

Handling of Samples from ICU patients

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President & Secretary NSMM

Survey design

- Questionnaire to all departments
 - DK 9/15 included 4 university labs.
 - NO 17/20 included 4 university labs
 - SE 7/30 included 4 university labs

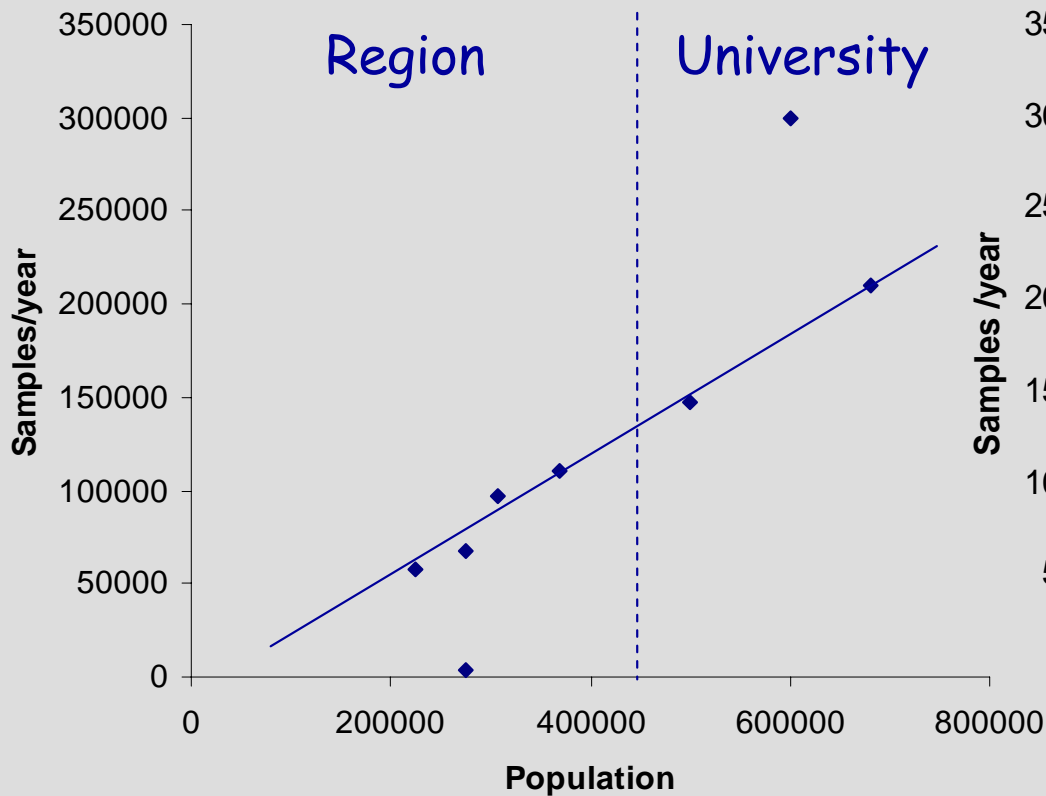
- Surveillance cultures

- Blood, normally sterile foci, airways, abdomen, others

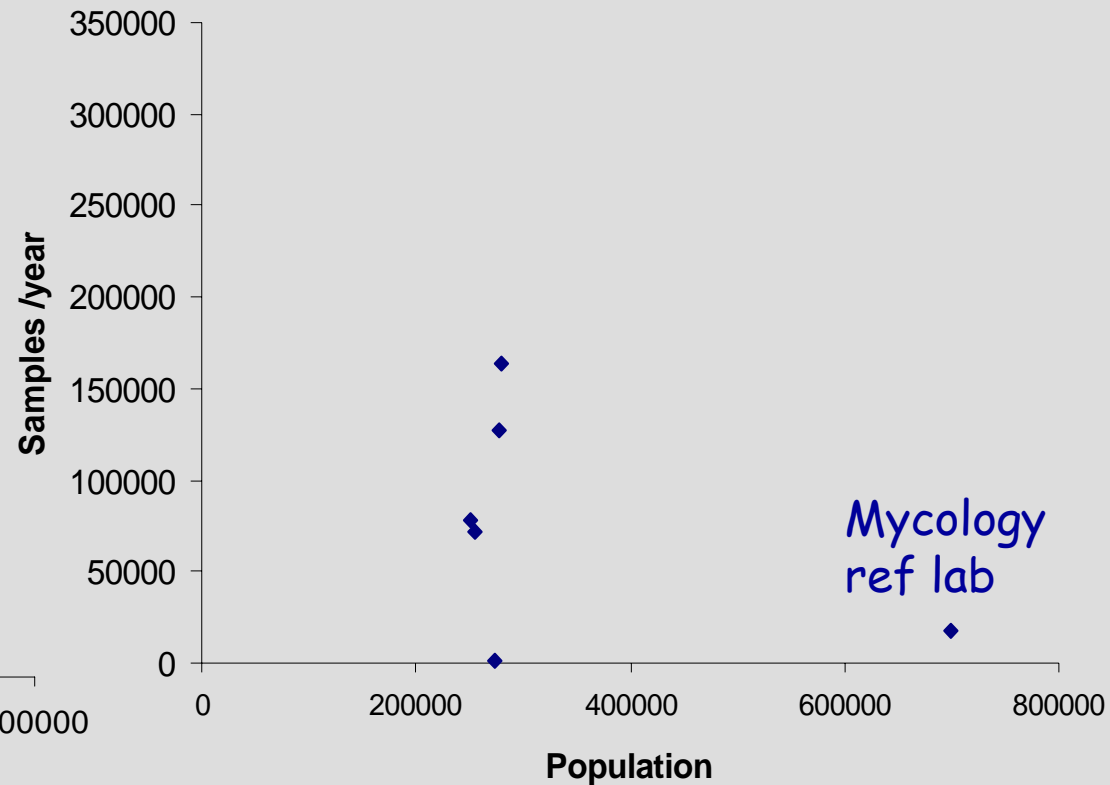
- Procedures if investigation for fungi specifically required

