

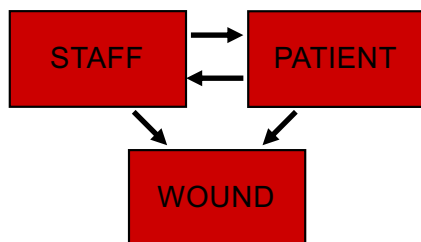
# Surgical Asepsis

IMPLANTOLOGY YEAR COURSE  
MODULE 3 – July 2018  
STUART ELLIS BDS MFGDP(UK) DPDS MSc

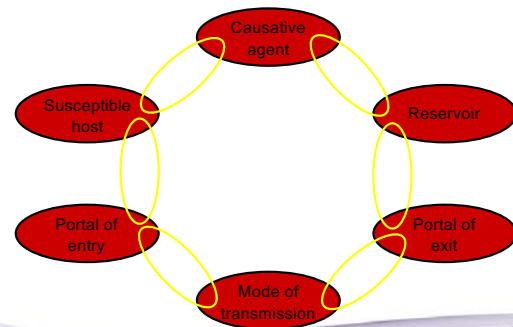
## General Principles of Infection Control



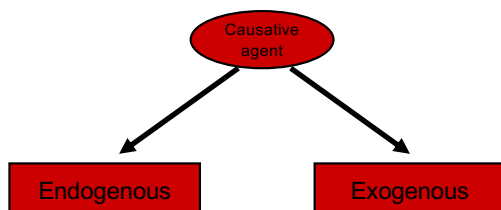
### Surgical Triad



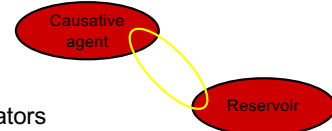
### Chain of Infection



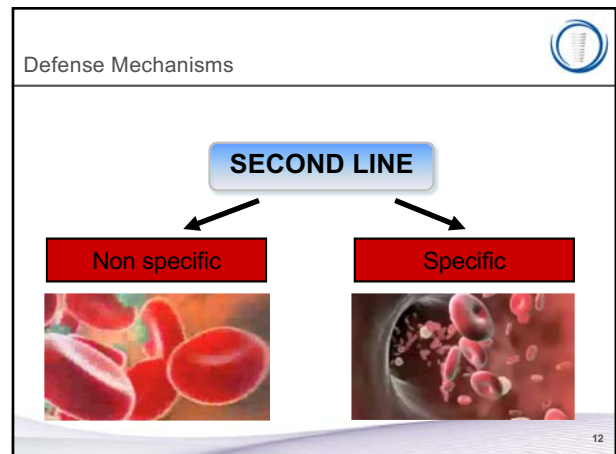
