



Vasa centralsjukhus
Vaasan keskussairaala

Community acquired MRSA outbreak in nursing homes

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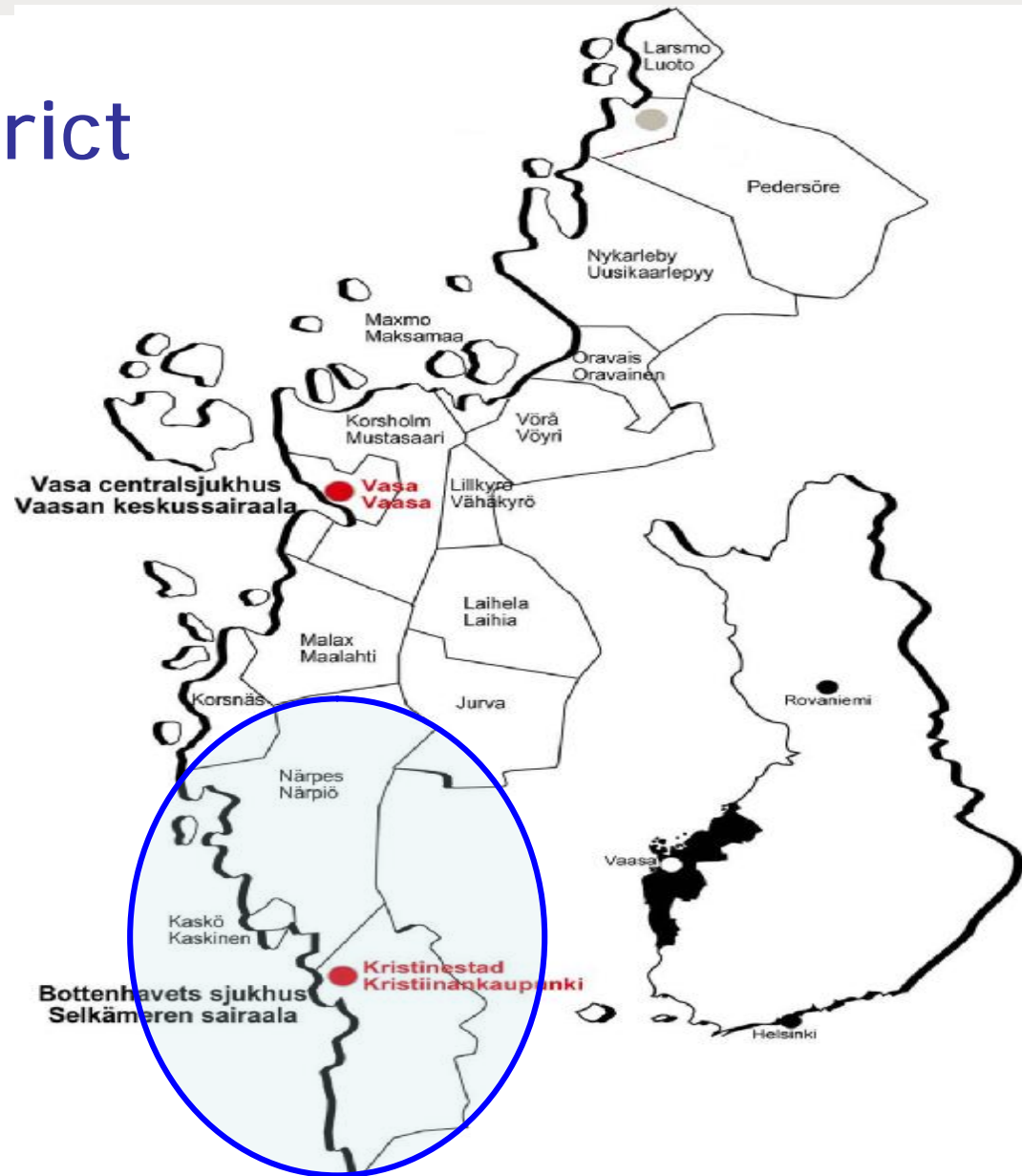
Vaasa





Vaasa hospital district

- Arranges specialized health care for the area's population of around 167 000 inhabitants.
- The district consists of the town of Vaasa and smaller municipalities of the Ostrobothnian coastal district.
- 51% speaks Swedish, 49% Finnish as their first language.





