



Welsh Blood Service
Gwasanaeth Gwaed Cymru

Aspergillus in the Blood Collection Environment; an investigation

S.Pearce

09/2014



WBS on site Collection Centre

- Primarily collects apheresis platelet donations (Also used for red cell collections)
- Monday – Afternoon & Evening
- Tuesday – All Day
- Wednesday – All Day
- Thursday – Afternoon & Evening
- Friday - Morning
- Saturday - Morning



July 2013

- Sporadic & Occasional mixed fungal growth on routine monitoring settle plates
- Identified work had taken place on air conditioning units



August 2013

- More growth, now pure *Aspergillus sp*
- Identified a *A.niger*
- Air conditioning units checked & cleaned
- Clinic mapped for fungal growth
- Visual inspection identified rotten apple in bin
- However sporadic growth persisted

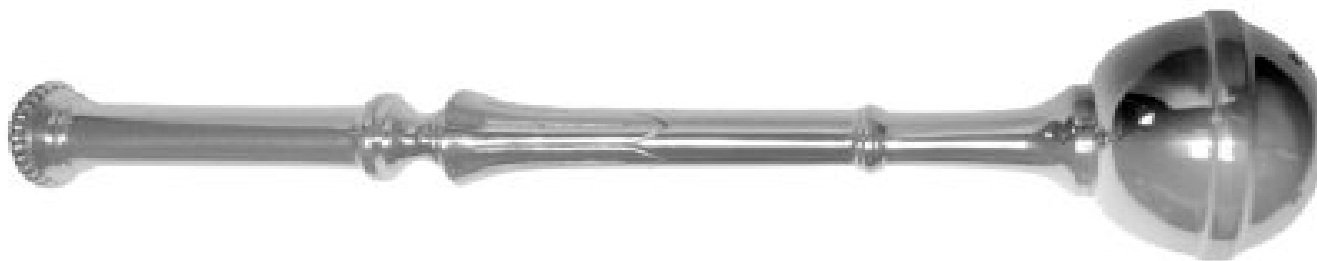


- ***Aspergillus*** is a genus consisting of several hundred mold species found in various climates worldwide.
- *Aspergillus* was first catalogued in 1729 by the Italian priest and biologist Pier Antonio Micheli.
- Viewing the fungi under a microscope, Micheli was reminded of the shape of an aspergillum (holy water sprinkler), from Latin *spargere* (to sprinkle).



