

Treatment of fungal infections in the  
critical ill adult ICU population

or

Why do we use so great amounts of  
antifungal agents?

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# The ICU at Rikshospitalet

- A section of the hospital with the most advanced care facilities and the best staffing
- With few exceptions the patient has to be in need of mechanical ventilation
- The population mirrors the activities of the hospital- (all allogenic transplantations in Norway are performed at Rikshospitalet)

## The ICU-population- at risk for getting invasive fungal infections (IFI)?

- They are all critically ill and in need of life supportive measures
- They may have an IFI when they enter. This is sometimes the cause for bringing them to the ICU
- There is nothing to indicate that the risk of acquiring an IFI becomes greater because the patient is cared for in the ICU
- Very low incidence of intravascular device related bacteremia, and fungemia

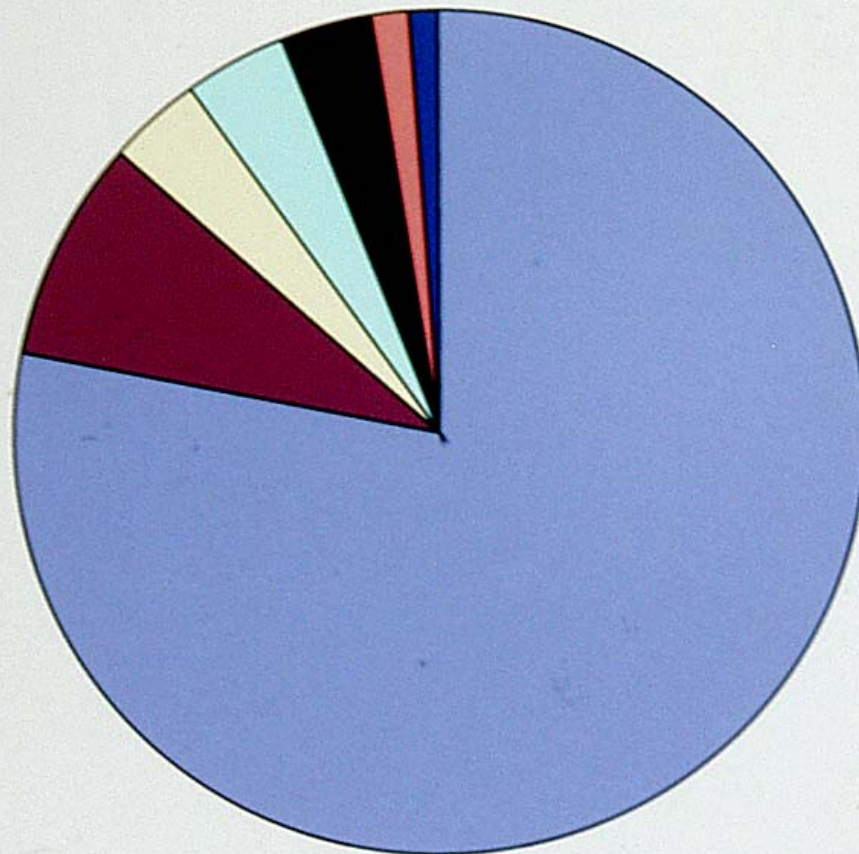
## IFI in the adult ICU-population at RH

- It is the underlying disease and treatment procedures that make the patients susceptible to IFI and not the fact that they are cared for in the ICU
- Is there a rationale for using different criteria for initiating systemic antifungal treatment inside or outside the ICU?

## IFI in the adult ICU population at RH

- No significant increase in the number of verified IFI in RH for the last 15 years
- No increase in blood culture yeast isolations
- No change in the susceptibility pattern of isolated yeasts
- There has been a five-fold increase in the amount of administered systemic antifungal agents

