Incidence and prevention of multidrug-resistant and virulent microorganisms in Greenland

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The health care system in Greenland signed a

contract with National Center for Infection

Control in 1998 concerning guidance on

infection control and prevention. A hygiene

committee has been established, health care

workers have been educated as key personnel in

hygiene, and guidelines for infection control and

prevention have been made. A laboratory

surveillance system of multidrug resistant and

virulent microorganisms was established in 2000

but a systematic review of the patients with

multidrug resistant and virulent microorganisms

these microorganisms has not been done.

To review the records of all patients with

in the period 2000 to 2014 in order to learn

to guidelines for infection control and

more about risk factors for becoming carriers

with these microorganisms and the compliance



Patients colonized or infected with multidrug resistant/virulent microorganisms from 2000-2014:

- > 16 patients with MRSA
- > 49 patients with ESBL-producing *Enterobacteriaceae*
- > 104 patients with *Clostridium difficile*, 45 of these with the 027 type

Risk factors: immunosuppression, prior antibiotic treatment, surgical procedures, foreign bodies, admission to a hospital abroad.

Since 2011 there has been an increasing problem with *C. difficile* infections (mainly type 027) in the hospitals and transmission within the country has occurred. A project focusing on identification of risk factors, mapping of *C. difficile* types and prevention strategies is planned for the near future.

Import

Mainly from Denmark and abroad!

- MRSA
- C. difficile 027
- > ESBL





Methods

prevention in Greenland.