Samples per population

Denmark

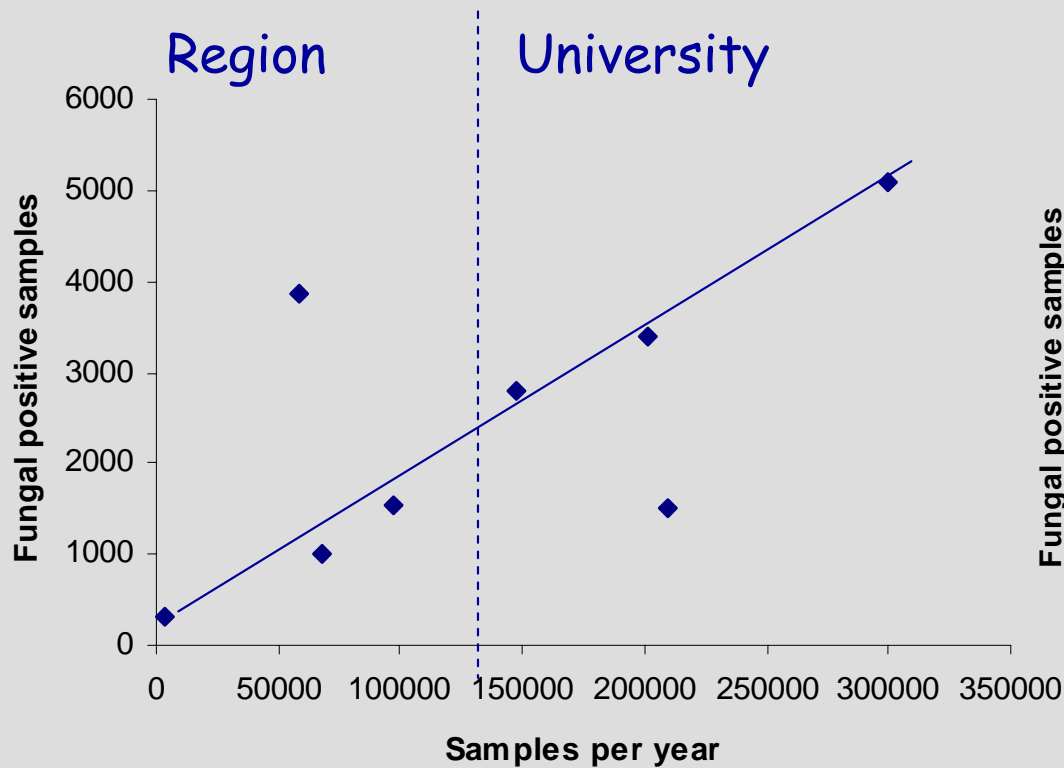


Sweden

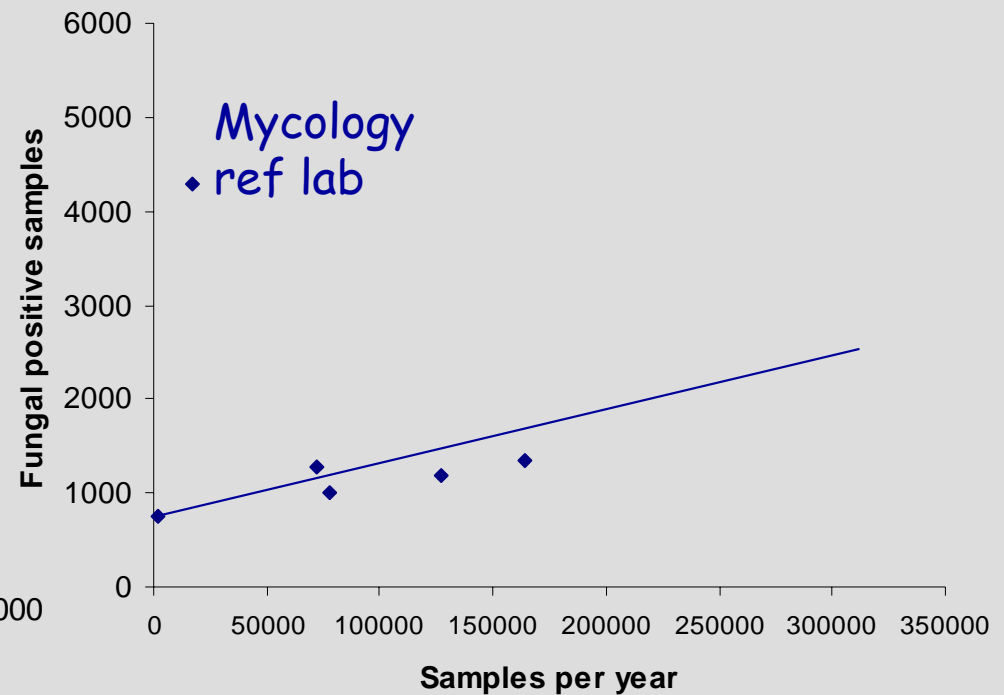


Fungal positive samples

Denmark



Sweden



Surveillance cultures

	Total	DK	SE	NO
Screening	10/33			
University	4/11	2/4	1/3	1/4
Peripheral	6/22	2/5	1/4	3/13
Standardised	8/10	3/4	2/2	3/4
No. of foci		3-5	3-4	2-3
Frequency		1-3 /week	1 /week	1-2/week
Species ID level				
C. alb>< non-alb		1/4	0	4/4
Full identification		1/4	2/2	0
“It depends”		2/4	0	0

Surveillance cultures

Susceptibility testing

- Always: 1 (DK)
- Depends: 4 (2 DK, 1 SE and 1 NO)
- Never: 5 (1 DK, 1 SE and 3 NO)

Compounds

- | | |
|------------------|----------------|
| ■ Amphotericin 3 | Caspofungin 2 |
| ■ Fluconazole 5 | Voriconazole 2 |

Foci cultured

	Nose	Throat	Trachea	Stomach	Faeces	Urine	Wound	Drainage	Blood
DK									
4		+			+			+	
8									
10				+			+		+
14				+			+		+

SE									
A		+			+	+	+		
B	+	+						+	

Foci cultured NO

3 out of 4 are university labs.

Lab	Sputum	Urin	Wounds	Drainage
1	X	X		
2	X			
3	X			X
4			X	X

Blood cultures