## Syst.candidaisolater RH 92-98



■ C. albicans

■ C. tropicalis

■ C. krucei

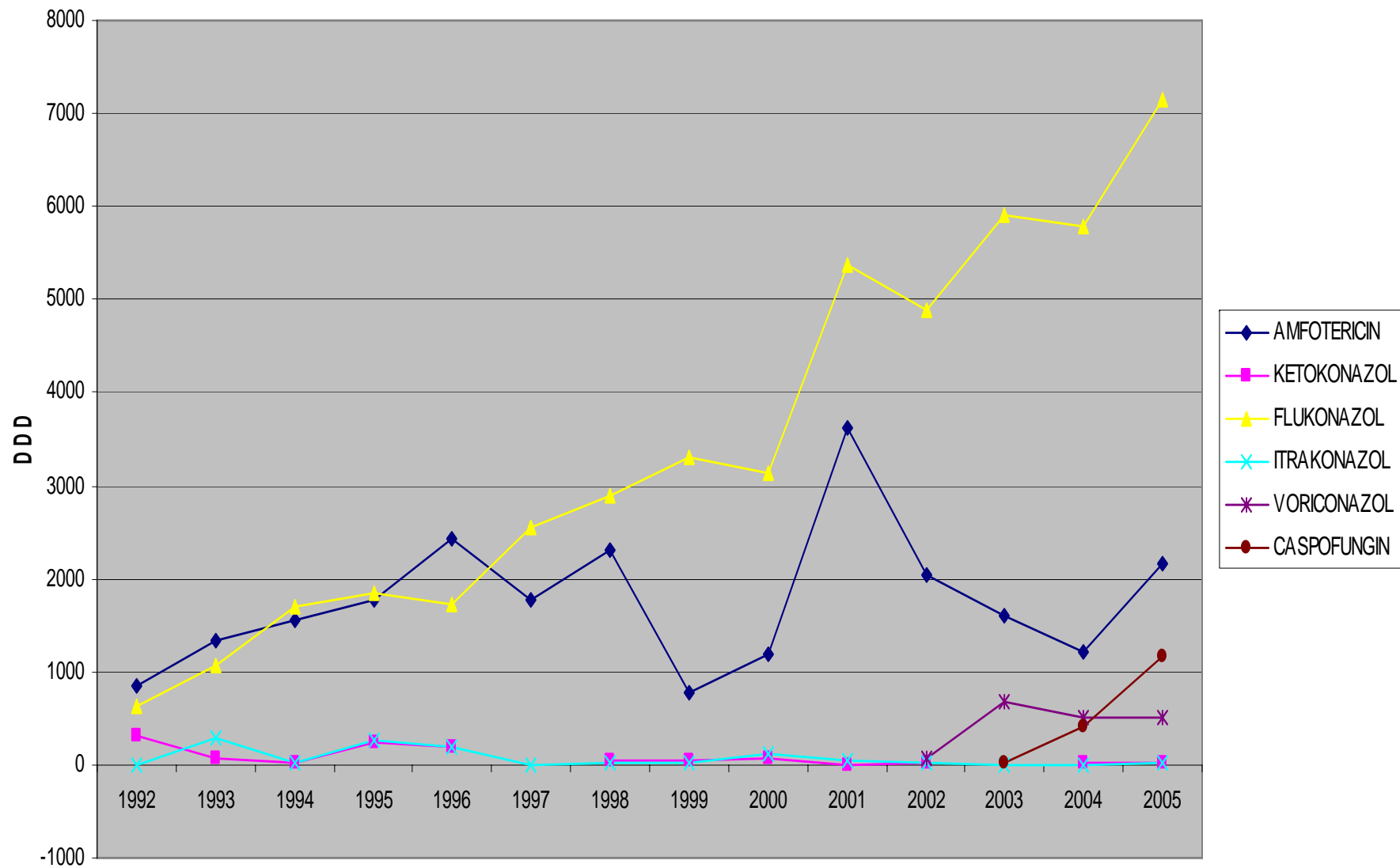
■ C. parapsilosis

■ C. glabrata

■ C. guillermondi

■ C. stellatoidea

Forbruk av J02 på Rikshospitalet



# IFI in adult ICU patients at RH

- Have we prevented a growing incidence of IFI by using more and more systemic antifungal agents to an increasing percentage of the patients?



What may be the cause of the rapid increasing use of systemic antifungal agents?

- An escalating preemptive attitude among doctors?
- More routine microbiological sampling from mucosal surfaces?
- An increased use of broad spectrum antibacterial agents, particularly carbapenems?
- Strong marketing activities by the pharmaceutical companies?

Evaluation of 14 consecutive Rx of systemic antifungal agents at the ICU for adults at RH

- 12 patients: 6 leucemia or lymphoma, 2 complicated renal transplants, 1 complicated liver transplant, 1 WG and lung failure, 1 ARDS for ECMO, 1 large brain damage
- Rx: Fluconazole 10, Cancidas 2, Ambisome 1, Fungizone 1

