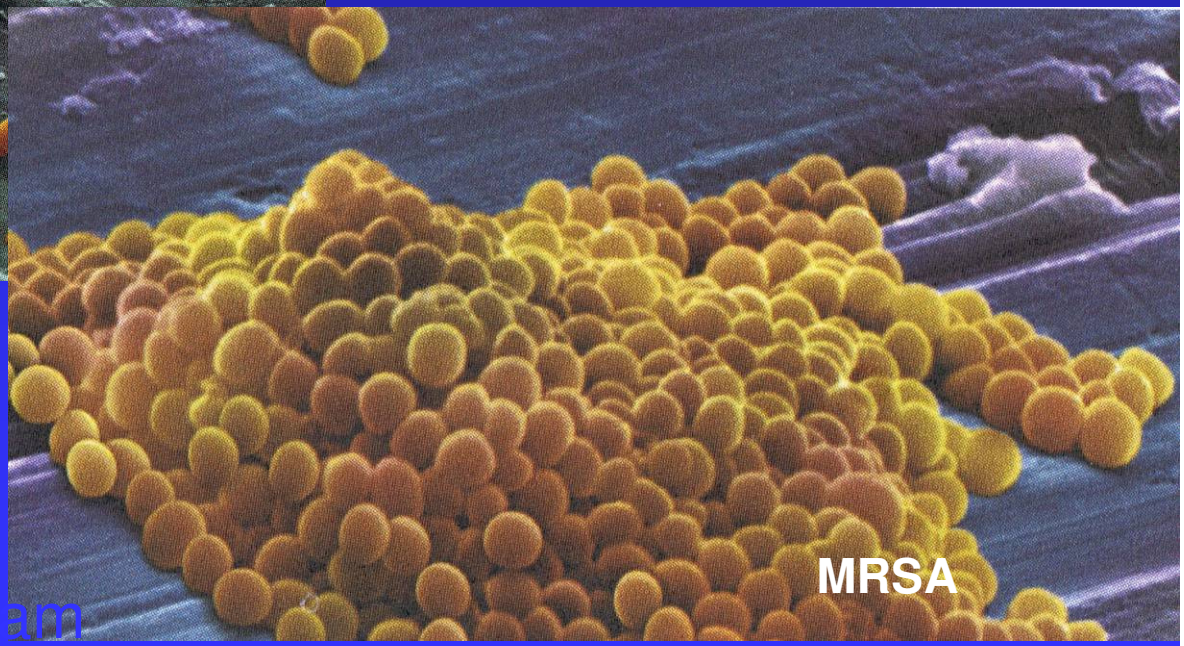
Infectious Diseases Society of America Classification System (Lavery et al 2007)

Mild	Moderate	Severe
■≤2cm cellulitis / erythema ■Superficial ulcer ■≥2 Signs of inflammation ■No systemic illness	■No systemic illness ■As in mild infection and in addition ≥ 1 of the following: ■>2cm cellulitis ■Lymphangitis ■Involvement of Tendon Joint Bone	■Infection in a patient with systemic toxicity or metabolic Instability

Inter-professional working



Consultant Microbiologists

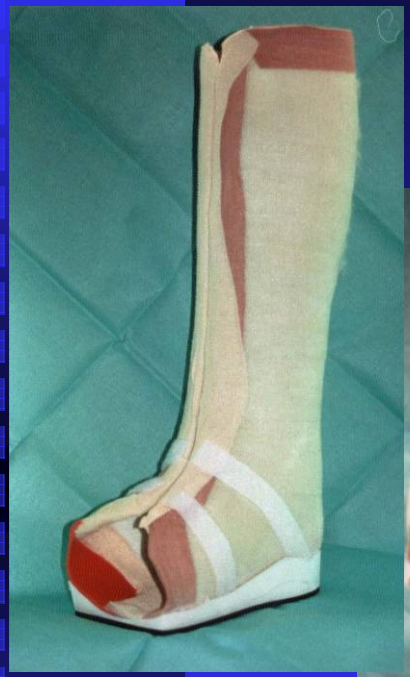


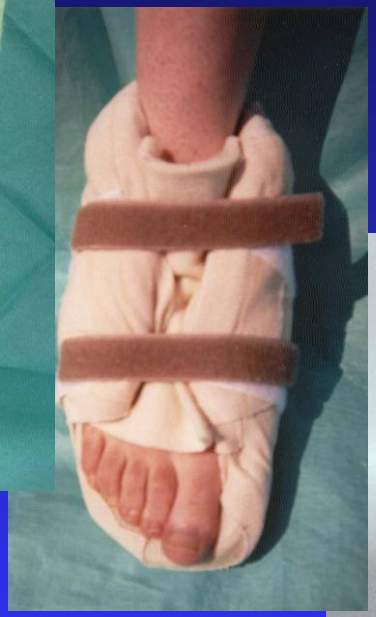
Antibiotics in Diabetic foot Disease

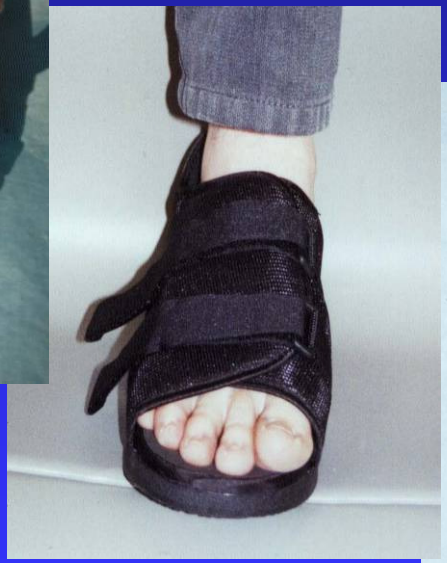
- IDSA update expected Autumn 2010
  - http://www.idsociety.org
- Scottish Diabetes Group Consensus
  (Leese et al The Diabetic Foot Journal vol 12 2 2009)
- Clinical Knowledge Summaries (CKS)
- http://www.cks.nhs.uk/diabetes_type_2/management/detailed_answers/foot_problems

Pressure offloading Total contact casting is the gold standard

AND REST!!!!!!!!





