

A BRIEF LOOK AT SOME LABORATORY ACQUIRED INFECTIONS

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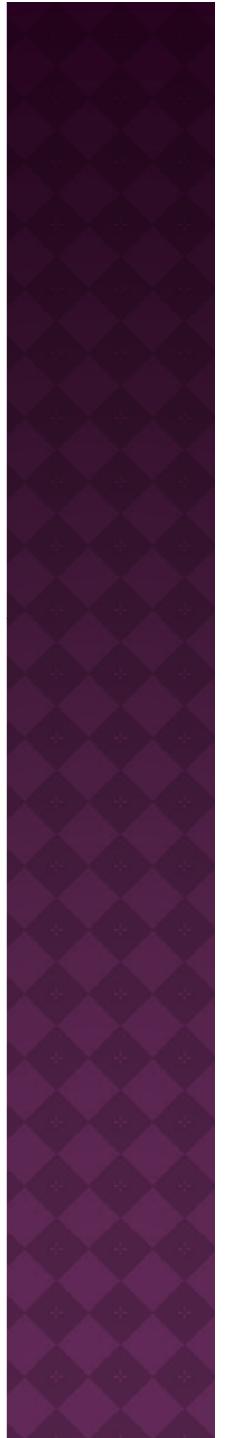
OVERVIEW

- ◉ New material
- ◉ Cases that may or not have been
- ◉ Lessons to learn
- ◉ Disclaimer



Study

- ◉ Laboratory exposures review
- ◉ Six years of data from primary clinical, clinical research, academia and research laboratories
- ◉ Statistical data on staff at risk, correlation with number of samples and types of procedures, staff grades and training
- ◉ Common areas
- ◉ Interventions

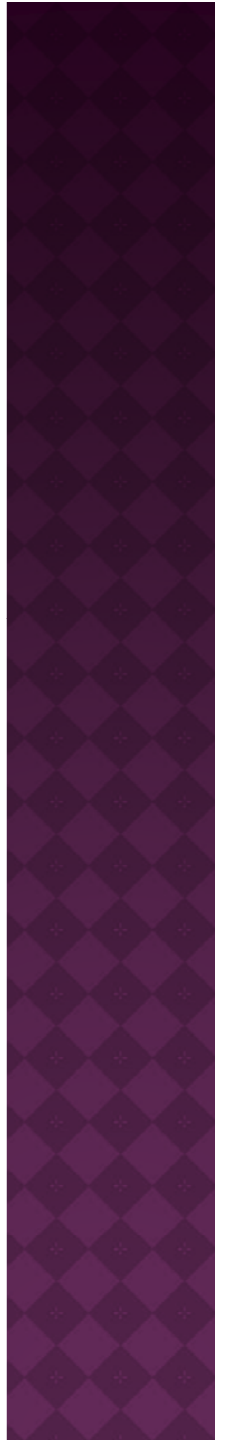


BACKGROUND

UK Biological agents (COSHH) and Reporting of Diseases and dangerous Occurrences Regulations (RIDDOR)

- ◉ Incidents where they have potentially been exposed to a biological agent likely to cause severe disease.
- ◉ Acute illness
- ◉ Bites and needle sticks
- ◉ Listed diseases
- ◉ When medical treatment has been given

KNOW YOUR ORGANISM



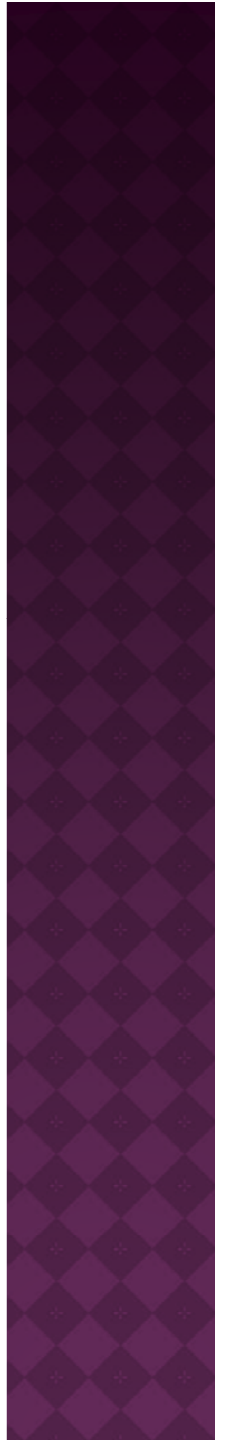
NEISSERIA MENINGITIDIS -GROUP B MALTOSE NEGATIVE

- ⦿ G-Urinary urine specimen
- ⦿ Unusual
- ⦿ Discrimination from gonorrhoeae and cinerea

Not identified until after handling on bench
Airborne risk

Antibiotics given
No adverse affects

KNOW YOUR PROTOCOL



CORYNEBACTERIUM DIPHTHERIAE LAI

- ◉ Seconded to another lab
- ◉ Unlearned technique/adequate training
- ◉ Molecular study
- ◉ Understanding of aerosol generation

Taking loop of frozen blood glycerol containing live culture.