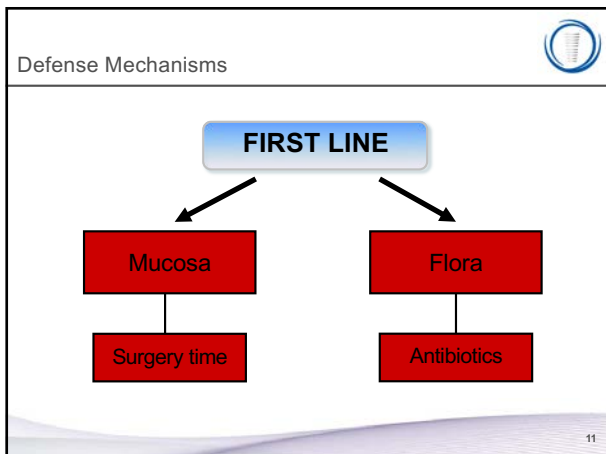
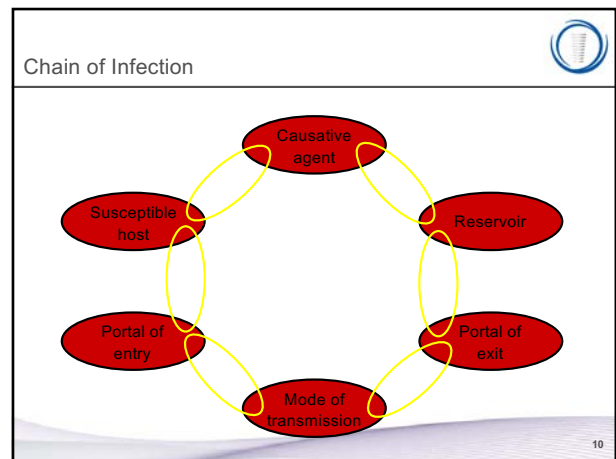
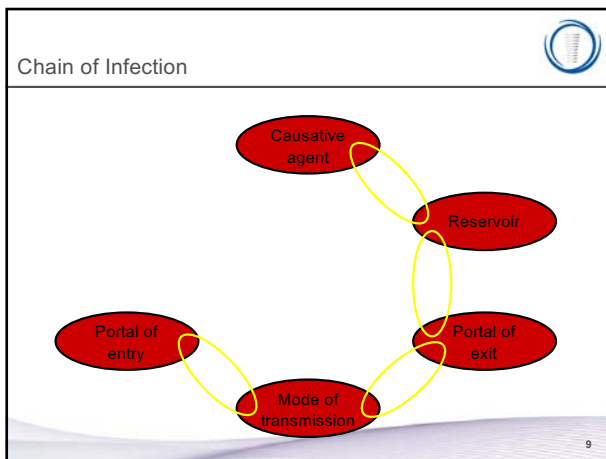
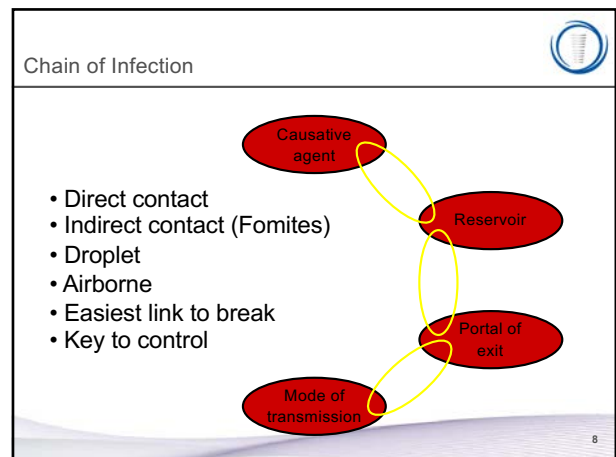
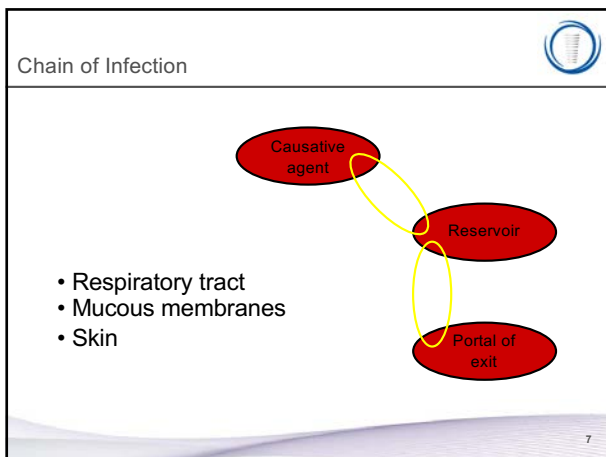
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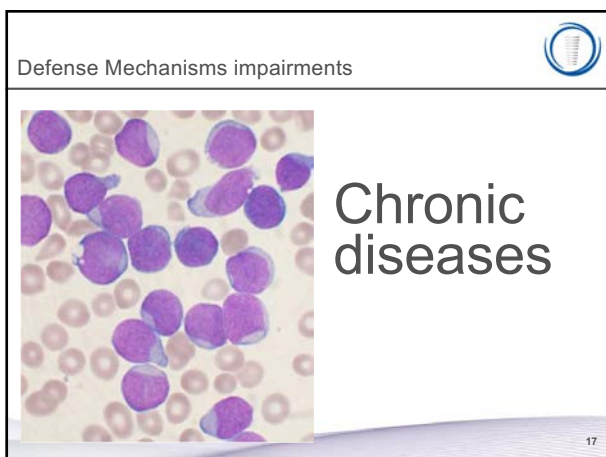
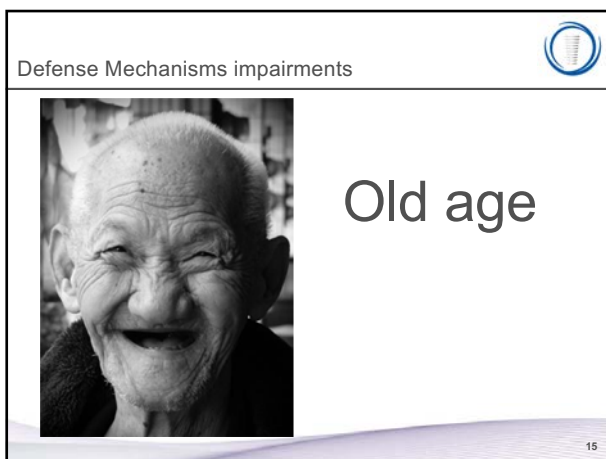
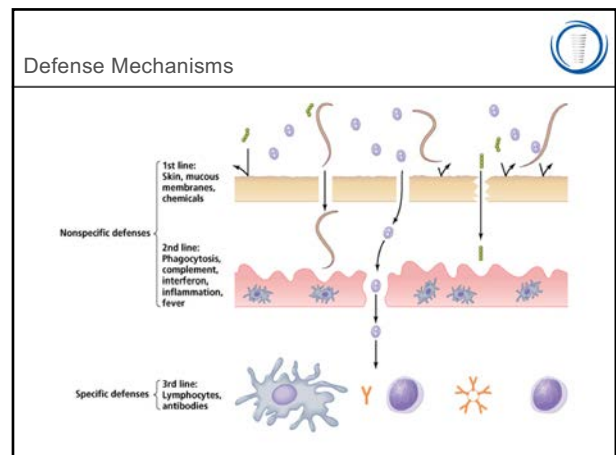
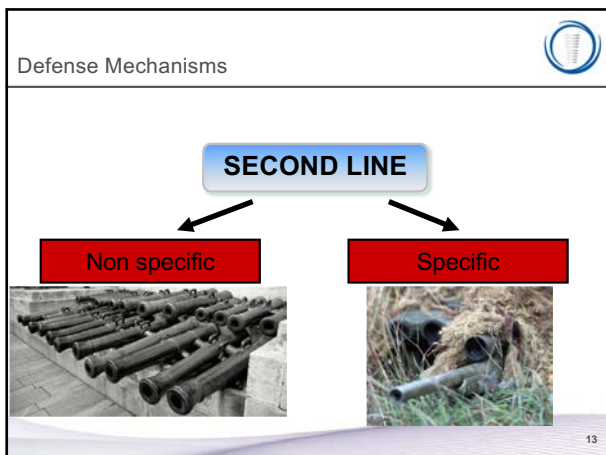