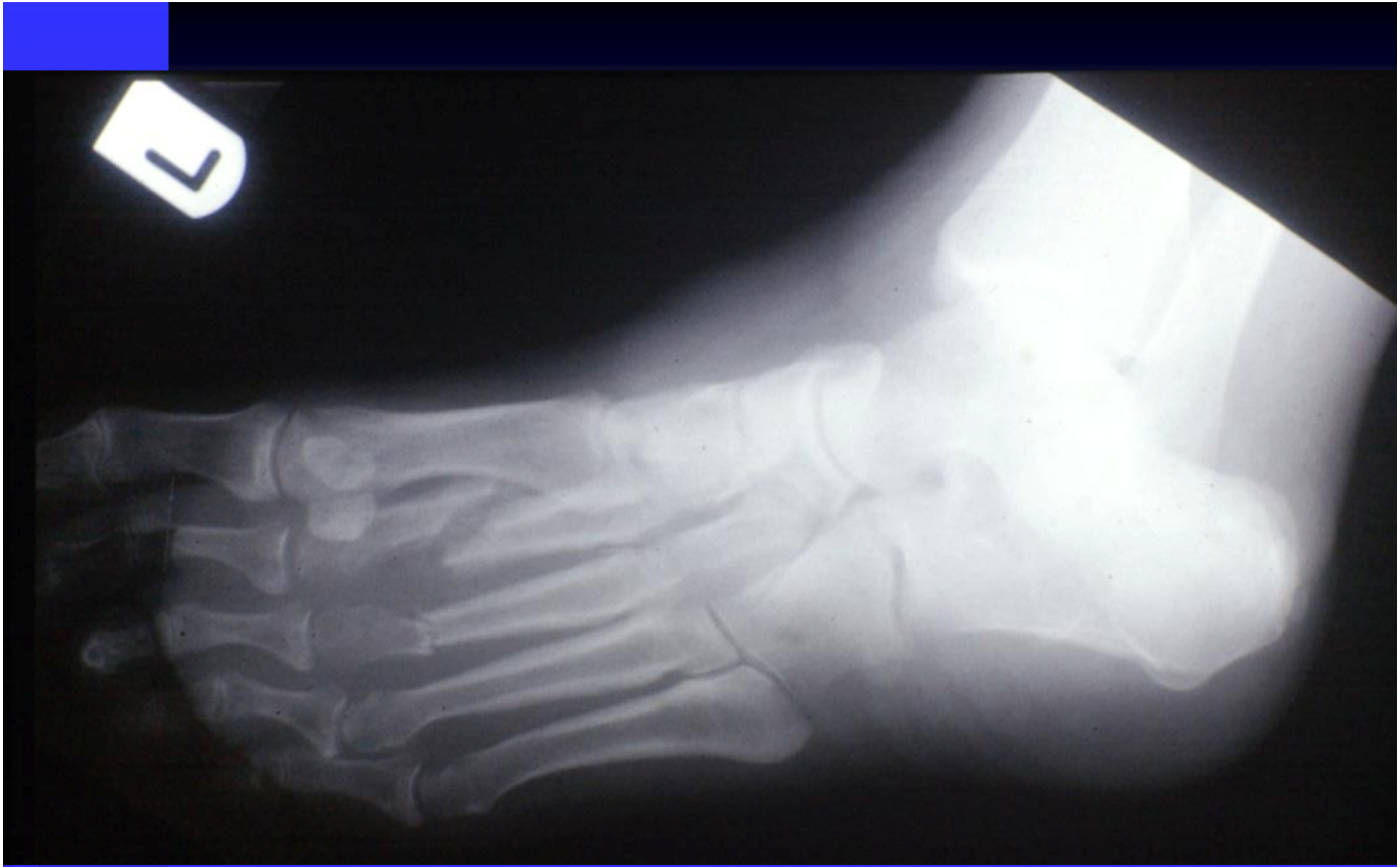


Charcot Neuroarthropathy

- Previous theories
  - neurotraumatic – German, traumatic/degenerative arthritis caused by the loss of proprioception
  - neurotrophic – French, damage to nerve centres leads to a change in the control of blood flow to bones and joints giving rise to persistent hyperaemia and active bone resorption
  - Absence or decrease of pain sensation in the presence of uninterrupted physical activity

Charcot – clinical features

- Acute Phase
  - Red, hot, swollen++ foot
  - Bounding pulses
  - Mild pain, sometimes absent
  - Hypermobility / crepitus
  - **Peripheral neuropathy**
- Chronic Phase
  - Bony deformity eg rocker bottom foot
  - Rigidity
  - Abnormal weight bearing - ulceration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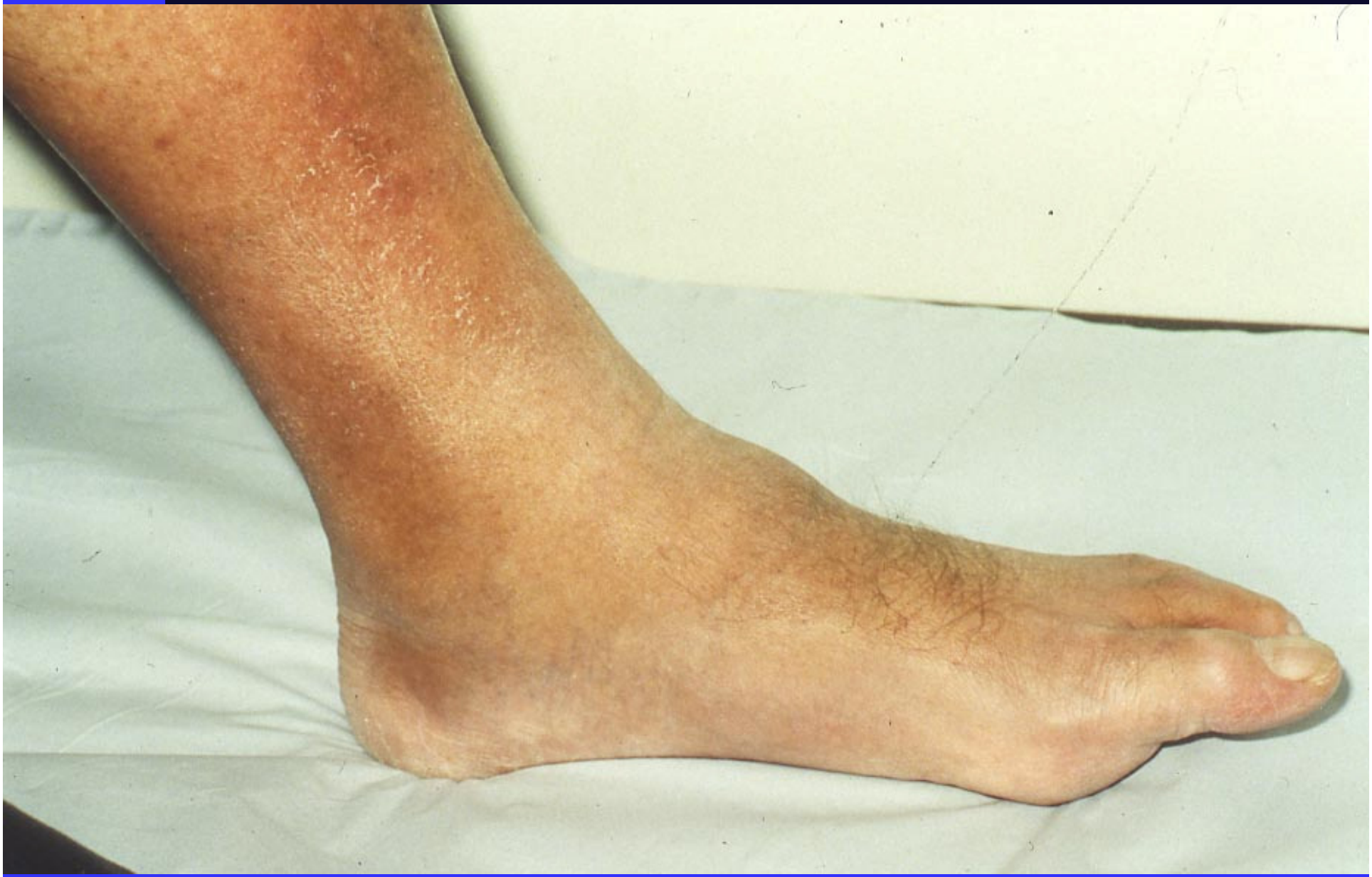
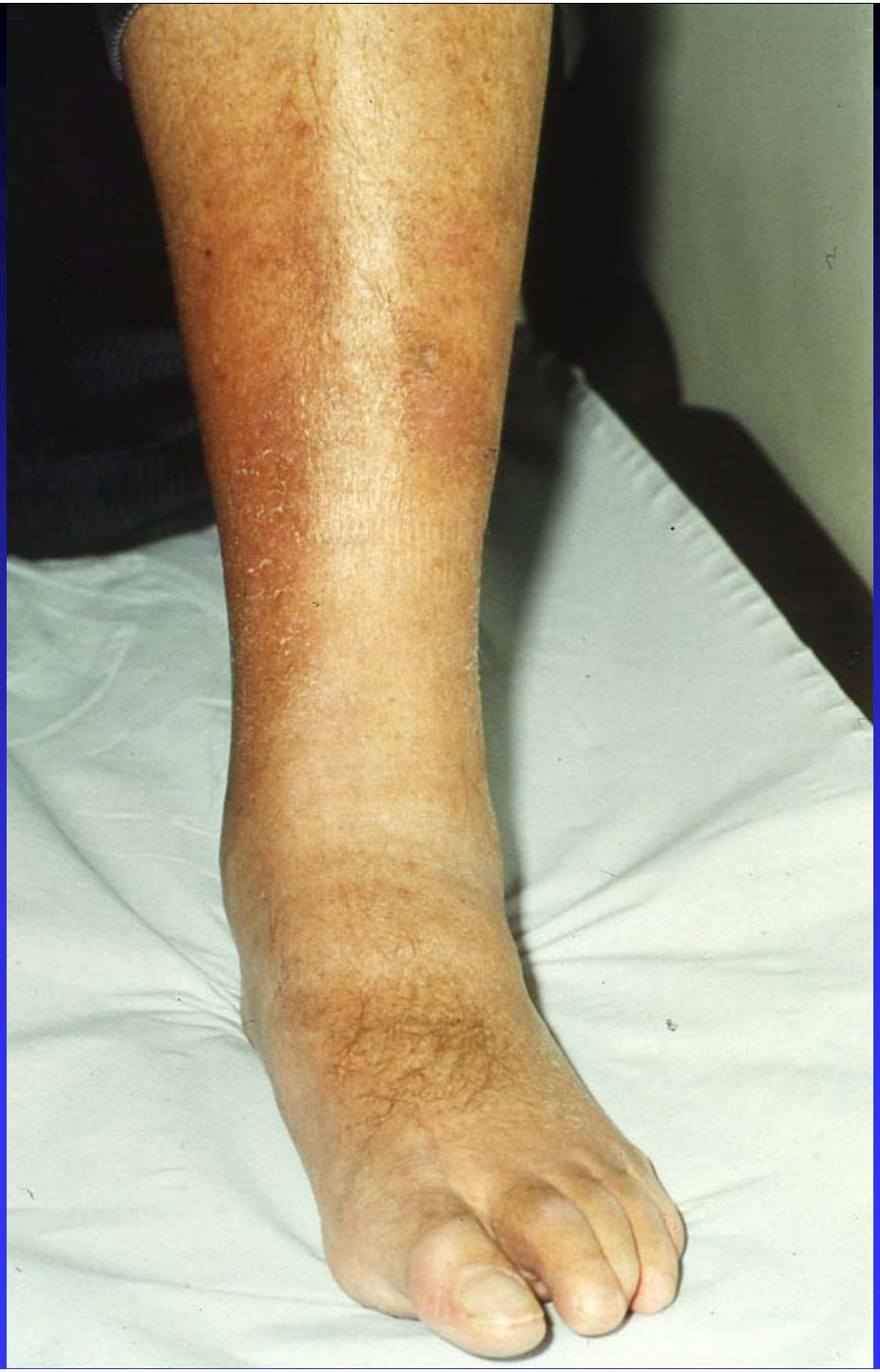
Charcot Neuroarthropathy