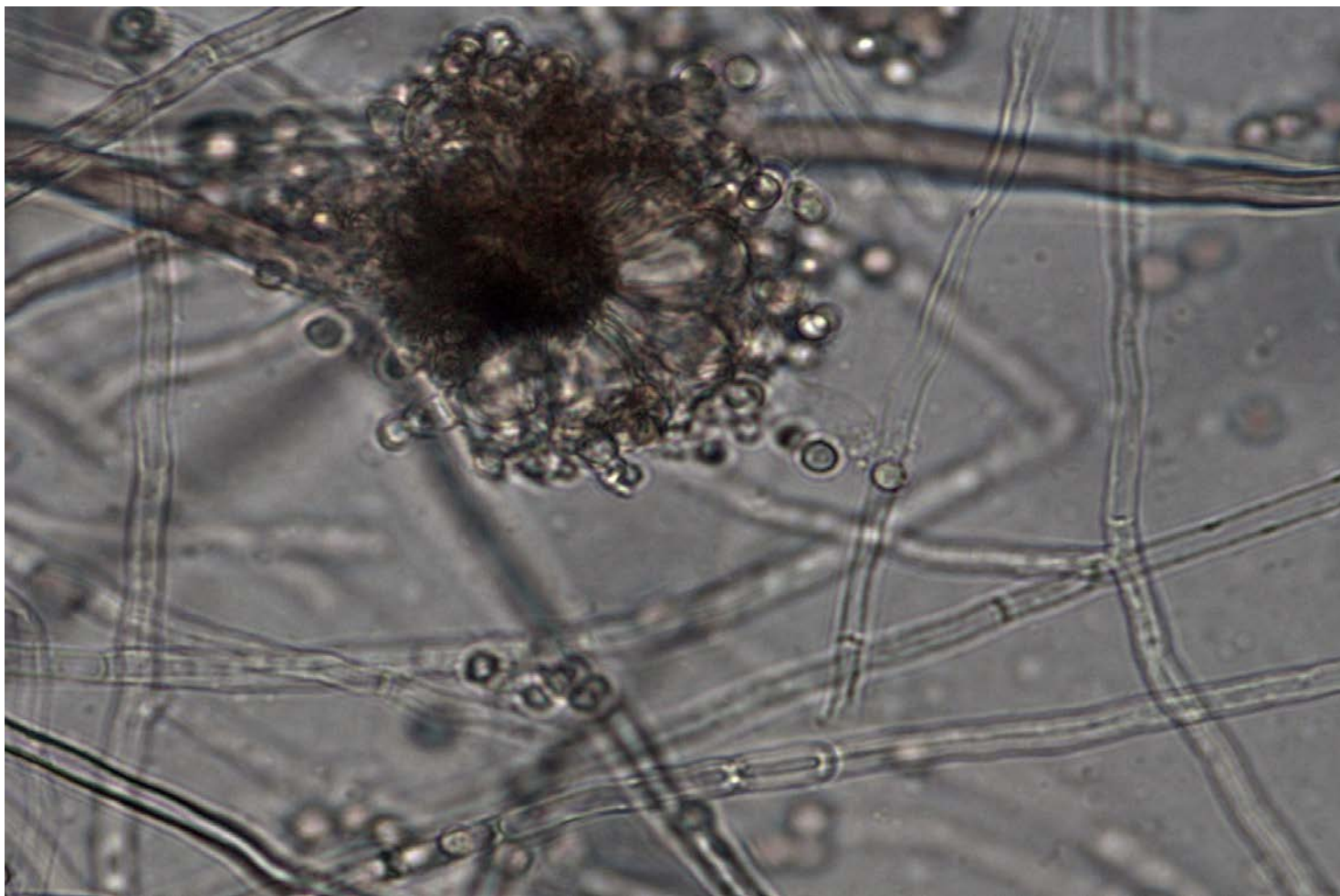
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Aspergillum