### Chain of Infection



- Operators
- Patient
- Instruments
- Equipment
- Water
- Furniture







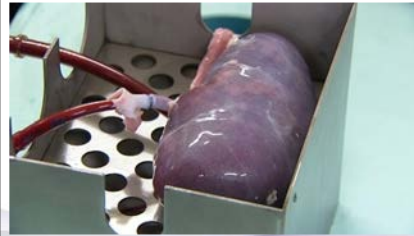
## Immunosuppressants



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## Immunosuppressants



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## Immunosuppressants



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## Practical Considerations



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“procedures designed to reduce the risk of bacterial (or other, e.g. fungal or viral) contamination. ”

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1. Complete elimination impossible
2. Environment
3. Instrumentation
4. Clothing
5. Patient preparation



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## Environment – Surgery Design

1. Smooth & impervious surfaces
2. No shelves – cupboards only
3. Minimise worktop clutter
4. Smooth, seamless floor (vinyl) – sealed edges
5. Curtains and blinds – vertical preferred
6. Air-conditioning – service and clean.
7. Do not use recycled air systems

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## Instrument Decontamination

1. Cleaning
2. Disinfection
3. Sterilisation
4. Storage
5. Single use instruments
6. Use of 'flow' system
7. Separate 'decontamination room'

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## Instruments - Cleaning

1. Reduces bacterial load
2. Hand cleaning least efficient method
3. Washer-disinfector now recommended



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## Washer - disinfectors

1. Best Practice
2. Controllable
3. Reproducible
4. Validated
5. Log books
6. Cycle parameters
7. Testing & maintaining
8. Keep records for 2 years



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## Instrument Decontamination

1. Daily testing
2. Downward displacement
3. Vacuum – preferred for implantology
4. Allows pre-packaging
5. Prevents post sterilisation handling contamination
6. Hand piece lumens??