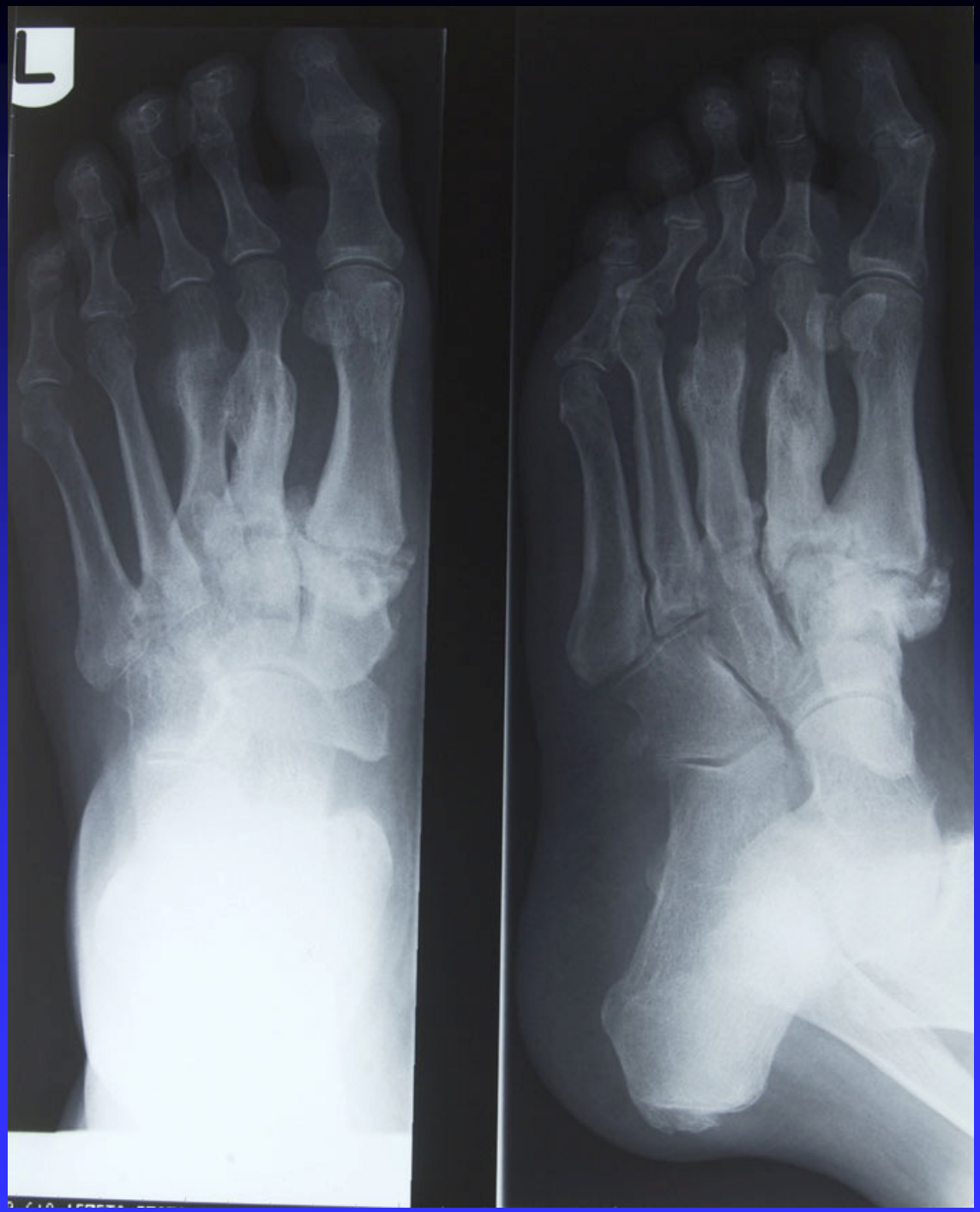
- Pathogenesis –
  sensorimotor neuropathy
  autonomic neuropathy
  minor trauma
  other factors