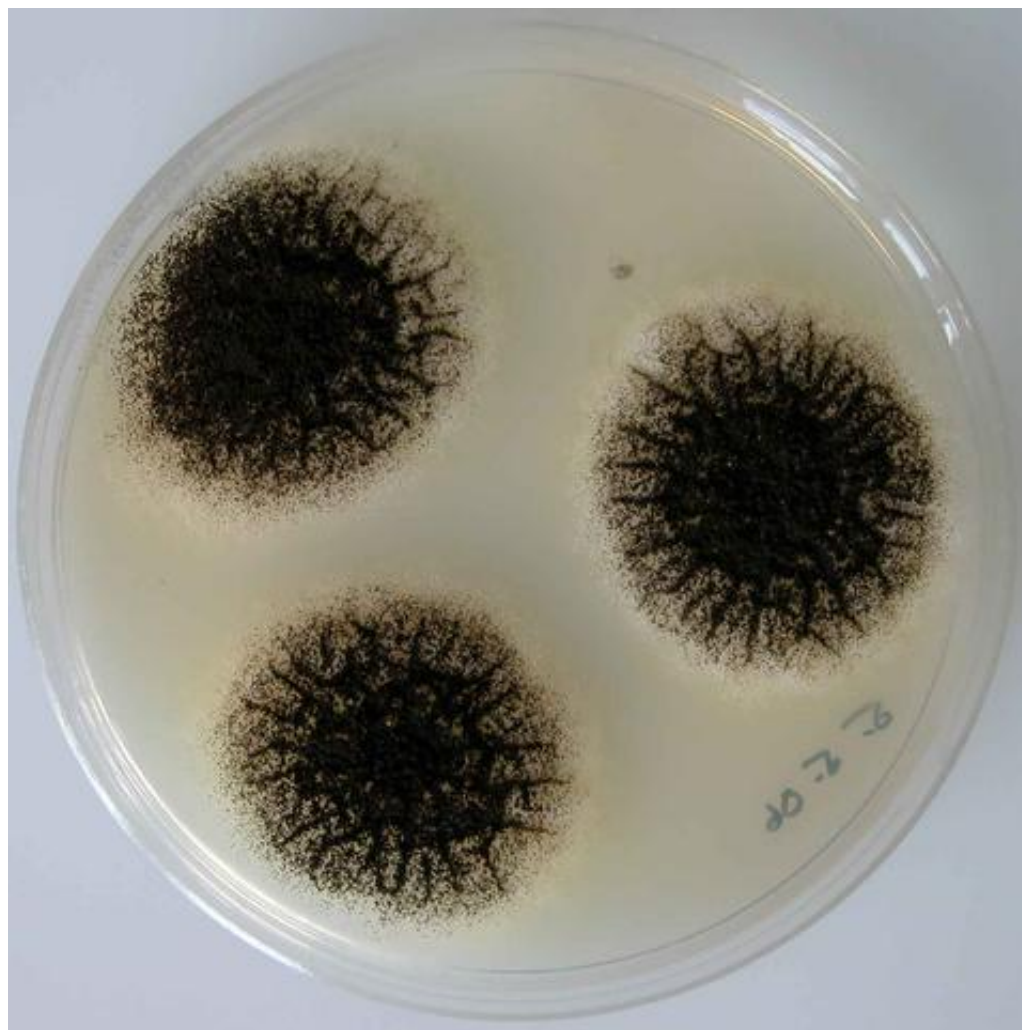


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Risk Assessment

- Considered potential for impact on :
 - Components (GMP)
 - Donors
 - Staff
- Factors
 - Sporadic nature of contamination
 - Low pathogenicity in immunocompetent people



September – October 2013

- Spikes in growth day /time dependant continued
- Found more rotten fruit!
- Carpets professionally deep cleaned
- Growth still sporadic, some weeks nothing, other large quantities Aspergillus



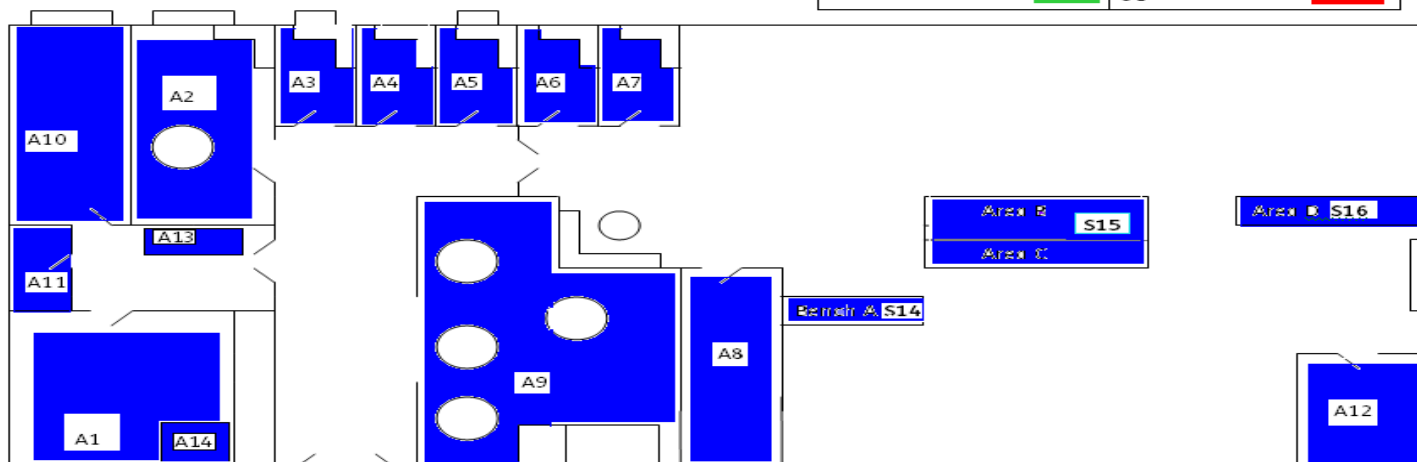
Clinic Map 9am (October 2013)

