

# Infection Control

- Sanitize/Clean : Remove visible debris
- Disinfect : Use of a disinfection solution on a sanitized item – removes remaining micro organisms
- Sterilize : The destruction of all microbial life using heat, pressure or chemicals



# Disinfection ...The Rules

- Clean first...Remove all visible debris
  - “Wiping Down”
  - Under running water
- Disinfectant Solution
  - EPA Approved
  - EPA Label on all containers
  - Mixed according to label directions
  - Changed at manufacturers recommended intervals
  - CONTACT TIME



# Contact Time

- The amount of “moist time” required to kill bacteria / viruses
  - Be aware of product label.....generally 10 minutes
- Immersion
  - Implements, shears, combs
  - Requires rinsing, but no dry time
- Sprays
- Wipes



# What's on a Label?

- Efficacy Claims – **WHAT** it kills
- Instructions for use – **HOW** it kills
- Uses – **WHERE** it kills
- Cautions & First Aid
- Activity : Household Product Challenge

# Bleach Notes

- Must be EPA registered
- Goal is 6% Sodium Hypochlorite
- Shelf life 3-6 months (never longer than 1 year) – open or closed
- Shelf life decreased by warm temps – shorter shelf life in summer or when stored over 70F



# Single vs. Multi-Use...



NON POROUS is the rule to remember!!