Charcot Neuroarthropathy

- Phases of development
  - Destruction
  - Coalescence
  - Reconstruction






L

Charcot Neuroarthropathy

- Pronounced inflammatory reaction
  - Pro-inflammatory cytokines
  - Increased expression of receptor activator of nuclear factor kappaB ligand (RANKL)
  - Increased osteoclastogenesis (bone breakdown)

(Jeffcoate et al Lancet 2005)

- RANKL independent pathway

(Mabilleau et al Diabetologia 2008)

‘The Great Pretender’

Oct 2003 14 suspected Charcot patients:

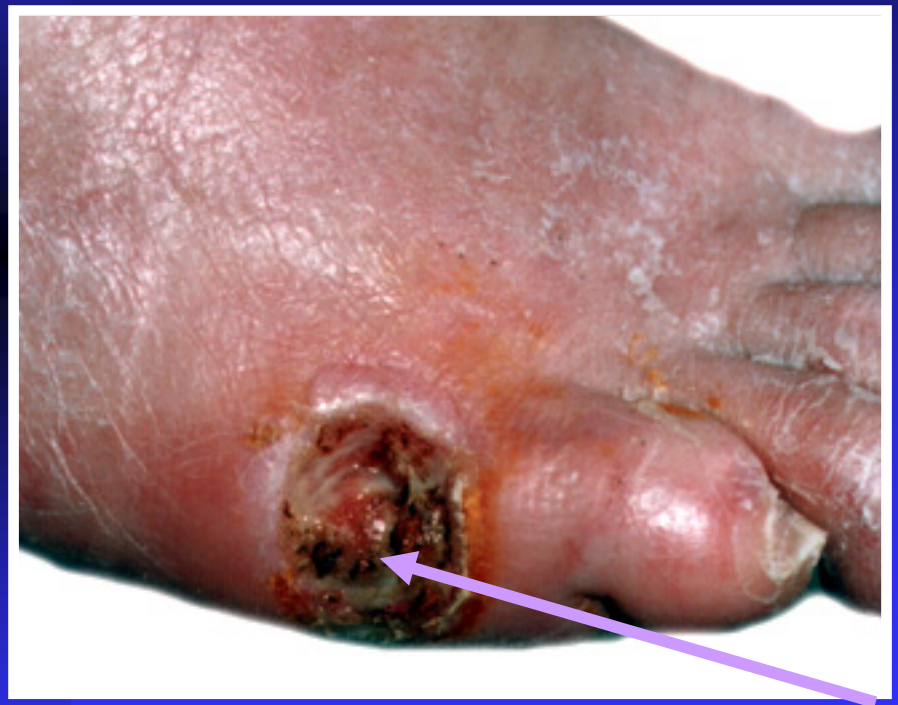
11 confirmed –
2 treated for gout
7 for cellulitis
3 for dependent oedema
6 for DVT
6 for suspected fracture

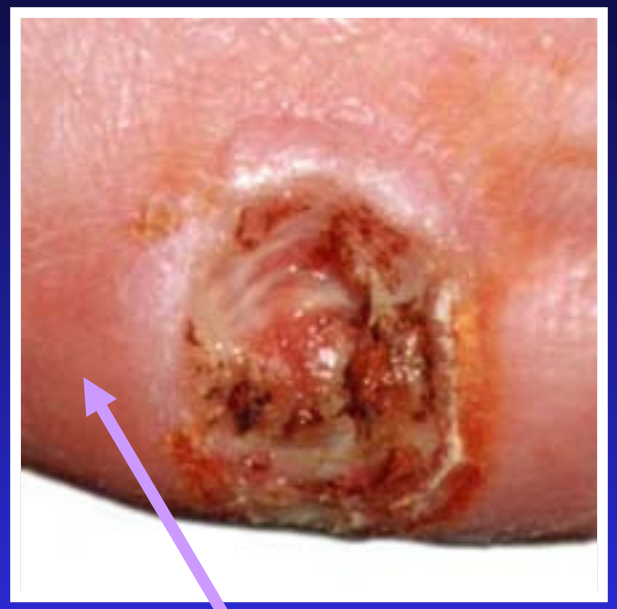
(poster P272 Diabetes UK 2007)