Objectives

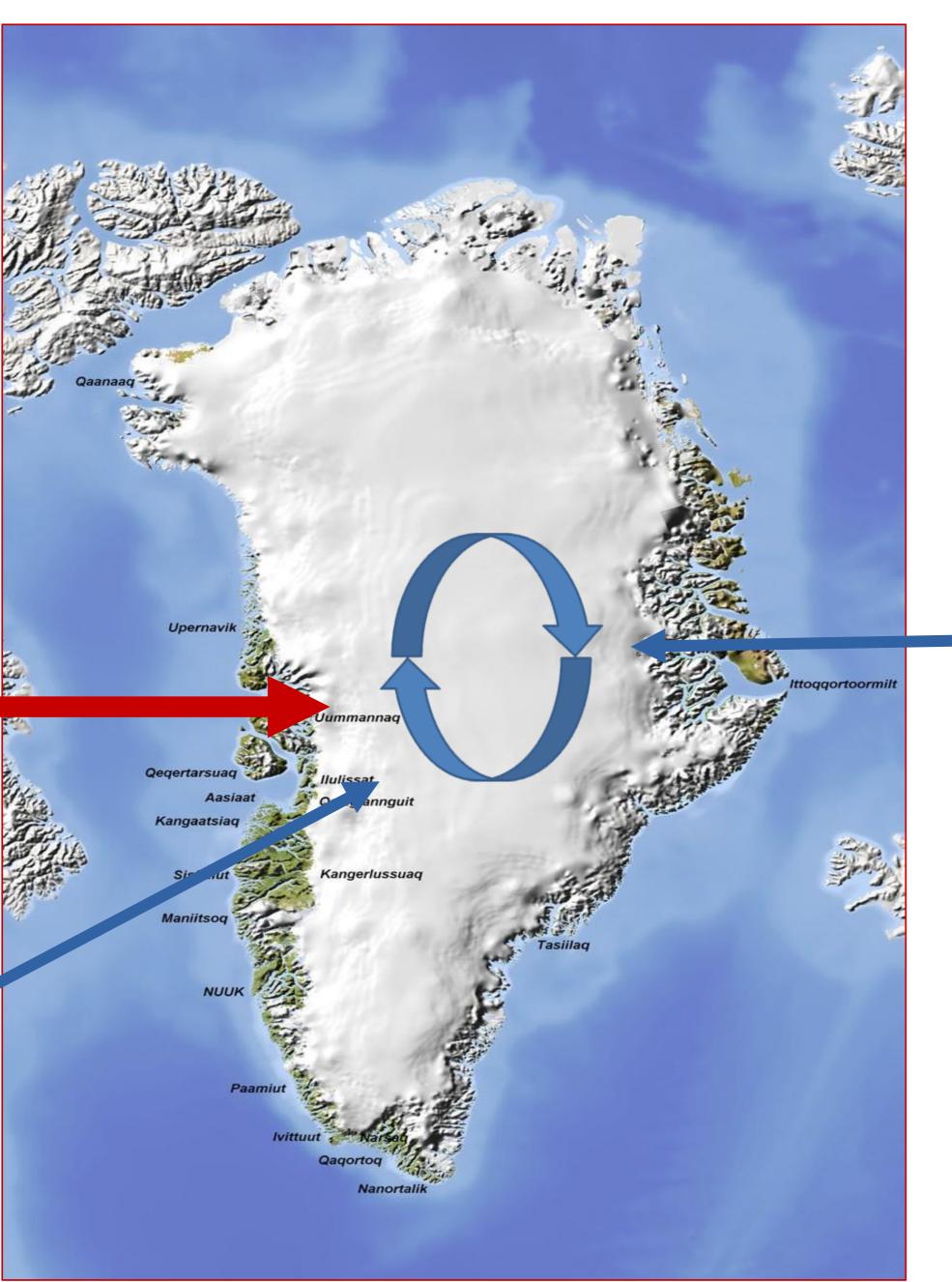
Introduction

Review of the surveillance database and a systematic review of records from colonized and infected patients were performed in order to identify epidemiology, etiology, compliance to standard and isolation precautions, antibiotic treatment and routine screening. Data on consumption of antimicrobial agents were provided by the National Pharmacy at Dronning Ingrids Hospital.