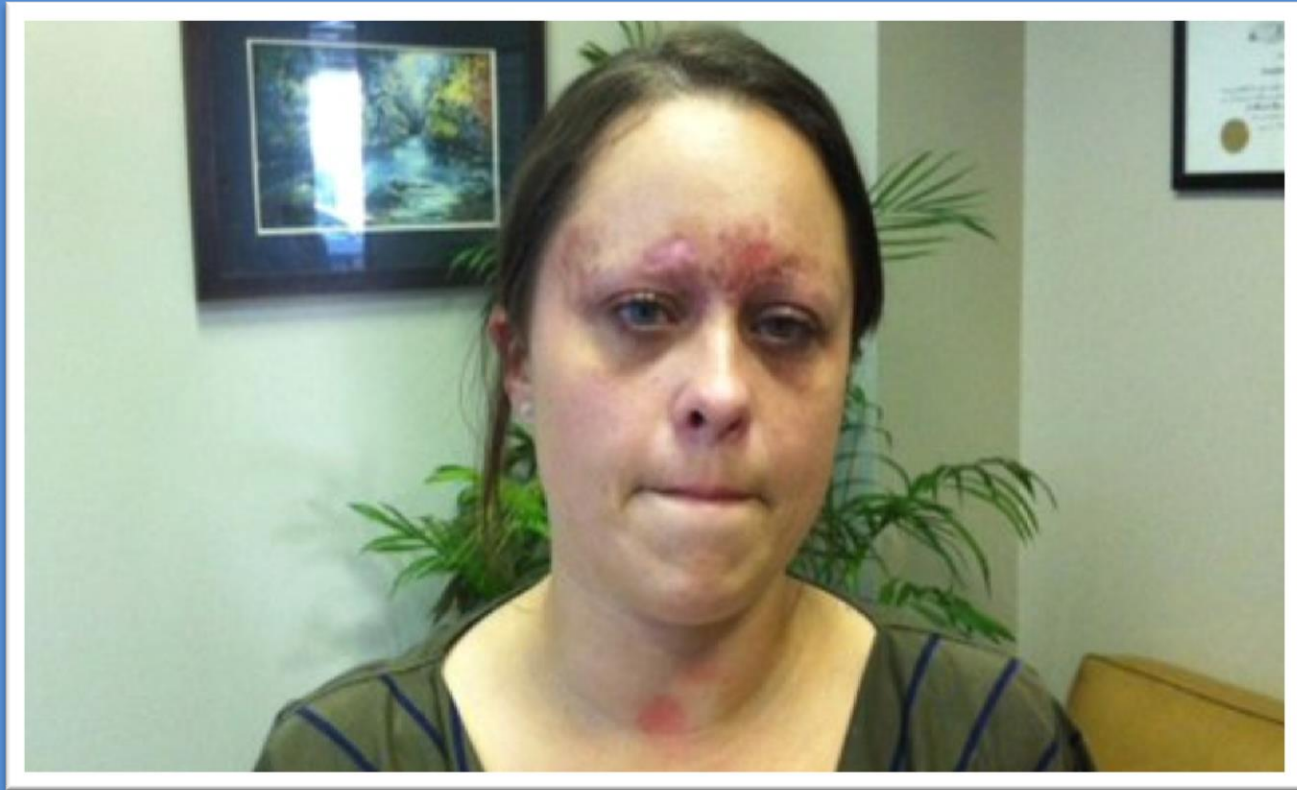




# Things That *Should* Scare You







# Immunity

- **Innate** - Immunity we are born with - species specific
- **Adaptive**- Immunity our body “learns” from exposure
- **Passive** – Immunity that is “borrowed”, such as breast milk
- **Problems with Immune System:**
  - Immunodeficiency Disorders
  - Autoimmune Disorders
  - Allergic Disorders
  - Cancers of the Immune System

# Transmission

- Direct
  - Person to Person (cold/STD)
- Airborne –
  - Respiratory Droplet (TB)
- Fecal-Oral
  - Fecal food contamination (Hep A)
- Indirect:
  - Fomite – Wax Pot (HPV/HSV)
- Vector:
  - Animal borne (Lyme, West Nile)



# Challenges to the Immune System

- Pathogens –Bacteria, Virus, Fungi, Parasites
- Disease and Medications
- Lifestyle -Poor Nutrition, Smoking, Alcohol
- Allergies
- Poor Sanitation
- Medical Treatments



# The Chain of Infection

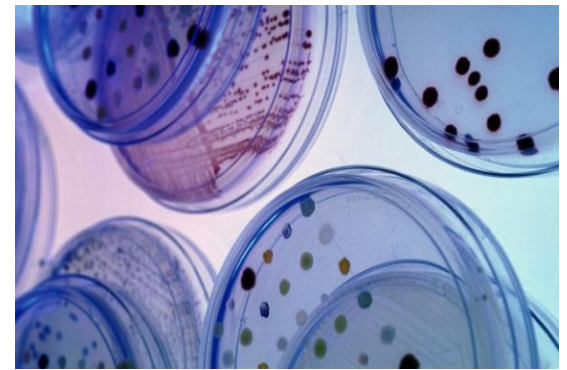
Six requirements:

- An infectious agent
- A reservoir where the agent resides
- A portal of exit for the agent to leave the reservoir
- A mode of transmission (next slide)
- A portal of entry for the agent to enter host
- A susceptible host to infect

**BREAK ANY ONE OF THESE AND NO  
INFECTION CAN OCCUR**

# Bacterial Mutation - Superbugs

- Bacterial mutation makes most antibiotics ineffective
- Emerging Superbugs
  - MRSA (100,000 / 24,000)
  - Drug Resistant TB
  - VRE
  - Drug-resistant Streptococcus pneumonia



# Antibiotic Resistance

- Risk Factors
  - Being a citizen of a developed country
  - Frequent / long term antibiotic use
  - Impaired immune system
  - Hospitalization

# MRSA

- **Risks**

- Impaired Immune System
- Communal Living Situation
- Contact Sports
- Sharing of Towels
- Frequent or Long Term Antibiotic Use
- 1/3 of People are Colonized