High Risk Ischaemic Foot

- Pulseless
- Monophasic
- Minimal inflammation

Ischaemic Ulcer



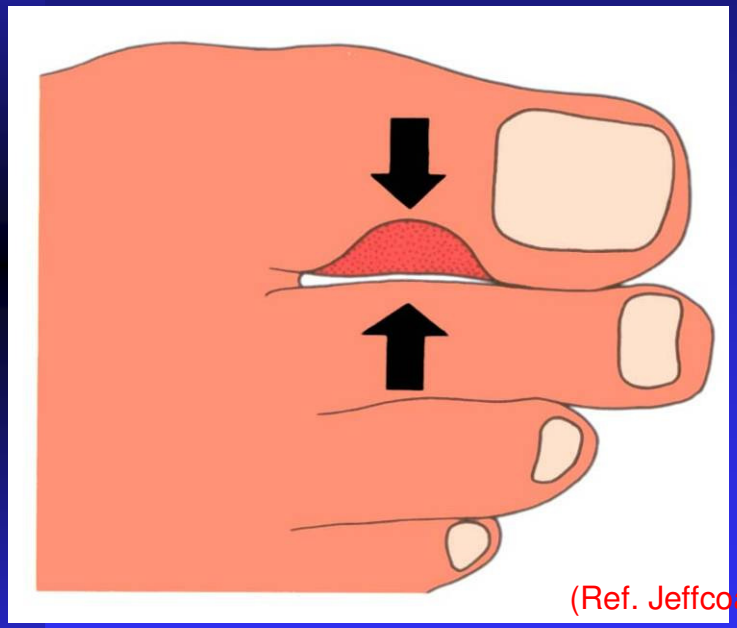


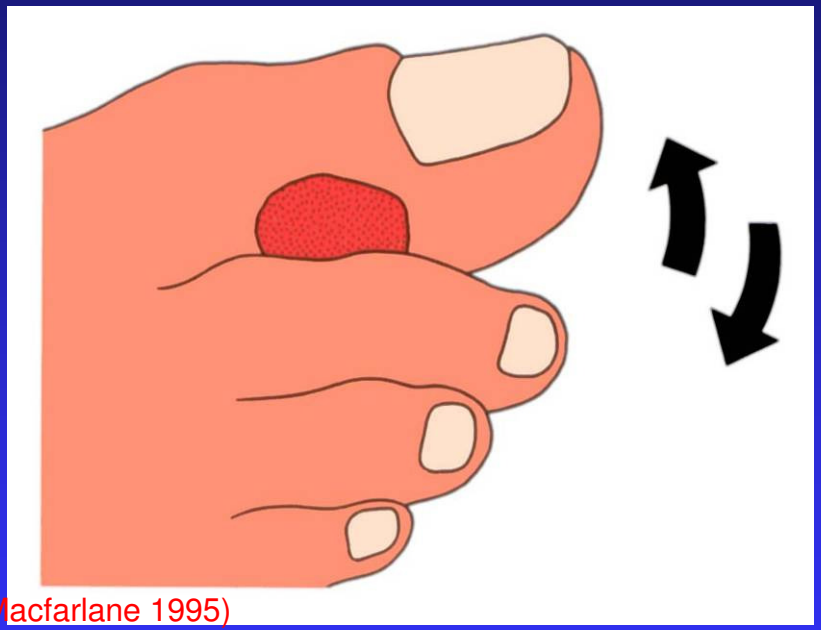
Surrounding erythema

Necrotic tissue

Site: borders of the feet.

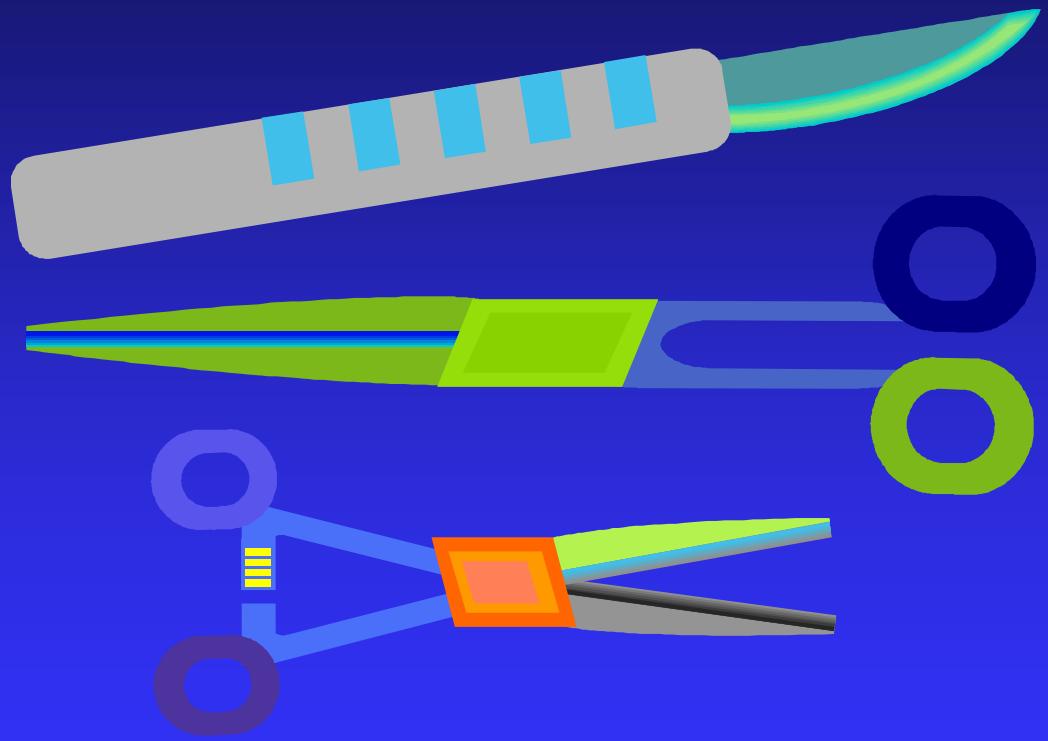
‘Kissing Ulcers’





(Ref. Jeffcoate & Macfarlane 1995)