On bench

Difference of risk assessment for research vs. diagnostic

Adequacy of training and supervision

Nature of secondment

Competency

BACILLUS ANTHRACIS - NEEDLESTICK

- ◉ Syringe containing anthrax inoculum passed between two team members. Grazed hand blood drawn but glove intact.

PPE

Vaccinated

Immediately reported

Precautionary antibiotics given

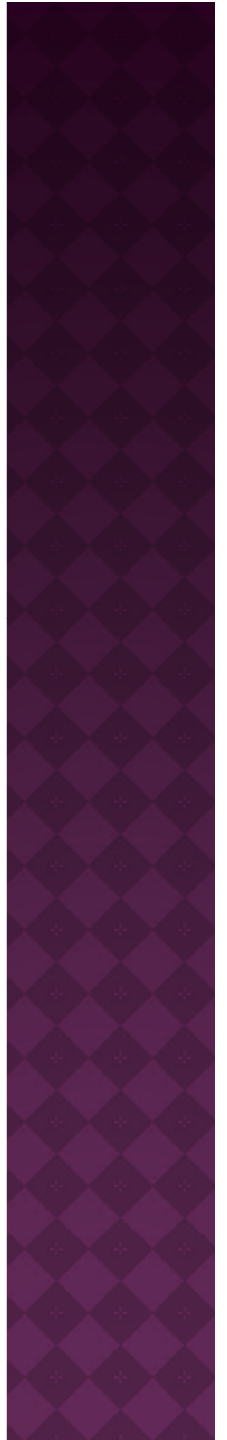
Awareness of correct use of syringes

Adequate PPE

Vaccination

Knowledge of need to report

KNOW YOUR EQUIPMENT



LIGHTS ON BUT NO ONE HOME!

- Two cases of use of biosafety cabinets
 - Lights on but this did not run the fans
 - Fans on but transport plate still in place several months after installed.

Over-reliance on others to check BSC
Poor understanding of checks and meaning of indicators

Proper installation
Training of installers and users
Management issues around responsibilities

NEISSERIA MENINGITIDIS - LAI

- ◉ Admitted to hospital with meningococcal sepsis. Confirmed Group B
- ◉ Worked in lab with neisseria spp.s

Worked on open bench when inoculating API strip and sub-cultured blood culture from directly vented bottle

Pre existing condition

Staffing cover

Venting arrangement had altered due to supply issues

MYCO BACTERIUM TUBERCULOSIS - EXPOSURES

- Sub-culturing when wooden swab snapped and landed outside biosafety cabinet
- Two incidents of discarded cultures being incorrectly disposed of 1) outside 2) broken
- Omission to perform “kill” step of assay

Risk assessment on swab type

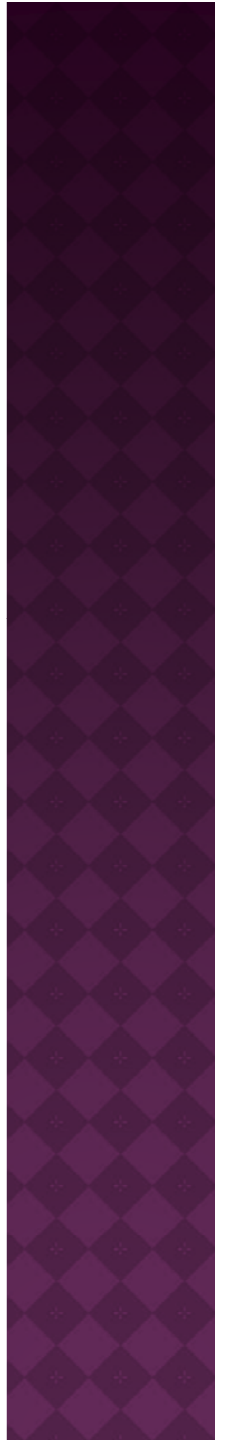
Knowledge of procedures following incident including fumigation and OH access.