Contents

- Background
- Description of the outbreak
- Measures
- Future goals
- Conclusions





The MRSA situation in Finland 2009

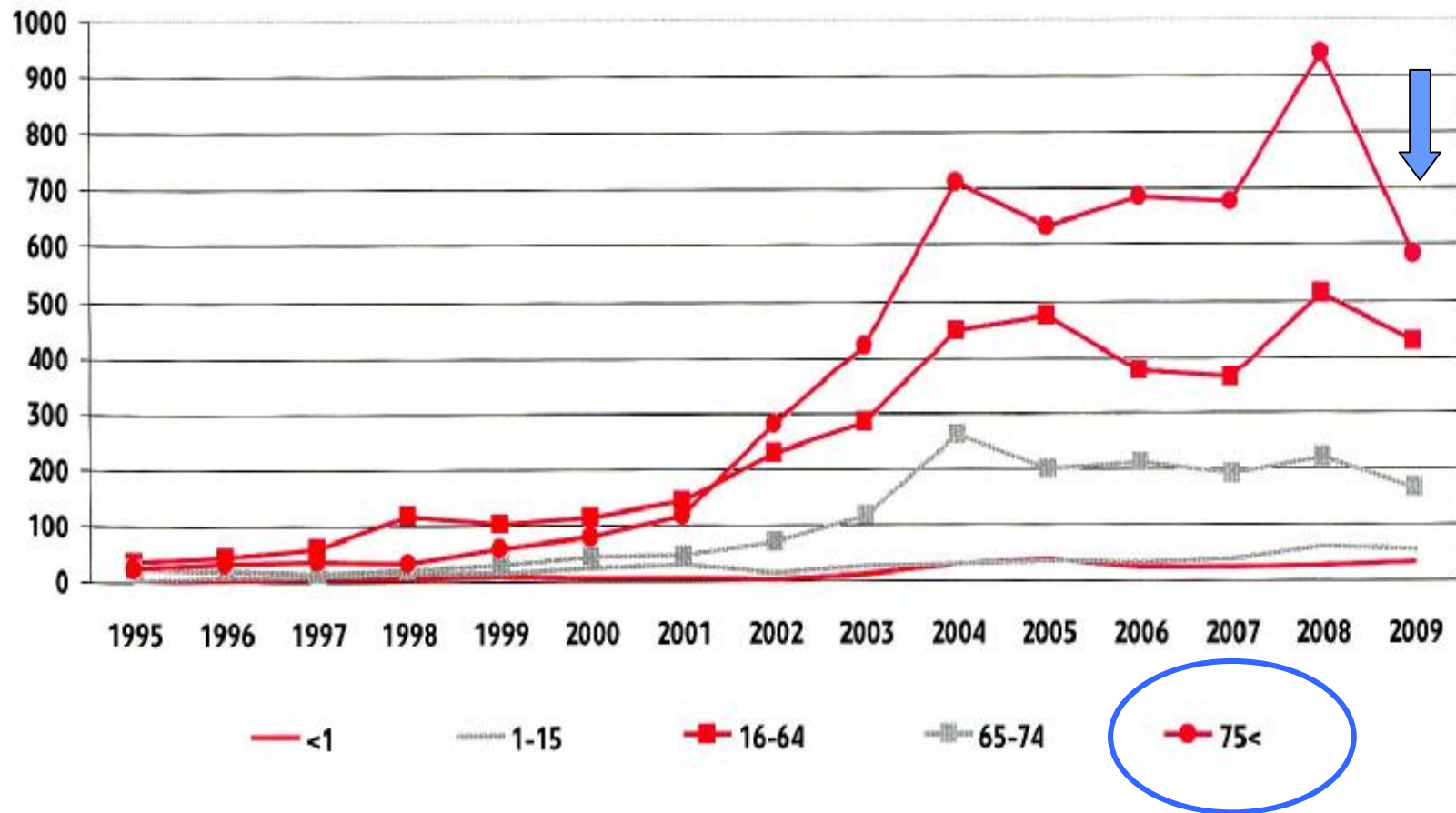
National Institute for Health and Welfare: Report 17/2010