Debridement

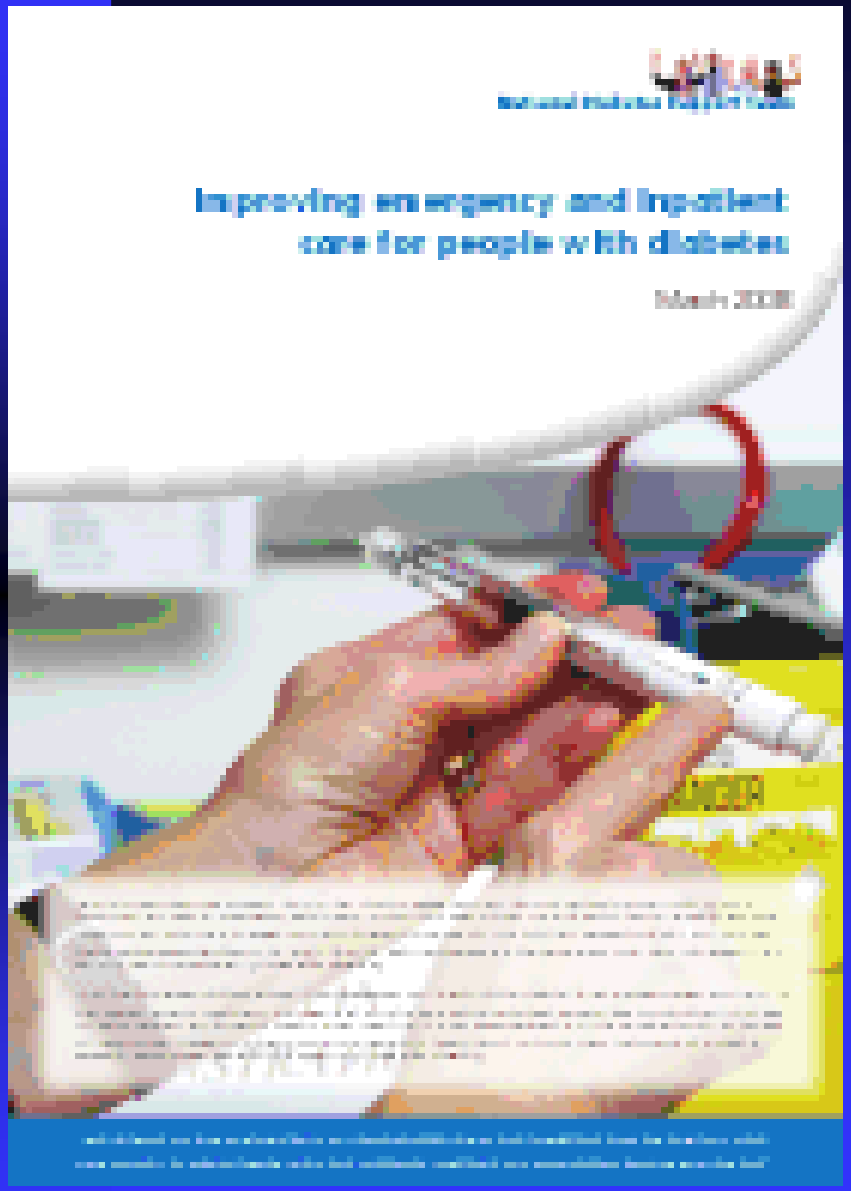


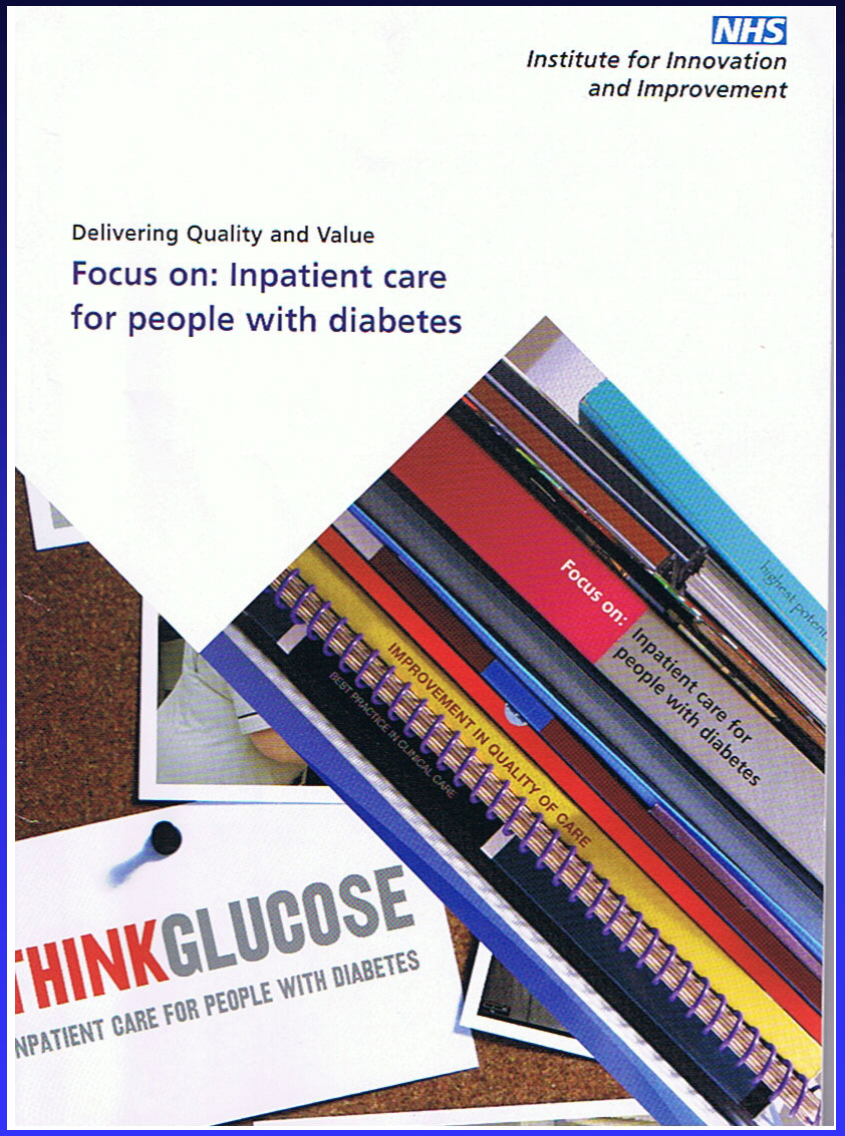
Rapid progression of tissue destruction

REFER
REFER
REFER

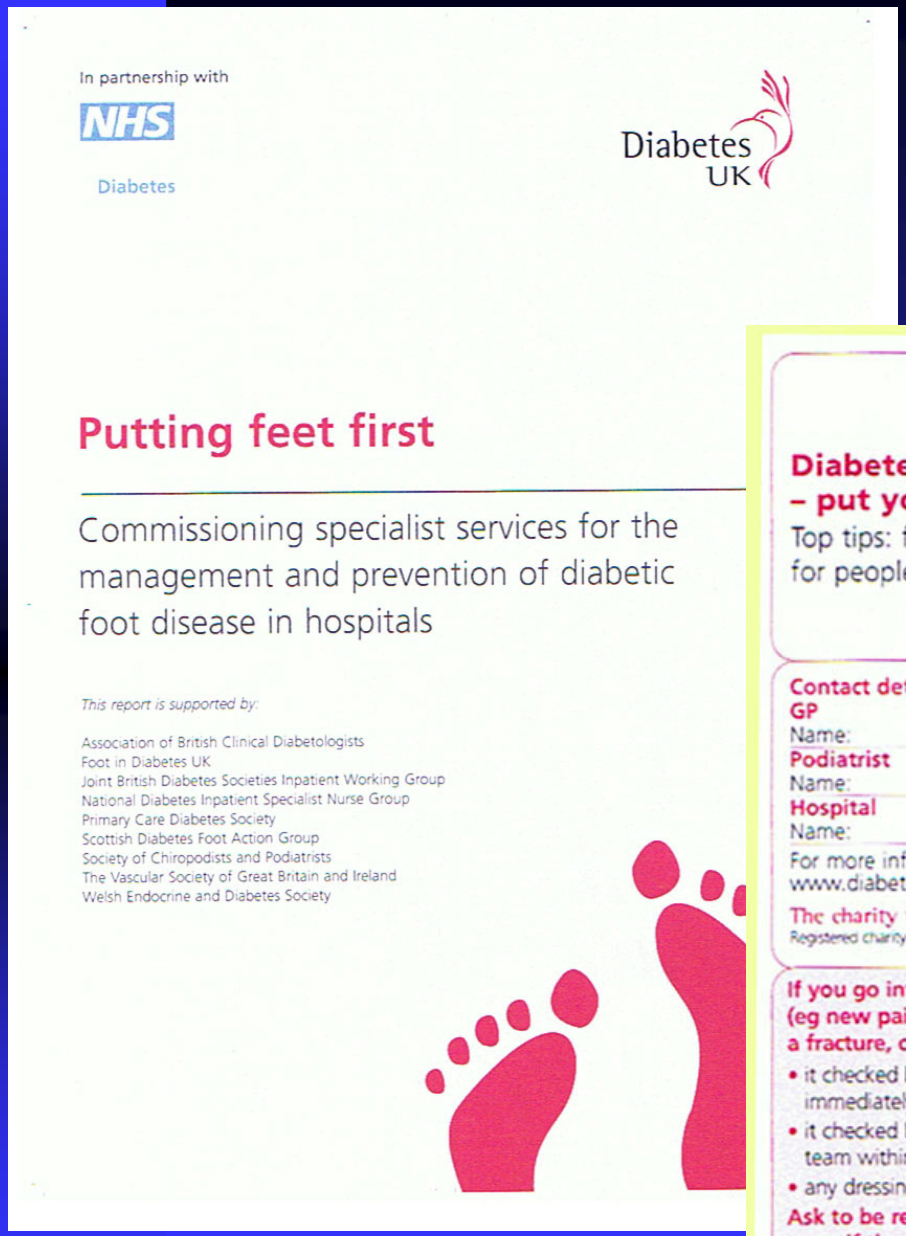
(Ref. International Consensus on the Diabetic Foot)

In-patient care


Improving emergency and inpatient care for people with diabetes


NHS
Institute for Innovation and Improvement
Delivering Quality and Value
Focus on: Inpatient care for people with diabetes
Focus on:
Inpatient care for people with diabetes
IMPROVEMENT IN QUALITY OF CARE
BEST PRACTICE IN CLINICAL CARE
THINKGLUCOSE
NPATIENT CARE FOR PEOPLE WITH DIABETES