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## Instrument Decontamination

1. Dry
2. Covered
3. Sealed
4. Pouches best practice
5. Pouch up entire systems



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# Surgical Asepsis

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## Historical Insight

"A man laid on an operating table in one of our surgical hospitals is exposed to more chances of death than was an English soldier on the battlefield of Waterloo"

Sir James Simpson 1869



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## 19<sup>th</sup> Century

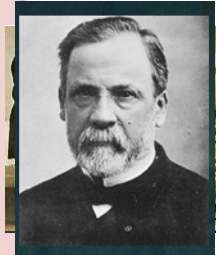


1. Surgical intervention commonly followed by fever
2. *Pus bonum et laudabile* - 'Good and commendable pus'
3. Hospital mortality 59% (Paris)
4. Identified decomposing organic debris on the doctors' hands
5. 1840s Ignác Semmelweis introduced compulsory handwashing with chlorinated lime
6. Reduced post operative mortality from 14 % to just 1% in 9 months

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## 19<sup>th</sup> Century

1. 1860s Louis Pasteur elaborated the 'germ theory'
2. 1867 Sir Joseph Lister described the disinfection of surgical wounds in Lancet paper
3. Sprayed phenol onto hands, instruments & wound site
4. 1881 Robert Koch identified microorganisms as causative agents
5. 1886 steam sterilisation introduced in Germany
6. 1890 Halsted invented surgical gloves made by Goodyear Rubber Company



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## Surgical Site Infection – 'SSI'

1. 150 years after the discoveries by Semmelweis & Lister the incidence of postoperative infection is increasing
2. Occurring up to 10% of cases in USA hospital



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## Surgical Site Infection – causative agents

1. Endogenous flora
2. Staphylococci, streptococci, anaerobes



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# Surgical Preparation

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## Operator Preparation – Clothing

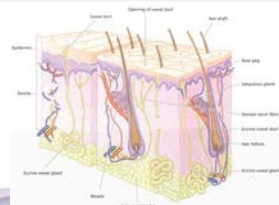
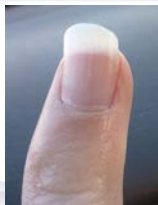
1. Clean scrub suit/indoor clinical clothes
2. Surgical shoes
3. No jewellery, rings or watches
4. Disposable surgical cap and mask



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## Resident Skin Flora

1. Mostly Gram -ve and +ve bacteria
2. Large numbers under fingernails and deeper layers of skin (hair follicles, sweat and sebaceous glands)
3. Surface bacteria removed by scrubbing
4. Numbers increase over time from oil and sweat secretion



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## Surgical Scrub Procedure – Hands

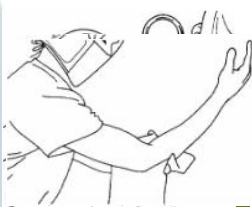
1. Deep sink
2. Hands free tap
3. Surgical soap (Hibiscrub)
4. Clean nails with brush
5. Rotational rub each finger & thumb
6. Palm to palm
7. Palm to dorsum
8. Rotational rub palms
9. Wrists



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## Surgical Scrub Procedure – Arms

1. Keep hands higher than elbows
2. Work from hands to elbows
3. Rotational palm to forearm
4. Finish above elbows
5. Rinse fully
6. Allow water to drip from elbows
7. Take sterile towel from gown pack
8. Use blotting action
9. Hand to elbow
10. Never retrace
11. Fully dry



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## Surgical Scrub Procedure – Gowning

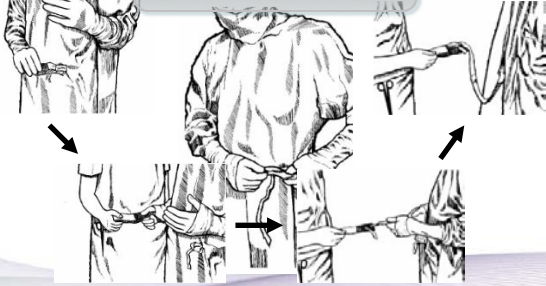
1. Hold hands out in front of you
2. Gown is pre-folded to expose inner surface
3. Hold gown by inner (light coloured) surface only at neckline
4. Lift away and allow to unfold
5. Insert both arms – keeping arms extended
6. Scrub nurse pulls gown over shoulders
7. Scrub nurse ties at back



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## Surgical Scrub Procedure – Final Tie

1. Pass scrub nurse paper tab
2. Turn around and take hold of tie only. Then tie at side



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## Sterile Zone

1. Front of chest
2. Arms to elbows



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## Removing Gown & Gloves

1. Care not to contaminate hands, arms & scrub suit
2. Scrub nurse unties gown
3. Pull gown away from body
4. Discard



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## Surgical Site Infection – 'SSI'



1. Good pre-op tooth brushing
2. Pre-op 2 min chlorhexidine mouthwash
3. Surgical hat, glasses
4. Sterile patient drapes
5. Povidone iodine skin solution
6. Start at lips
7. Circular motion, moving away from mouth
8. Blot dry – do not rub or wipe

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THE END

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