- During 2009 the situation improved
- I-XII/2009 1267 cases were reported to the National Infectious Diseases Register
 - 25% were positive for nostril samples (316/1267)
 - Roughly half of the findings were in individuals over 75 years
 - MRSA was found in blood cultures in 30 cases, of which 17/30 cases were 75 years or over
- Over 1300 isolates were typed as MRSA strain
 - the strains were divided into 155 different spa-types
 - 26% of all MRSA strains were of spa type t067
 - the most common spa type in patients over 75 was t067 (35%)



MRSA cases by age in Finland 1995 - 2009

National Institute for Health and Welfare: Report 17/2010





How did the epidemic begin?

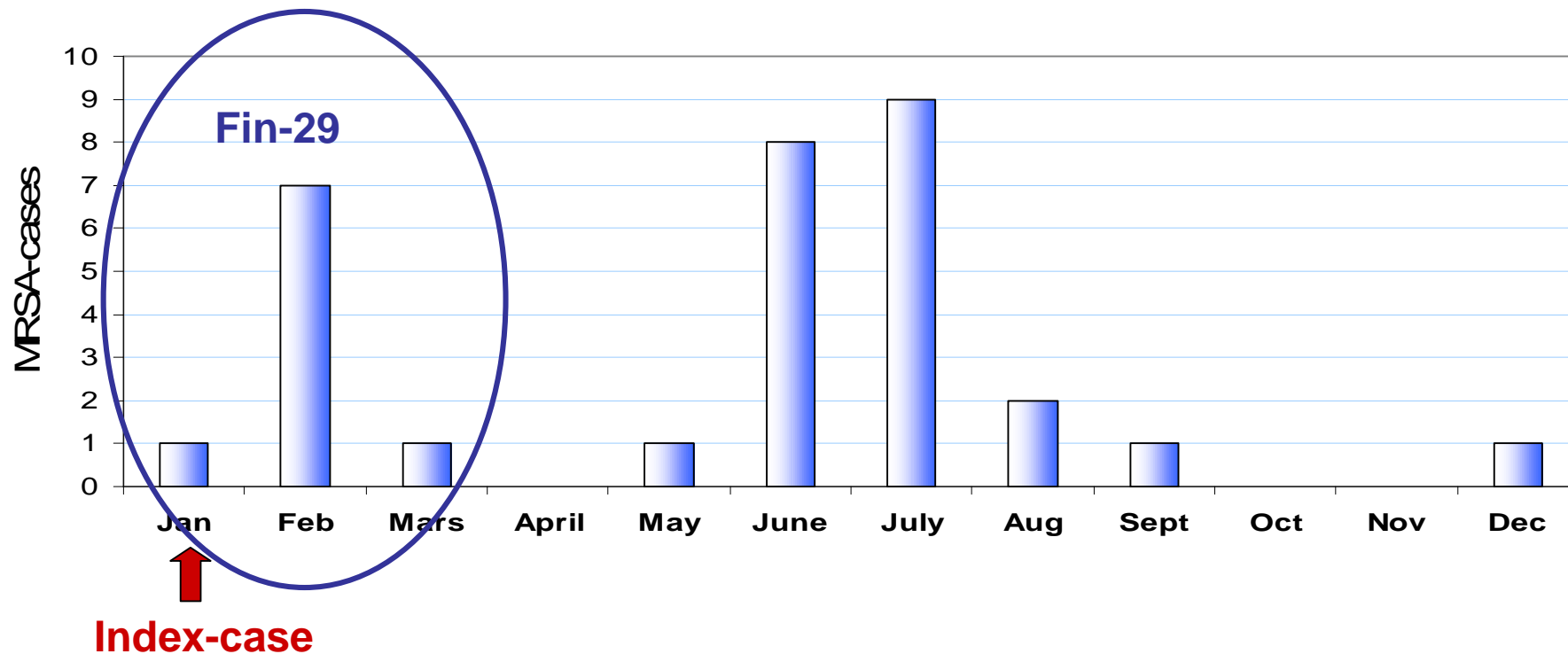
- New MRSA case at a nursing home, which had had MRSA carriers earlier (2003-2005)
- Samples were actively taken in the nursing home when signs of infection occurred
- After the new MRSA screening samples were taken from **all residents**
 - nose and throat
 - perineum
 - wounds and areas with broken skin
 - urine samples from catheter patients
- The nursing home was contacted immediately
 - situation was assessed
 - an action plan was established