Apheresis Clinic Room PCO-01

28/10/13 09:00 am AC/ off

A1 – A12 Additional environmental monitoring settle plates
S14 – S16 Routine environmental monitoring settle plates

0 colonies		
1 - 10 colonies		31 - 40 colonies
11 - 20 colonies		41 - 50 colonies
21 - 30 colonies		51 + colonies





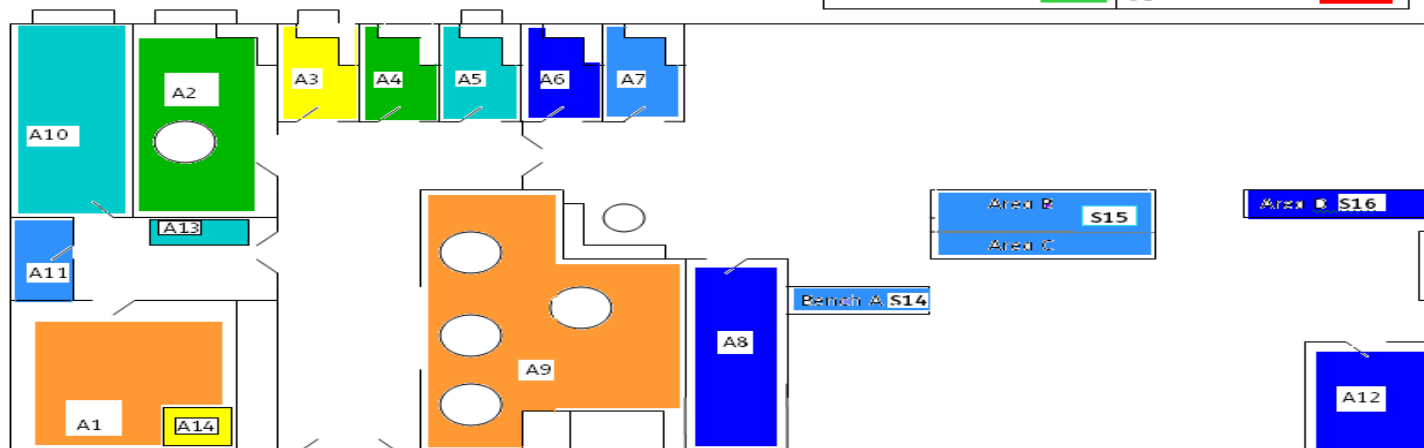
Clinic Map 11am (October 2013)