	Sabouraud	Chromogenic	Res-plate	Species ID	alb><non-alb	Ref- lab	Susceptibility	Ref-lab	Never
DK (9)	5	8	6	6	3	1	4	2 (3)	2
SE (7)	5	3	0	5	2	1	2	2 (5)	0
NO (17)	1	7	0	12	4	1	14	0	3

- Selective fungal agars used by all labs in DK and SE
- Species ID provided by 7/9 DK, 6/7 SE and 12/17 NO labs
- Susceptibility alw provided by 6/9 DK, 4/7 SE and 14/17 NO labs

Sterile foci

	Sabouraud	Chromogenic	Res-plate	Species ID	alb>non-alb	Ref-lab	Susceptibility	Ref-lab	Never
DK (9)	4	3	6	4 (5)	4 (5)	1	4	2 (4)	1
SE (7)	3	2	0	4	2	0	2	2 (3)	1
NO (17)	13	7	0	11	5	1	8	2 (3)	4

- Selective fungal agars used by 5/9 DK, 3/7 SE & 13/17 NO labs
- Species ID alw provided by 5/9 DK, 6/7 SE & 11/17 NO labs
- Susceptibility alw provided by 6/9 DK, 4/7 SE & 10/17 NO labs

Airways

	Sabouraud	Chromogenic	Res-plate	Species ID	alb><non-alb	Ref-lab	Susceptibility	Ref-lab	Never
DK (9)	5	3	0	3 (4)	5 (6)	0	2 (3)	0 (2)	4 (5)
SE (7)	4	0	0	3 (4)	2 (3)	1	0 (3)	1 (2)	2
NO (17)	13	4	0	7	9	0	5	0	0

- Selective fungal agars used by 6/9 DK, 4/7 SE & 12/17 NO labs
- Species ID alw provided by 3/9 DK, 4/7 SE & 7/17 NO labs
- Susceptibility alw provided by 2/9 DK, 1/7 SE & 5/17 NO labs