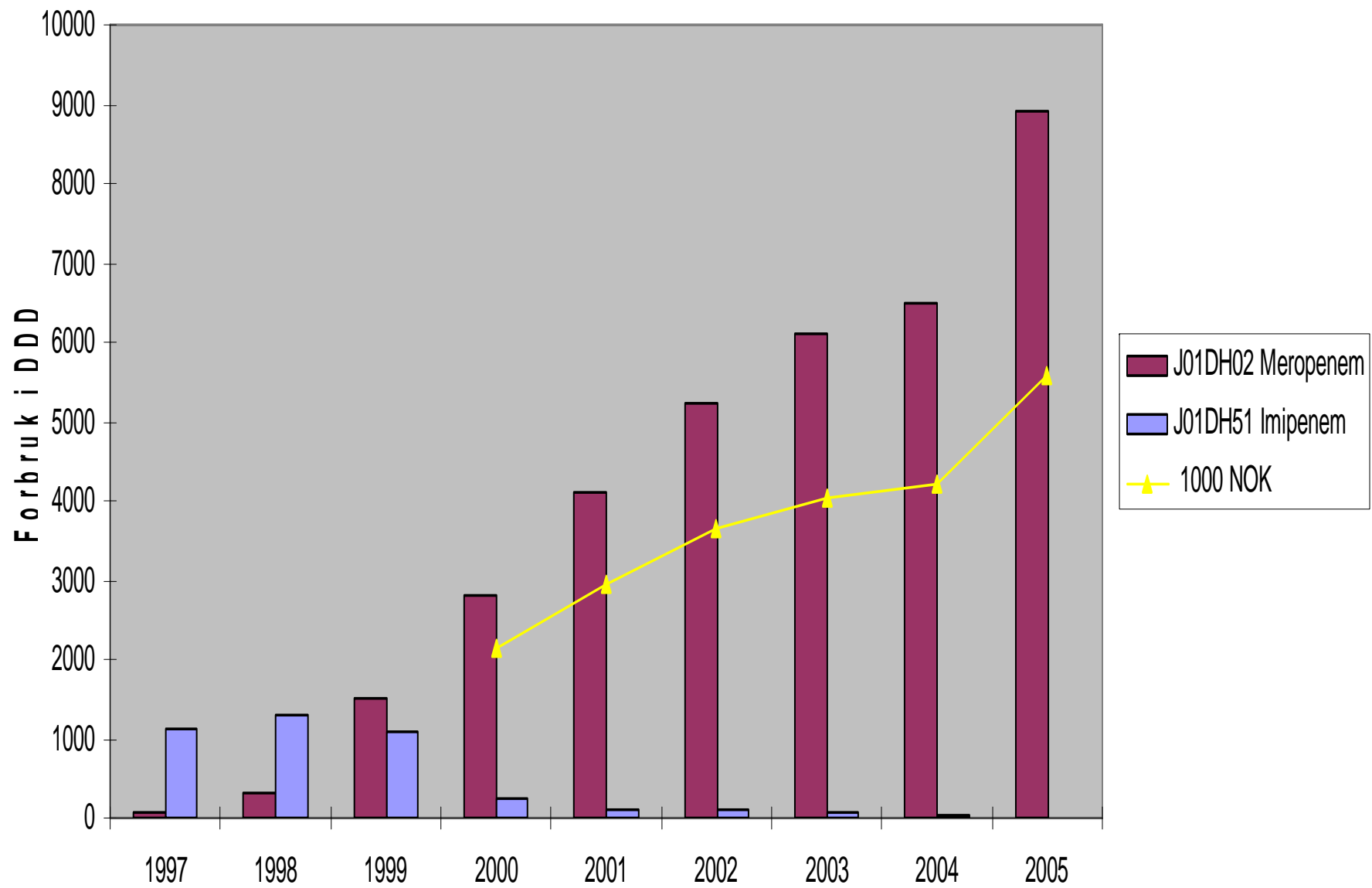
## 14 consecutive Rx of antifungal agents at the ICU for adults at RH

- 8 were given meropenem at the time when antifungal treatment was started
- C.albicans in tracheal secretions: 7,  
Rhodotorula in BAL: 1
- No fungal isolates from any site: 4

14 consecutive Rx of antifungal agents at the ICU  
for adults at RH

- reasons given for starting the therapy

- Fever and neutropenia: 6
- Fever and high CRP: 2
- Candida reported in tracheal secretions: 3
- The patient considered at risk and in need of preemptive therapy: 2
- Rhodotorula in BAL: 1 (Ambisome)



# Henrik R. Wulff: Rationel Klinik 1973

Vanskeligheden er, at der ikke er tradition  
for, at læger analyserer deres daglige  
arbejde.

## Henrik R. Wulff (1973):

- Det er således helt forkasteligt, hvis en læge lægger nogensomhelst vægt på de oplysninger om et nyt medicamen, der gives af medicinalfirmaerne ved repræsentanter eller i brochurer..
- Jeg synes, at alle reklamer bør gå ulæste i papirkurven, således at man ikke ”forurener” sin viden med hildede oplysninger.

What can we do to stop the increasing use of fungal agents in patients that do not have IFI?

- We have to get acceptance for more strict rules for both starting and continuing therapy with systemic antifungals
- Similarly try to reduce the use of carbapenems and piperacillin
- Repeatedly inform our colleagues about the nonsignificance of candida in tracheal secretions



# What if we don't succeed in stopping the increase in use of antifungals?

- It has already severe consequences for the hospital economy, and that will become worse
- It may in the very near future have severe consequences for the ecology of the hospital environment
- The only one that will benefit in the long run will probably be the pharmaceutical companies