MRSA occurrences in the southern part of the Vaasa hospital district in 2009

Episode 1





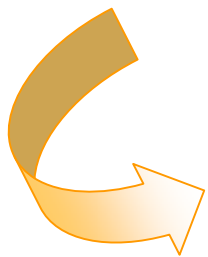
MRSA cluster at the nursing home (Episode 1)



- 22 residents
- 2 MRSA infections
- 6 MRSA carriers

Previous Fin-29 cases at the nursing home

- in 2005 an elderly resident was a nasal carrier of MRSA
- eradication was unsuccessful



MRSA infections

- postoperative wound and urine

MRSA carriage

- nose or throat



Measures

- **Staff training**
 - standard precautions was taken in the care of each patient
 - written instructions were checked
 - use of PPE (personal protective equipment) : single-use gloves and apron
 - hand hygiene / hand disinfection
- **MRSA carrier**
 - single room, with toilet and shower
 - cleaning routines for nursing equipment were checked
 - the resident was allowed to sweep around in common areas
 - caring and nursing measures were carried out in his/hers own room
- **Cleaning**
 - resources were added: patient rooms were cleaned daily as well as contact surfaces in common areas
 - written instructions were composed for cleaning duties, for the handling of waste and laundry and for the cleaning of equipment



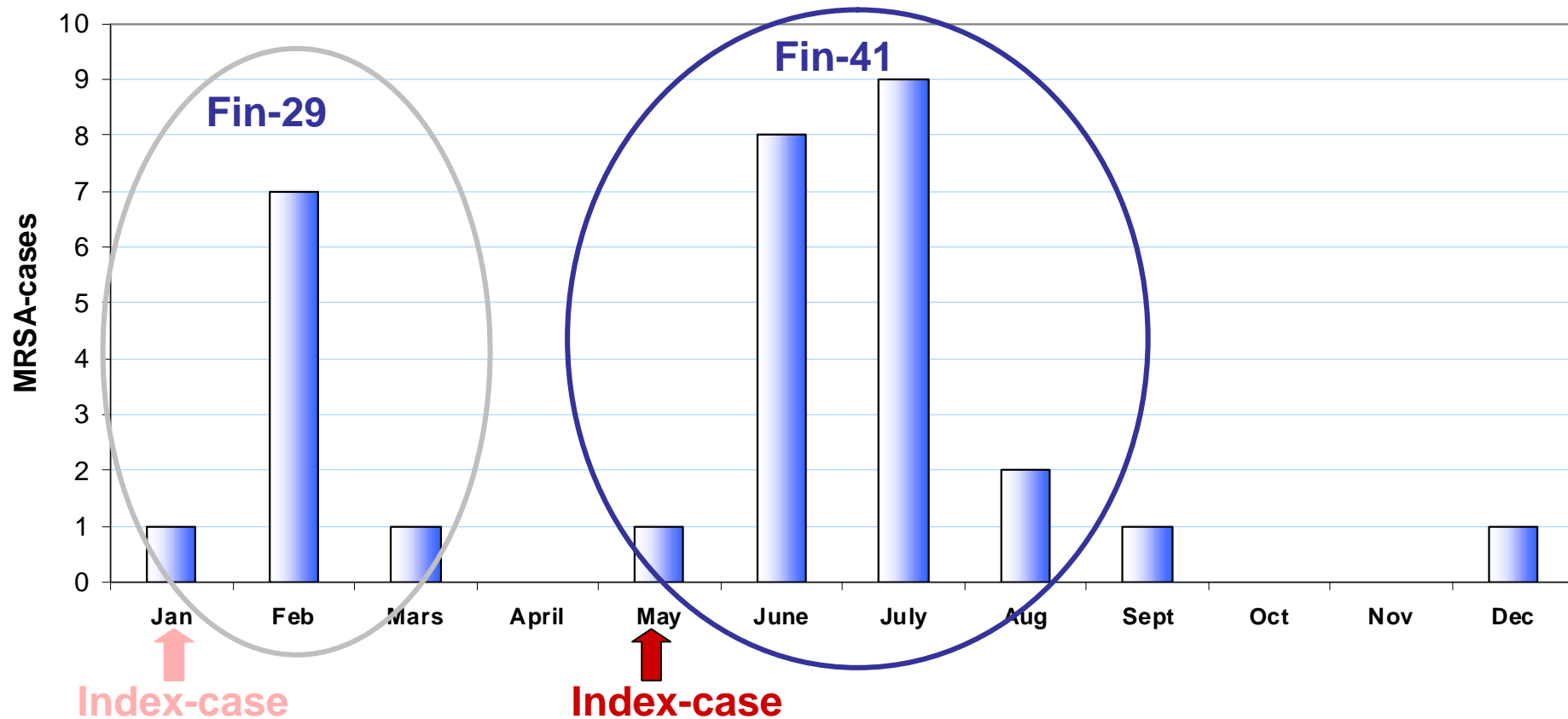
Contamination of contact surfaces

- Individuals who are MRSA carriers contaminate the surfaces in their immediate environment
- MRSA can remain viable on contact surfaces for weeks or even months
- We focused resources on ensuring good environment hygiene because
 - we can't isolate the resident in a single room
 - hand recontamination from dirty surfaces is reality
 - hand transfer of microbes has been indisputably proven
- Cleaning cloths were exchanged for more effective microfiber cloths
 - microfibers remove bacteria and spores better from dirty surfaces