Putting Feet First (2009)



In partnership with

NHS

Diabetes

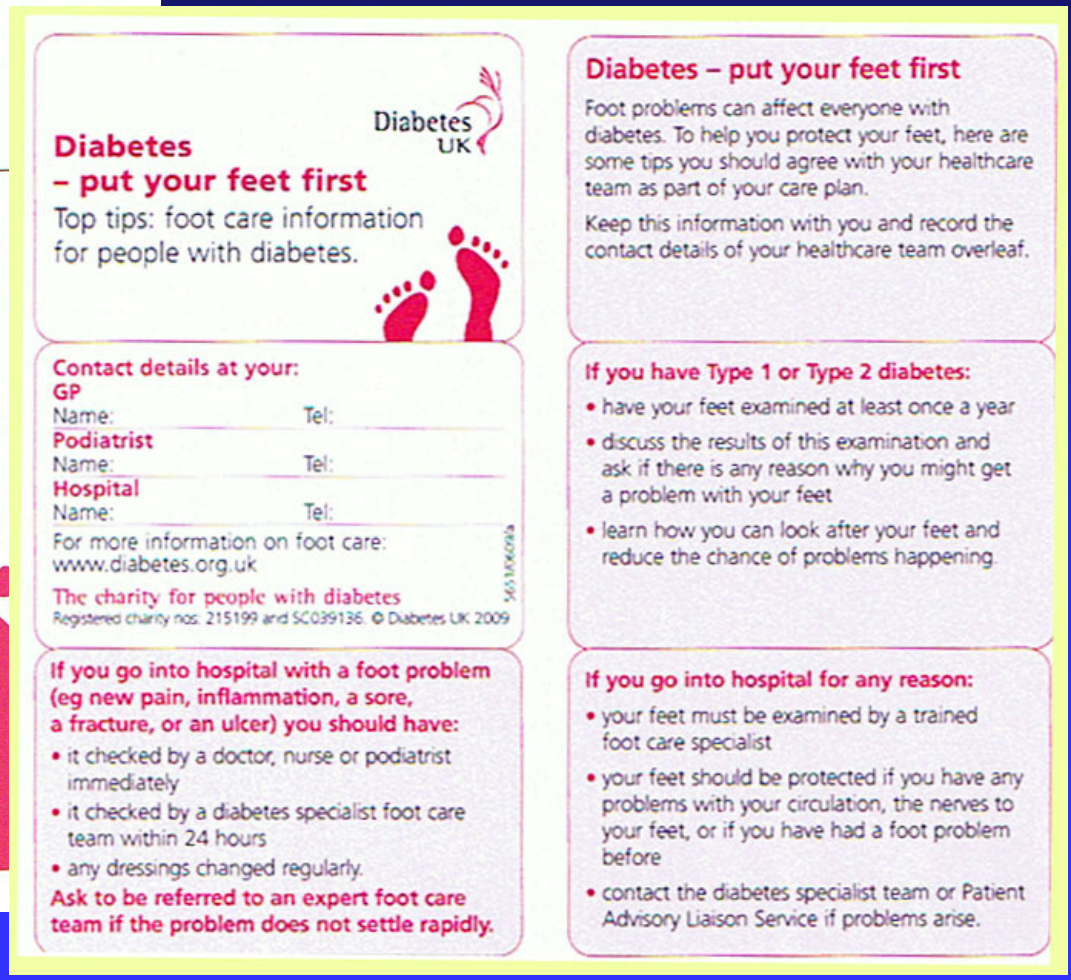
Diabetes UK

Putting feet first

Commissioning specialist services for the management and prevention of diabetic foot disease in hospitals

This report is supported by:

Association of British Clinical Diabetologists
Foot in Diabetes UK
Joint British Diabetes Societies Inpatient Working Group
National Diabetes Inpatient Specialist Nurse Group
Primary Care Diabetes Society
Scottish Diabetes Foot Action Group
Society of Chiropodists and Podiatrists
The Vascular Society of Great Britain and Ireland
Welsh Endocrine and Diabetes Society



Diabetes – put your feet first

Top tips: foot care information for people with diabetes.

Diabetes UK

Contact details at your:

GP
Name: Tel:

Podiatrist
Name: Tel:

Hospital
Name: Tel:

For more information on foot care: www.diabetes.org.uk

The charity for people with diabetes

If you go into hospital with a foot problem (eg new pain, inflammation, a sore, a fracture, or an ulcer) you should have:

- it checked by a doctor, nurse or podiatrist immediately
- it checked by a diabetes specialist foot care team within 24 hours
- any dressings changed regularly.

Ask to be referred to an expert foot care team if the problem does not settle rapidly.

Diabetes – put your feet first

Foot problems can affect everyone with diabetes. To help you protect your feet, here are some tips you should agree with your healthcare team as part of your care plan.

Keep this information with you and record the contact details of your healthcare team overleaf.

If you have Type 1 or Type 2 diabetes:

- have your feet examined at least once a year
- discuss the results of this examination and ask if there is any reason why you might get a problem with your feet
- learn how you can look after your feet and reduce the chance of problems happening.

If you go into hospital for any reason:

- your feet must be examined by a trained foot care specialist
- your feet should be protected if you have any problems with your circulation, the nerves to your feet, or if you have had a foot problem before
- contact the diabetes specialist team or Patient Advisory Liaison Service if problems arise.

National inpatient diabetes audit (Taylor C & Rayman G Malvern abstract 2010)

- 14259 patients in 219 hospitals
- 11.6% h/o foot disease
- 24.9% of diabetes admissions were for a foot problem
- 79% of those referred to a foot team
- 26% of the 219 hospitals did not have a MDFT
- Average LOS
  - 22 days if a/w foot problem
  - 15 days for other diabetes related admissions
- In-hospital foot complications developed in 3%

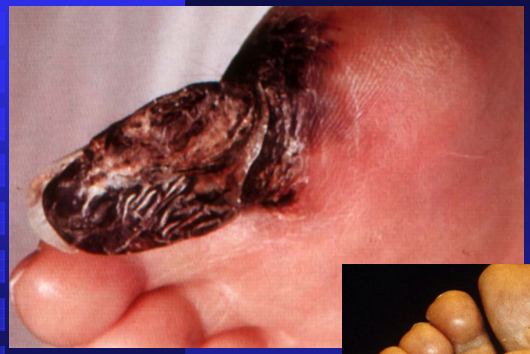
NICE Draft Scope for Consultation

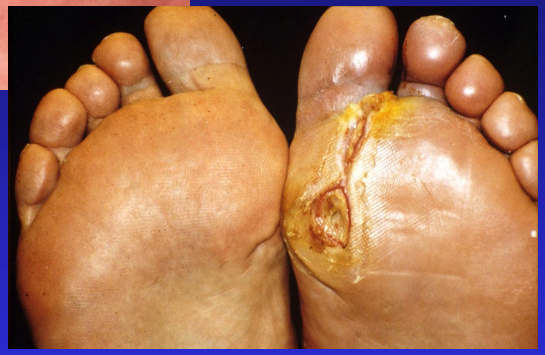
- Diabetic foot problems – inpatient management
- Consultation 9 August – 6 Sept 2010
- Anticipated publication March 2011