- **Transmission**

- Direct
- Fomite – can live on surfaces for over a year







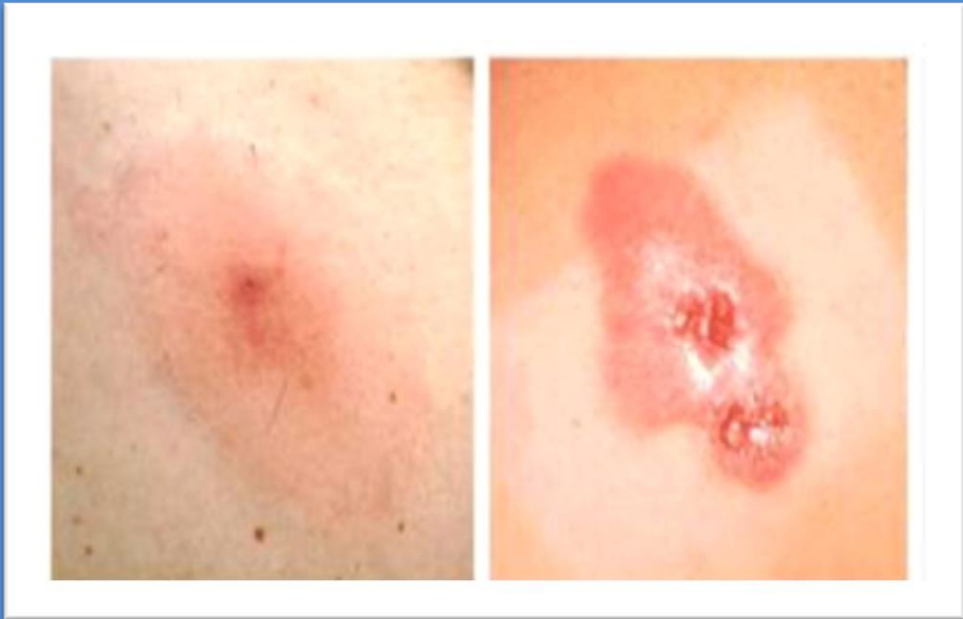
© MRSAmd.com



© MRSAmd.com











© MRSAmd.com



# Virus

- Pathogenic disease-causing agents that are many times smaller than bacteria.
- Enter healthy cells, grow to maturity, and reproduce, often destroying the cell.
- Some viruses thrive on hard, dry surfaces
- Examples:

Influenza

HPV

Measles

HIV

Mumps

Hepatitis

Common cold

Chicken Pox



# HIV/ AIDS

- Human Immunodeficiency Virus
- Changing risk profile
  - Prior to 2000: Homosexual and IV Drug Use
  - After 2000 (US): Heterosexual African American and Hispanic



# What is HIV

- Virus spread throughout body that attacks immune system
- Documented in 1800's – first US cases in 1970'
- Attacks CD4 or T- cells – major component of immune response
- Untreated opportunistic infections (pneumonia, yeast) can lead to death



# How is HIV transmitted?

- Primary modes of transmission in the US:
  - Sex with an HIV infected person
  - Sharing of IV drug materials
- Requires that infected bodily fluid come into contact with mucous membranes, damaged tissue or directly injected into bloodstream
- Only documented occupational risk : healthcare workers (CDC)


# Stages of HIV/ AIDS

- Acute Infection
  - 2 to 4 weeks after infection – highest viral load
- Clinical Latency
  - Months to decades – few symptoms but still contagious
- AIDS
  - CD4 count below 200 (normal – above 500)
  - Opportunistic infection present


.. .. . - - . . . . .



# HIV Prevention /Treatment

- No scholarly references to surfaces or “blood contact” prevention
  - Prevention focuses on safe sex, needle stick protocols
  - Body Arts only area designated as having an elevated risk (NIOSH)
  - Follow OSHA guidelines in presence of blood
  - No cure
  - Treatment can lead to normal length of life (CDC)
  - Anti-retroviral treatment can extend life for decades
- 

# Can you get HIV from...

- Saliva, tears, sweat or spitting?
  - Toilet seats ?
  - Kissing an HIV infected person?
  - From a surface?
  - Sex?
  - Being scratched by an HIV positive person?
  - Being bitten by an HIV positive person?
- 