MRSA occurrences in the southern part of the Vaasa hospital district in 2009

Episode 2



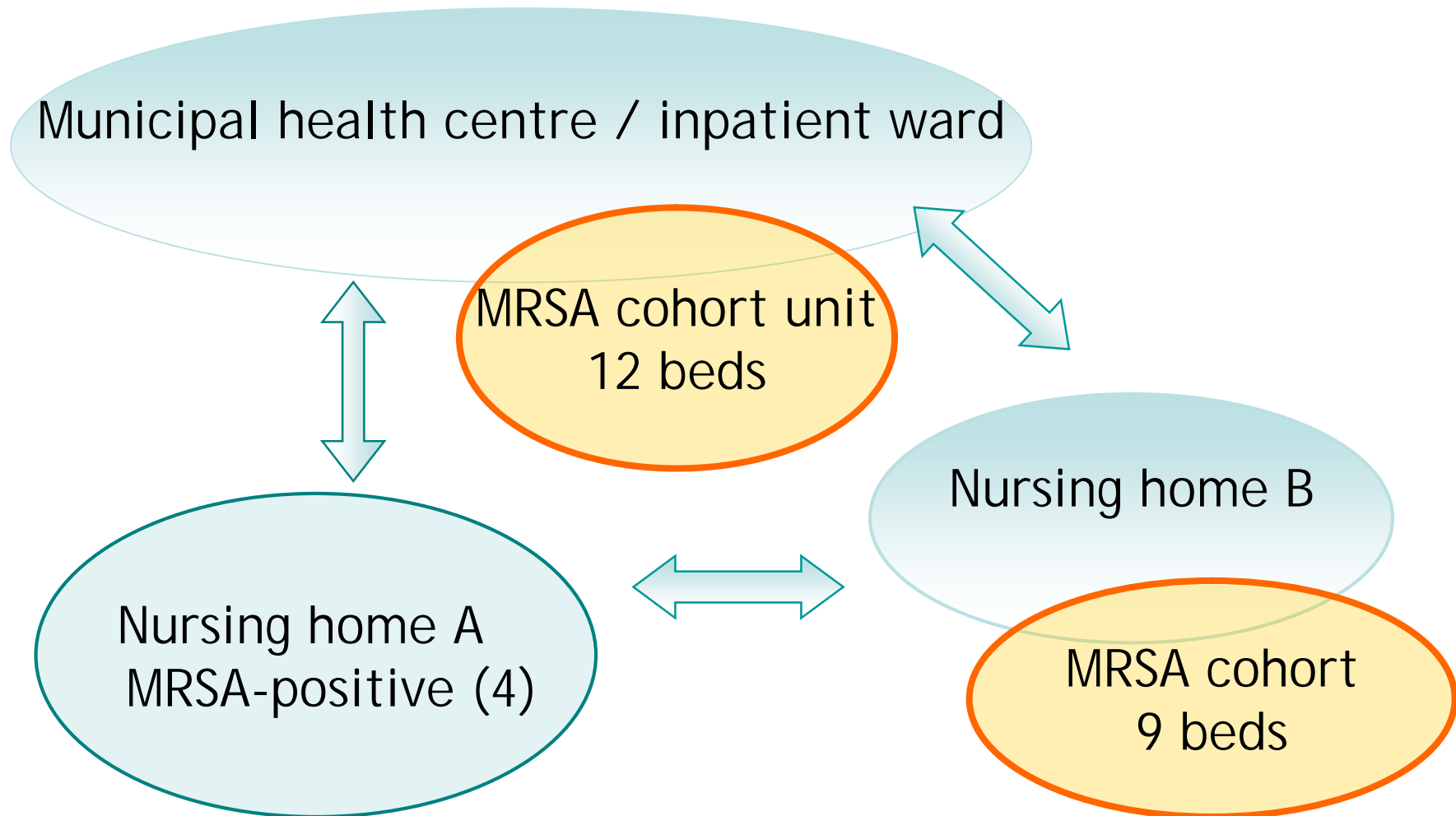


MRSA cluster in a municipal health centre (Episode 2)

- The new MRSA-positive patient (resident) was isolated in a single room
- Screening samples were taken - beginning from the inpatient ward at the health centre and the two nursing homes to which patients had been transferred
- The number of MRSA positive cases increased, and a separate MRSA cohort unit was set up
- MRSA cases from the nursing home were also placed in this unit
- Staff was trained to use of PPE (personal protective equipment), hand hygiene and isolation practices
- Cleaning staff was given directions for cleaning surfaces



New MRSA cases (Episode 2)





MRSA cases found in outpatient care

- MRSA cases are increasingly commonly found in persons who have not been in contact with health care services
- MRSA strains from outpatient care are commonly quite susceptible
- The majority of the findings from outpatient care are determined using health care criteria
 - screening cultures from persons who have been exposed
 - general screening cultures, no exposure