Probable transmission in **Greenland?**

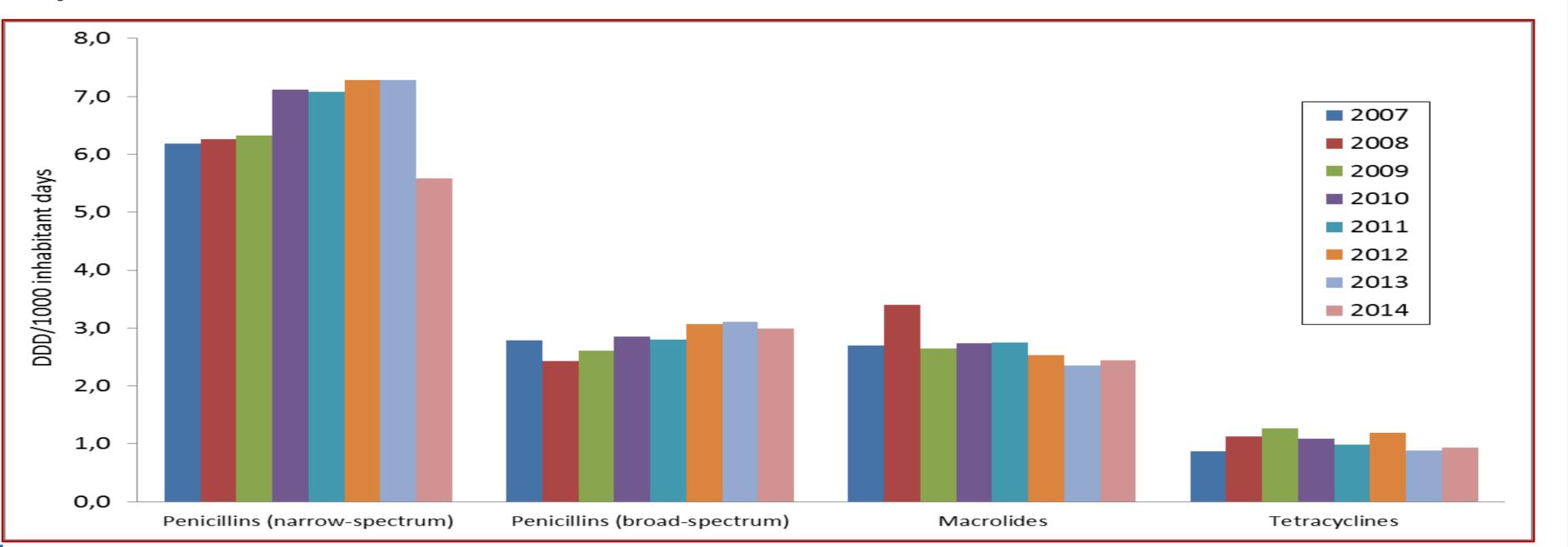
Mainly *C. difficile* 027

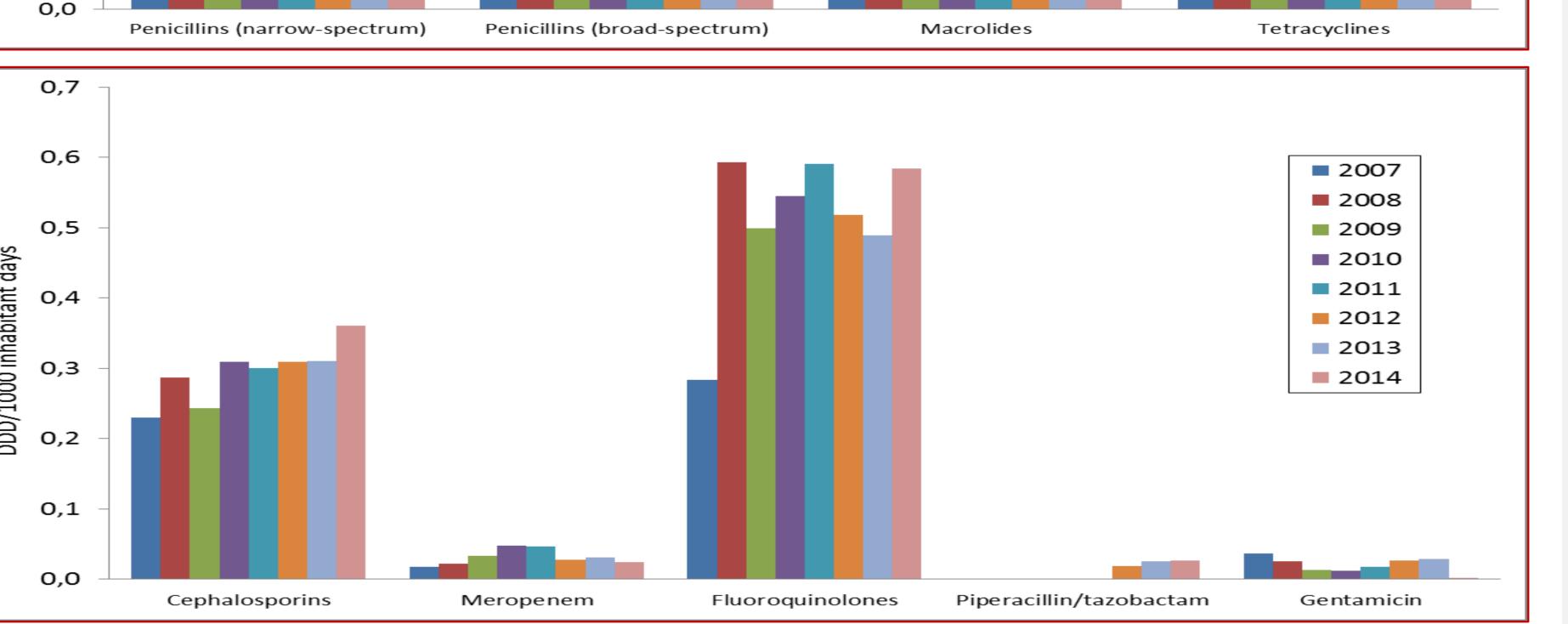
Lack of compliance to basic infection prevention and isolation procedures?



All antimicrobial agents in Greenland are purchased and disseminated from the National Pharmacy. The figures show the total purchase of selected antimicrobial agents in DDD per 1,000 inhabitant days from 2007 to 2014. From 2007 to 2013 an increase of narrow-spectrum penicillins (18 %) and broad-spectrum penicillins (12 %) has been seen, but from 2013 to 2014 decreases have occurred (23 % and 4 % respectively). From 2013 to 2014 an increase in broad-spectrum antimicrobial agents such as macrolides (4 %), tetracyclines (5 %), fluoroquinolones (19 %), and cephalosporins (16 %) has been seen. Meropenem has decreased with 19 % from 2013 to 2014. From 2012 to 2014 piperacillin-tazobactam has increased with 42 %.

Consumption of selected antimicrobial agents in humans in Greenland in DDD/1,000 inhabitant days from 2007 to 2014











Conclusions

- > During the last few years there has been an increasing number of multidrug resistant and virulent microorganisms in Greenland.
- > The increase in multidrug resistance can be explained by well known factors such as:
- import from abroad (mainly Denmark)
- probable transmission in Greenland
- increased consumption of broadspectrum antimicrobial agents as cephalosporins and fluoroquinolones.
- Frequent change in workforce and hospitalization abroad are challenges for maintaining a restrictive antibiotic policy.
- An ongoing surveillance, a rational use of antimicrobial agents, compliance to screening procedures and compliance to guidelines for infection control and prevention are necessary in order to combat antibiotic resistance in Greenland in the future.



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