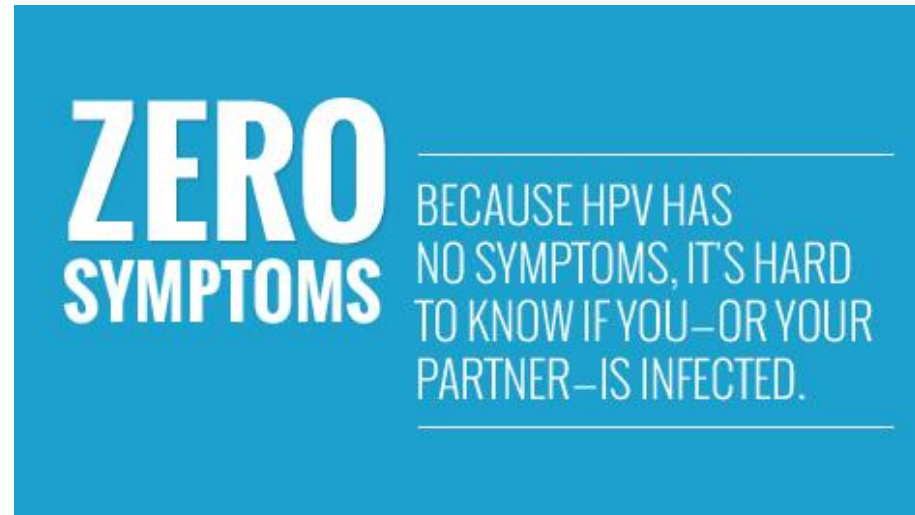
# HPV – Human Papilloma Virus

- **Risk Factors**

- Sexual Partners
- Age
- Immune System Impairment
- Tears in Skin

- **Symptoms**

- None
- Warts
- Plantar Warts
- Genital Warts
- Contagious with or without symptoms



**Only known cause of Cervical Cancer**



Human Papilloma Virus.....  
Here



And Here!

# Pathogen Survival Rates

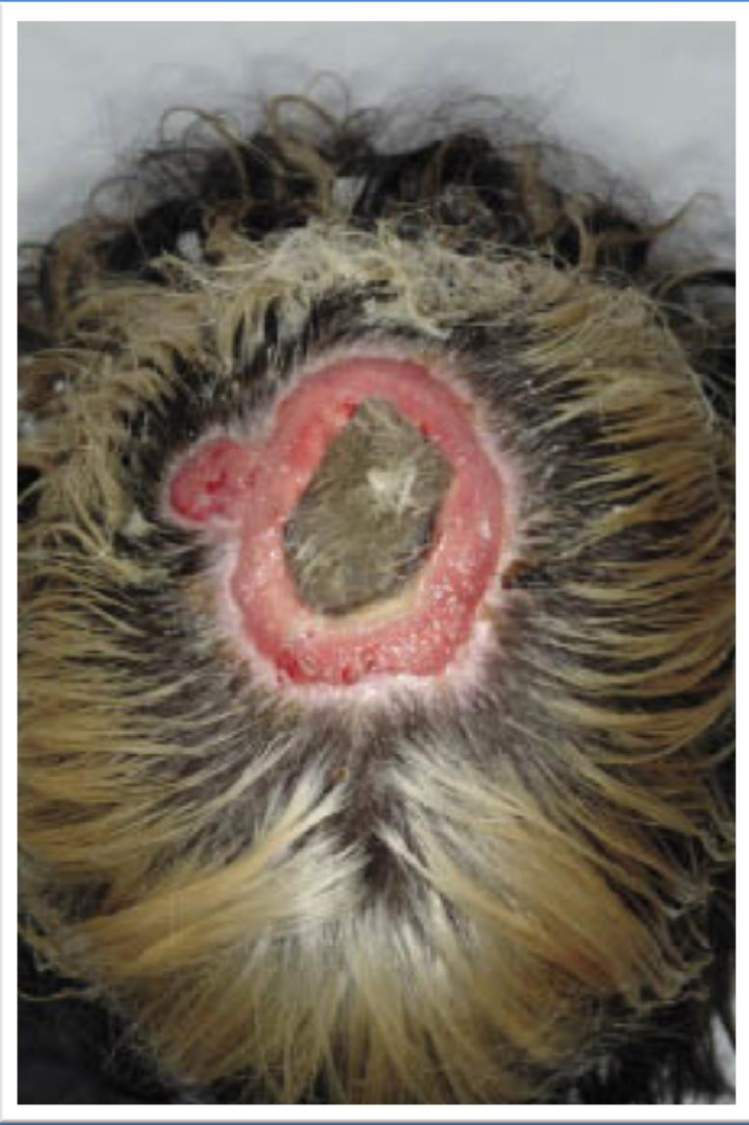
- E.coli – 1.5 hours to 16 months
  - VRE – 5 days to 4 months
  - Staph (including MRSA) – 7days to 7 months
  - Strep – 1 day to 6.5 months
  - Candida Albicans – 1 to 120 days
  - HBV- 2 hours to 60 days
  - HIV – More than 7 days
  - Influenza – 1 to 2 days
  - HPV – More than 7 days
- 



Service or Refer ?



