The most common MRSA types in Finland I-VIII/2009

Number	Spa	PFGE	Hospital districts
215	t067	Fin-16	EKA, KYM, HUS, PIR, KHÄ, PHÄ, SAT, EPO, PPO, PSA, VAR, VAA
130	t172	Fin-4	EKA, KYM, HUS, VAR, PIR, KHÄ, PHÄ, KSU, ISA, PSA, PKA, SAT, EPO, PPO, KAI, LAP, VAA
62	t008	Fin-7 Fin-15 Fin-18 Fin-25 Fin-29 Fin-41	HUS, EKA, PIR, ESA, LPO, LAP, (VAA) HUS, ISA HUS, ESA (VAA) HUS, (VAA) VAA VAA
49	t032	Fin-12	EKA, HUS, VAR, PIR, KSU, ESA
36	t002	Fin-3a Fin-3c Fin-3 Fin-16c Fin-39 Fin-40	HUS, ESA HUS, LAP HUS, EKA, PHÄ, PKA, SAT LAP, PSA, VAR VAR VAR



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Future goals





Staff

- Staff resources have been divided in a way that enables standard precautions to be carried out without rushing
- The staff knows hygiene routines, transmission routes and infection risks
- The staff carries out standard precautions during each patient contact
 - hand disinfection
 - protective gloves (when in contact with secretions and mucous membranes)
 - single-use apron/protective gown in near contact
- Staff testing should be considered only when an epidemic is suspected



Premises and care equipment

- Functionality should be considered in room/ward plans
- **Single rooms** and hygiene facilities should be arranged for MRSA carriers
- **Care measures** to be carried out in the single-patient room (washing, diaper changes, wound cleaning etc.)
- The nursing home resident **is allowed to use common areas** in the ward without restrictions
- **Equipment maintenance** facilities should be planned according to demand
- **Mechanical cleaning and disinfection of equipment** should be carried out
- **PPE** (personal protective equipment) must be available in care and maintenance facilities
- Disinfection should be carried out as soon as **secretion splashes** contaminate surfaces



Standard precautions in infection prevention

In the care of all patients

- hand hygiene
- protective gloves: when in contact with mucous membranes and secretions
- protective aprons / gown, in situations where secretions might be an issue
- splash disinfection prevents microbe colonization of the care environment

Prevention measures

- Improving in hand hygiene practices
- Training
- Audits of practices
- Written instructions





MRSA carriage

- **The duration of MRSA carriage is not known**
 - 60% cleared up in 18 month monitoring, the average being 7,4 months (Marschall et al ICHE 2006)
 - risk factors for carriage: use of antibiotics, catheters, broken skin
- **Infectiousness is increased in the presence of**
 - wounds
 - exudate with MRSA colonization or infection
 - flaking skin
 - close contact
 - respiratory tract infections in nasal carriers
- **MRSA carriers and risk for transmission**
 - carriers may have asymptomatic infections
 - they have no known risk factors
 - the risk for transmission is very low

Infection control in the care unit of an MRSA-positive patient

Place of care and staff	Risk of infection	Restrictions imposed on the patient
<p>Outpatient care, own home, assisted living residence etc</p> <p>Home care providers take standard precautions</p>	Small	<p>No restrictions</p> <p>Isolation in a hospital</p>
<p>Isolation in single room in an institution</p> <p>Contact isolation</p>	Small	<p>Significant restrictions, rarely more than 1-2 months</p>
<p>Private room in an institution, toilet + shower</p> <p>Staff takes standard precautions</p>	<p>Fairly small</p> <p>Others are exposed, the situation is monitored by means of screening</p>	<p>Quite few restrictions, the client is allowed to visit common areas</p> <p>Isolation in a hospital</p>



Conclusion

- **Different views need to be considered**
 - the right of MRSA carriers to receive adequate care and recreation
 - protecting other clients from MRSA transmission
 - protecting nursing staff from infection
- **MRSA prevention measures in care homes**
 - planned on a case-by-case basis, separately in each institution
 - MRSA carriage rarely poses a health threat to the elderly
 - important to prevent long term care facilities from becoming MRSA reservoirs in the hospital district
- **Good hand hygiene is a cornerstone of prevention**
 - recent studies have shown that simply improving hand hygiene significantly decreased the spread of MRSA
 - the use of PPE when in contact with secretions



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...if you have any
further questions...
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Thank You!