Abdominal foci

	Sabouraud	Chromogenic	Res-plate	Species ID	alb>non-alb	Ref-lab	Susceptibility	Ref-lab	Never
DK (9)	1 (3)	0 (1)	4	4 (5)	3 (4)	0 (2)	2 (3)	0 (3)	3
SE (7)	3	1	0	4 (5)	2 (3)	1	0 (3)	1	2
NO (17)	15	5	0	9	7	1	5	2	2

- Selective fungal agars used by 1-4/9 DK, 3/7 SE & 15/17 NO labs
- Species ID alw provided by 4/9 DK, 5/7 SE & 9/17 NO labs
- Susceptibility alw provided by 2/9 DK, 1/7 SE & 5/17 NO labs

Other foci

	Sabouraud	Chromogenic	Res-plate	Species ID	alb>non-alb	Ref-lab	Susceptibility	Ref-lab	Never
DK (9)	0 (1)	0 (1)	6	2 (3)	4 (5)	0 (2)	3 (3)	0 (1)	4
SE (7)	2	1	0	2 (4)	2 (4)	0	0 (3)	0 (1)	2

- Selective fungal agars used by 0-2/9 DK and 2/7 SE labs
- Species ID alw provided by 2/9 DK and 2/7 SE labs
- Susceptibility alw provided by 3/9 DK and 0/7 SE labs

If investigation for fungi required

- Sabouraud agars for **primary** plating
 - 11 labs (6 DK and 5 SE)

- Chromogenic agars for **primary** plating
 - 4 labs (3 DK and 1 SE)

- Always ID and susceptibility
 - 2 labs (1 DK and 1 SE)

- Always *C. albicans* vs. Non-albicans
 - 1 lab (1 DK)

Recommendations: Candidemia

11 DK and SE labs

	Yeast	<i>Candida</i>		
		<i>albicans</i>	<i>tropicalis</i>	<i>parapsilosis</i>
Flu	5	6	1	1
Flu/Amb	1	4	2	2
Flu/Amb/Vor	1	1	1	1
Amb	3	-	4	3
Amb/ Cas	1	1	2	2
Cas	-	-	1	2

Recommendations: Candidemia

17 NO labs

	Yeast	<i>Candida</i>		
		<i>albicans</i>	<i>tropicalis</i>	<i>parapsilosis</i>
Flu	9	10	8	7
Flu/Amb	-	1	-	-
Flu/Amb/Vor	-	-	-	-
Amb	3	2	1	1
Amb/ Cas	1	-	-	-
Cas	-	-	-	1
None	4	4	8	9

2'nd choice DK and SE

	Yeast	<i>Candida</i>		
		<i>albicans</i>	<i>tropicalis</i>	<i>parapsilosis</i>
Flu	1	1	1	1
Amb	2	2	1	1
Cas	2	1	3	2

2'nd choice in Norway

	Yeast	<i>Candida</i>		
		<i>albicans</i>	<i>tropicalis</i>	<i>parapsilosis</i>
Flu	1	1	1	1
Amb	2	-	1	1
Cas	-	-	1	-
Vori	-	-	-	1

C. glabrata and *krusei*

- 8 of 9 DK labs recommend Amb or Cas
- 1 DK lab recommend Cas or Vor

- 2 of 3 SE labs recommend Amb or Vor or Cas
- 1 SE lab includes **Flu** as recommended choice for *glabrata* ad *krusei*!

Recommendations DK&SE: Fungemia

No recommendations: 6 labs (1 DK and 5 SE)

	<i>Aspergillus</i>	<i>Fusarium</i>
Amb	2	2
Amb/Vor	1	
Vor	1	3
Amb/Vor/Cas	3	
Amb/Posa		1
Amb+5-FC	1	

Recommendations in NO

No recommendations: 6 labs

	<i>Aspergillus</i>	<i>Fusarium</i>
Amb	4	5
Amb/Vor	2	-
Vor	3	1
Amb/Cas	-	1
Caspo	2	-
Amb+5-FC	-	-

2'nd choice DK and SE

	<i>Aspergillus</i>	<i>Fusarium</i>
Itra	1	-
Amb	1	-
Cas	3	-

2'nd choice NO

	<i>Aspergillus</i>	<i>Fusarium</i>
Itra	-	-
Amb	2	-
Cas	1	-

Lack of consensus → Subject for further discussion!

- Surveillance cultures from ICU
 - if, how often, from which foci

- ID and Susceptibility Invasive Infections
 - Not provided by all lab

- Treatment recommendations
 - Fluconazole widely used also before ID
 - Caspofungin rarely recommended
 - Amphotericin B recommended more often than Voriconazole for *Aspergillus*