# A Trip to the Barber





# Ringworm



You Don't Know.....  
What You Don't Know



# The High Risk Client

- Has Immune system impaired by medication or disease
- Has Illness that is undiagnosed
- Harbors virus that is not currently active
- Has had surgical or medical intervention
- Has traveled outside of the US
- Has a high risk occupation

**How would you know??**



# The Diabetic Client



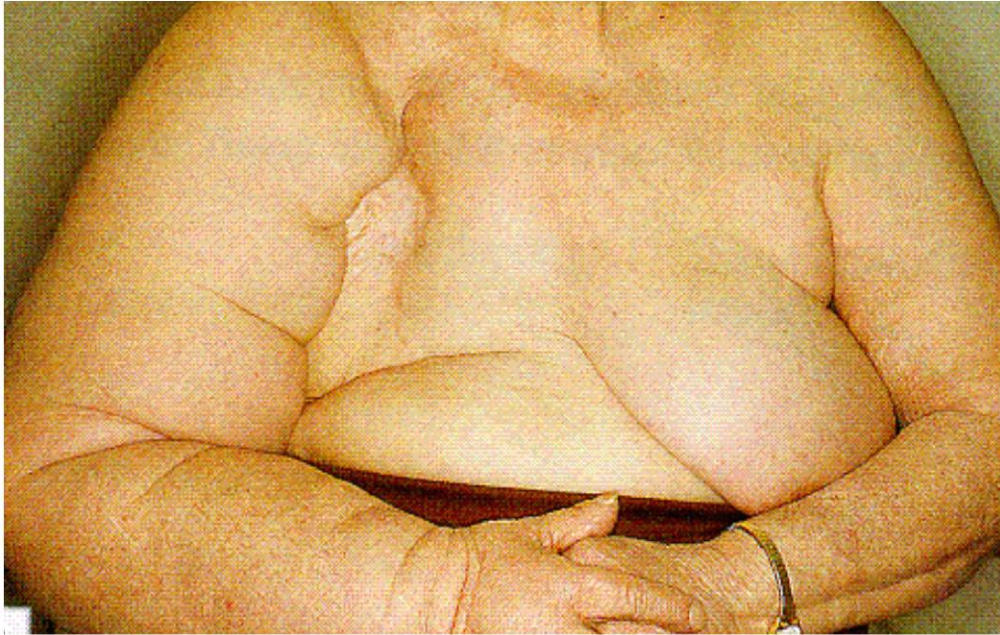


The Diabetic Client

# Mastectomy/ Lumpectomy Patients







# Immunosuppressed Clients



# Medications Affecting Immune System

- Glucocorticoids – Suppress inflammatory response – used in transplantation, autoimmune disorders, severe allergies, swelling of joints (RA)
- Cytostatics – used in auto-immune disorders
- Interferon – Used in Multiple Sclerosis (MS)
- Opioids



# Discussion Topic- Health History

- Taking of a clients health history
  - What do you want to know?
  - What should you know?
  - What is the liability?
- How to ask
- How to record
- HIPAA

# Keeping it Clean and Safe

- Disinfection of common use surfaces and personal contact items
- Proper hand washing
- Sanitize linens
- Avoid touching face
- Cover open wounds / sores
- Avoid contact with open wounds, sores or areas of poor skin integrity
- Use antibiotics only when necessary and prescribed and complete full course!



# Prepare Yourself

- Use antibiotics correctly!
- Stop smoking and exposure
- Make 8 hours a habit!
- Make 8 glasses a habit!
- Stay home when sick
- Get immunized (Hep B, Pneumonia, Influenza, Tetanus)
- Exercise ...doesn't have to be painful, just consistent
- Eat your vitamins
- Keep your hands to yourself !

