## P0420



## Introduction

The Faroe Islands (FI) consists of 18 islands, inhabited by approx. 48,000 inhabitants, 19,000 of whom live in the capital Tórshavn. The national hospital (Landssjúkrahúsið, LS, with 180 beds) is in Tórshavn, and two smaller hospitals are located in Klaksvik (36 beds) and Súðuroy (26 beds). The healthcare system is comparable to the Danish healthcare system.

The worldwide attention on increase in antimicrobial resistance and on the need for focus on rational use of antibiotics has led to intensified awareness of this problem in FI, too.

## **Objectives**

The objectives of this study were to investigate the development of antimicrobial consumption in the national hospital and in the primary healthcare sector, to register changes in number of resistant microorganisms, and to identify any needed interventions.

## Methods

Data for antimicrobial consumption for FI and for LS were obtained from the Chief Pharmaceutical Office, beginning from 2007. Data on bed-days and on MRSA and ESBLproducing bacteria were supplied by the LS administration and the microbiology laboratory, respectively.

Antibiotic audits on antibiotic prescription and microbiology sampling practice at LS were performed in 2013 and 2014.

## Results

**Resistant microorganisms** 

## Antimicrobial consumption in primary healthcare

Total antimicrobial use outside the hospitals was 14.23 DDD/1000 inhabitants/day in 2013, which was unchanged since 2010, but represented a 16.6 % decrease compared to 2007. Inherent in these data are an increase in the use of tetracyclines (by 32.8 %), and a decrease in the use of macrolides (to 31.1 %) (Fig. 1a), as well as changes in antibiotics (AB) used for treatment and prophylaxis of urinary tract infection (UTI) (Fig 1b). The latter is partly due to a temporary ban on the use of pivmecillinam due a potentially fatal carnitine transporter gene defect in 1 per 3,600 inhabitants.

## Antimicrobial consumption at LS

The total consumption of antimicrobials in 2013 was 39.70 DBD (DDD/100 bed-days), compared to 41.45 DBD in 2012, and equal to 2007-levels (Table 2). However, an alarming rise was observed in the use of three antibiotics, which are well known for their effect on selection of virulent binary-toxin positive C. difficile - cefuroxime, ciprofloxacin, and meropenem - increasing to 137.4 %, 424.5 %, and 175,0 % of the 2007-level, respectively.



## **RESISTANT MICROORGANISMS AND ANTIMICROBIAL USE IN THE FAROE ISLANDS**

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MRSA: By July 2014, a total of 36 cases of MRSA had been identified (22 with infection and 14 carriers) since the first case of MRSA was identified in 2004.

**ESBL:** 15 ESBL-producing *E. coli* and 4 ESBL-producing *K. pneumoniae* had been detected, as well as one patient with both an ESBL-producing *E. coli* and an ESBL-producing *K. pneumoniae*. **C. difficile:** No virulent binary-toxin positive *C. difficile* were registered.

Table 1. Results from antibiotic (AB) audits at LS						
	2013 (n=68)	2014 (n=79)				
Patients, AB treatment	18/68	24/79				
Patients, AB prophylaxis	3/68	2/79				
Relevant choice of AB	14/18	19/26				
Correct dosage and administration	17/18	26/26				
Microbiological investigation						
Fully sufficient	12	19				
Partially sufficient	4	5				
• N.d./n.a.	2	4				

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## Fig. 1. Consumption of AB in primary healthcare (DDD/1,000 inhabitants/day) 1a) Tetracyclines, macrolides, and quinolones 1b) UTI: Prophylaxis and treatment





Table 2. Total consumption of AB at LS from 2007-2013 in DBD (DDD/100 bed-days)							
2007	2008	2009	2010	2011	2012	2013	
39.20	40.52	40.56	40.79	46.37	41.45	39.70	



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## Landssjúkrahúsið

## Conclusions

- Surveillance identified both MRSA and ESBL carriers and infected patients, but none with virulent binary-toxin positive *C. difficile*.
- Antimicrobial consumption in primary healthcare decreased from 2007 to 2010 but has been stable since then. Focus should be on reduction of tetracyclines and ciprofloxacin, and on the possibility of using pivmecillinam in those patients that are found negative for the transporter gene defect.
- Although the total consumption of antimicrobials at hospital level (LS) decreased, as an increase of ESBL-producing bacteria has been observed continued focus should be maintained on reducing the use of
  - o **cefuroxime**
  - o ciprofloxacin
  - o meropenem
- Antibiotic audits showed that microbiological diagnostic activity could be improved, particularly in pneumonia cases, and that choice of antimicrobial agent could be improved in about 25 % of cases.