Thin walled bottles received from overseas

Waste procedures inadequately implemented

Checks on following procedure and management of work pressures

KNOW THE DISEASE AND SYMPTOMS



SALMONELLA AGONA - LAI

- ◉ Graduate in chemistry
- ◉ Training/competence

Worked on bench with a number of strains of salmonella
No gloves

Fragmented lab environment
Lighting and bench colour
Pipetting technique
Glove use
Competency and supervision

SHIGELLA SONNEI - LAI

- Two cases of staff at different sites off work with diarrhoea and cramps for more than 9 days

Both attributed this to eating in local restaurants
Both had been in and handled specimens with an enterics lab just prior to being ill.
Strain found to nearly identical to patient strains handle in the incubation period

No evidence of poor hygiene
Relaxed attitude to work within enteric area
Did not recognise symptoms nor attend GP

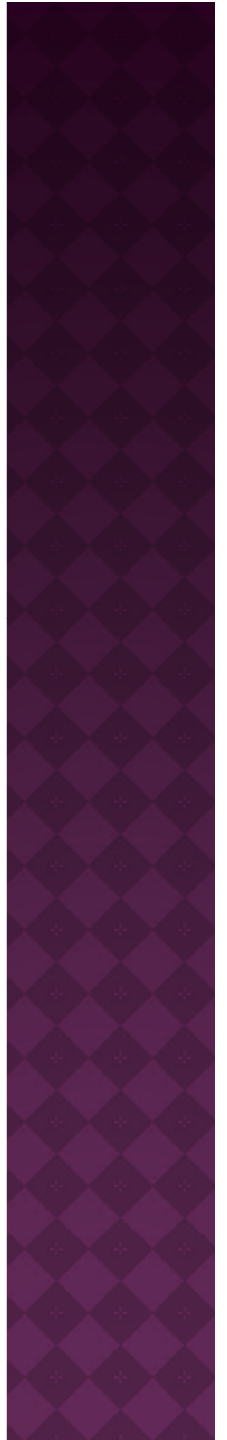
MRSA - LAI

- General bench diagnostic procedures

Developed infected hand that was unresponsive to treatment
General neuralgia

Individual had splits in the nail bed “quicks” (hyponychium)
Laboratory tradition not to wear gloves
Poor hygiene practices

INCIDENTS THAT NEVER WERE!



RELEASE OF MYCOBACTERIUM TUBERCULOSIS

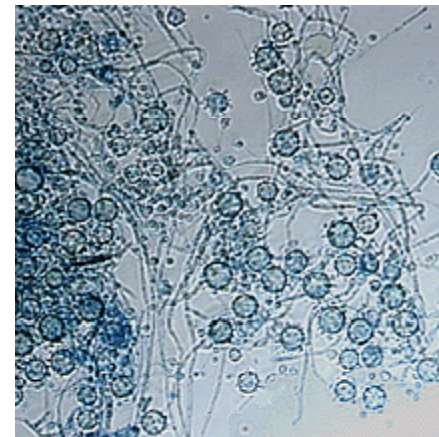
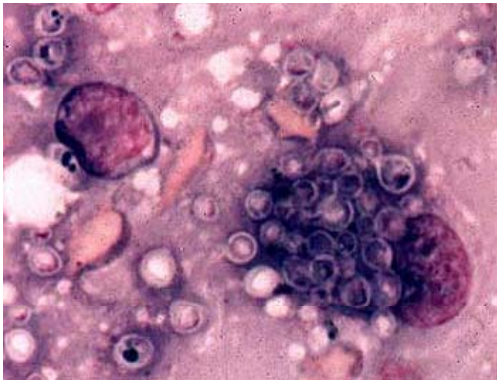
- Chemostat tap clip became undone and a volume of culture was released

Chemostat enclosed in Class III safety cabinet with bund
Vented via double hepa filter, tested and working correctly

No exposure no release outside validated containment
Not treatment no risk to staff or environment
BSC contained means to deal with spillage.

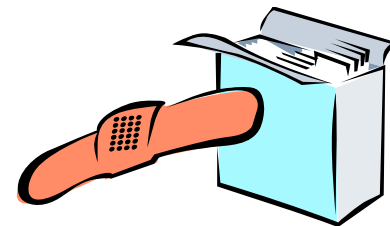
HISTOPLASMA CAPSULATUM

- Blood specimen
- Incubated at 25 and 37 degrees
- Spotted as having formed mycelium at 25 hence pathogen removed directly to BSL3
- Thermal dimorph
- Patient had been in bat caves overseas



LESSONS

- ◉ Training and supervision
- ◉ Don't assume
- ◉ Understand equipment and its use
- ◉ Know and reinforce disease characteristics
- ◉ Understand aerosol production
- ◉ Have and rehearse response for adverse incidents
- ◉ Accommodation can prevent good practice





Thank You