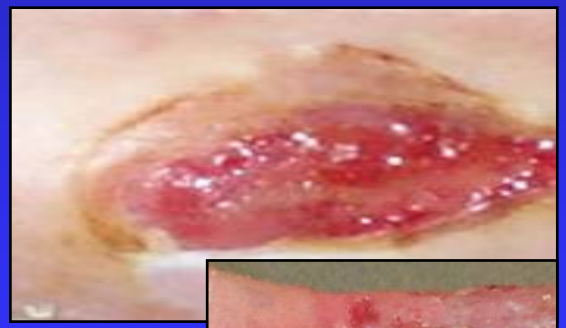
Treating patients with foot ulcers

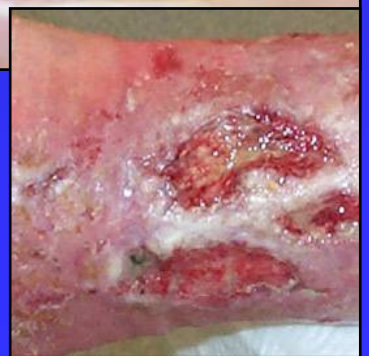
- Type of wound
- Stage of wound healing
- Aim of treatment

Wound bed colour...









- Black (necrotic)
- Yellow / grey (sloughy)
- Red (granulating)
- Pink (epithelialising)

Health Technology Assessment


Ag
Silver
Atomic Number: 47
Atomic Mass: 107.87

Honey

Think….

- Consideration should be given to the fact that these properties may be altered when dressing the feet (Morgan D, Formulary of Wpund Management Products, 7th Ed: 26, 29-30, 1997)
- *as dressings are not designed to take the high & repetitive forces exerted on the sole of the foot!* (Baker N, Journal of Wound Care 6 (1): 1997)

Educating patients

- Health Technology Assessment 2003
- Structure patient education on diagnosis and as required based on formal regular assessment of need eg DAFNE
- Interventions should
  - include principles of adult learning
  - Be provided by an appropriately trained member of the MDT eg Diabetes Nurse Specialist
  - Mainly group work
  - Equality and diversity
  - Be part of routine care

At risk patients– prevention of ulceration

High risk patients– prevention of LEA

Key points for education (NICE 2004)

- Self-care and self-monitoring
- Knowledge of when & where to seek advice
- Awareness of possible consequences of neglecting the feet
- Management of symptoms (pain, odour)

Information Mastery (NPC)

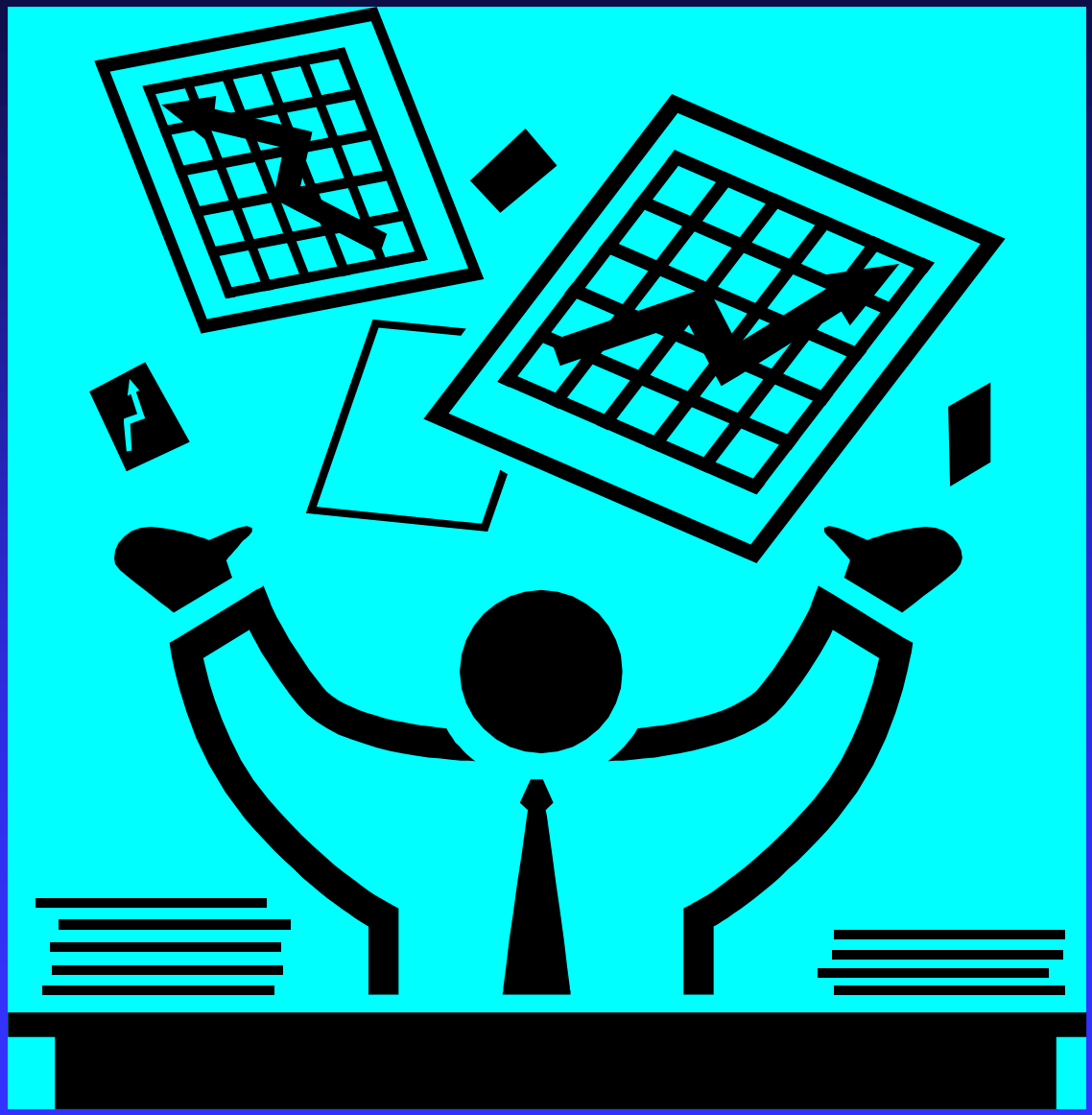
- Potential new articles per week
  - 1200
- Time to read each article
  - 15 mins
- At the end of week one you are 4 weeks behind
- At the end of year one you are almost 5 years behind

Information mastery (NPC)

- **Sign up** for alerts
- Know where to **Hunt** for the best evidence when you need it
- **Recognise** it

Hierarchy of evidence

- Cochrane Library, NIHCE, Centre for Reviews and Dissemination, Health Technology Assessments
- Clinical Knowledge Summaries (CKS), Bandolier
- Systematic review / meta analysis
- Large well designed randomised controlled trial
- Case control, cohort studies
- Consensus from experts



Monitoring Performance

- Practice audit
- Communication / feedback
- Visit
- Reflection
- Knowledge & Skills
  - Research
  - National Guidance
  - National Competences

Summary

- Keep up to date
- Use information to reduce risk to patients and yourself
- Identify risk and refer to appropriate HCP
- Monitor response to treatment