Apheresis Clinic Room PCO-01

28/10/13 11:00 am AC/ on

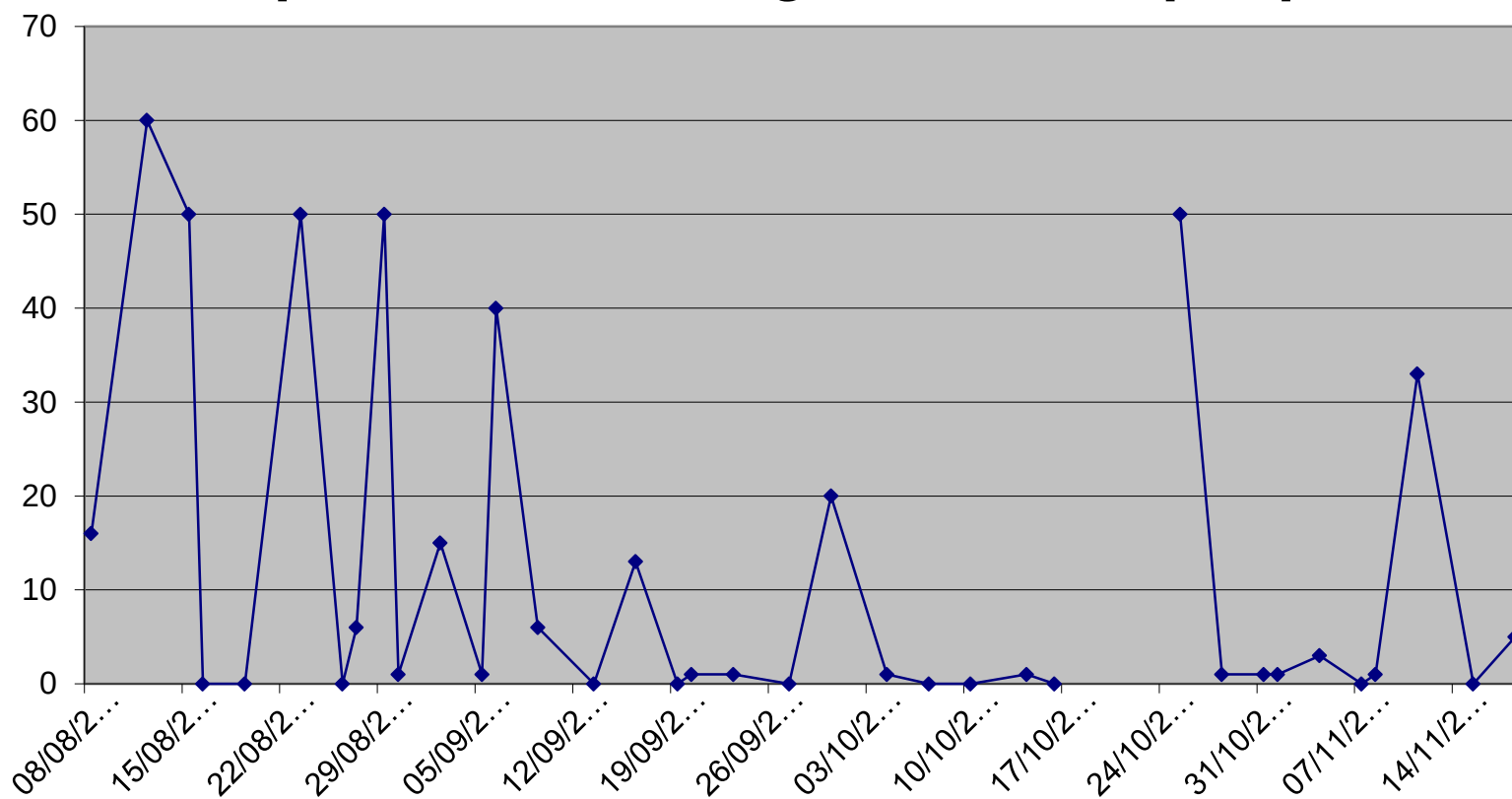
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Reception Area – Fungal Colonies per plate





November2013

- Time / Day pattern confirmed
- Air conditioning units examined by external contractors
- Air handling units investigated extensively
- Stores deliveries tested
- Area around clinic tested



December 13 / January 14/ February 14

- Air conditioning stripped and cleaned again!
- Drop off in fungal growth December
- Returned January
- Investigated Building Management System



March 2014

- Col visited, suggested we look at the air conditioning. We complied.
- Sealed with cling film
- Contamination still continued
- Observational Study.....



March 2014 – Observational Study

- Sat in clinic, plates every 15 minutes, notes every 15 minutes with what happened
- Clinic quiet, staff left, all plates no growth 😞
- After clinic emptied, positive plates occurred when coffee vending machine emptied



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Coffee machine & Bin

- Coffee machine uses ground coffee beans which are discarded into a waste bin within the machine
- This waste emptied into bin next to coffee machine
- Contamination Spikes occurring when bin was emptied (Monday AM) and when coffee Machine was emptied (Friday PM)



Actions

- Bin changed (no longer solid bottom)
- Protocol for emptying coffee machine agreed with contractor
- Aspergillus disappeared!



Learning Points

- Put the time in to the investigation at the start
- Don't become too focused on the “obvious” culprit – believe your own results



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Thank You for Listening
Any Questions?