Dissemination of Community-Associated MRSA in Northern Saskatchewan

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• Laboratory reports of MRSA provided to health authorities’ Medical Health Officers
• Lab results included demographics, specimen site, diagnosis, organism isolated, and antibiotic sensitivities
• Additional information obtained through public health follow-up for some isolates

Background
Laboratory identification used standard procedures at the Saskatchewan Disease Control Laboratory (SDCL)

A 10% sample of MRSA isolates (n=192) were further analyzed for strain identification and subtyping

Isolates were subtyped using pulsed-field gel electrophoresis (PFGE) following the Canadian Standardized Protocol
A new MRSA case was defined as the first time an individual had MRSA isolated from 2001 to 2006.

Asymptomatic or colonized cases were excluded.

Multiple samples from the same individual within 2 months were excluded.
Excluded when hospital-associated MRSA (HA-MRSA) characteristics present:

1. Indication of recent hospitalization (other than < 48 hours of specimen), surgical, dialysis, long term care residence, indwelling catheter or percutaneous medical device

2. Strain types associated with HA-MRSA

CA-MRSA defined
Little information is available in the literature on recurrence of CA-MRSA but it is believed to be 10% or greater (Daum 2007)

A recurrent episode of infection was defined as subsequent laboratory isolation of CA-MRSA in the same individual greater than 2 months apart
2001-2006 Results

1927 MRSA lab isolates

1659 Isolates from 'cases'

196 'sustained' (within 2 months)

1638 CA-MRSA isolates (1395 new individuals)

1927 'colonized'

72 'colonized'

21 HA-MRSA

196 'sustained'

1395 analyzed for rates

243 CA-MRSA recurrent isolates (193 individuals with recurrent isolates)

Analyzed for recurrent episodes
Northern SK MRSA by Cluster Type (N=192)

- Cluster type 7: 97.4%
- Cluster type 2: 1.6%
- Cluster type 10: 1.0%

PVL typing by Cluster type

The number of individuals with new CA-MRSA in Northern Saskatchewan by Health Region 2001-2006

Dissemination of CA-MRSA
Rate of new individuals with CA-MRSA in Northern Saskatchewan by Health Authority 2001-2006 (per 10,000)

The number of individuals with CA-MRSA in Northern Saskatchewan by Age & Sex (2001-2006)

Annual age-specific rate of individuals with new CA-MRSA by health region (three – year average 2004-2006)

Number of new individuals with CA-MRSA reports by Quarter:
(Each year July to Sept highest numbers)

Number of New CA-MRSA cases in Northern Saskatchewan by Clinical Picture

MRSA Skin Infections
Recurrence of Disease of CA-MRSA
(# of episodes: %)

1 episode  2 episodes  3 episodes  4 episodes  5 episodes
86.2
10.9
2.4
0.5
0.1

Time between episodes of infection

- 2-3 months: 14%
- 3 up to 6 months: 18%
- 6 up to 9 months: 16%
- 9 up to 12 months: 7%
- 12 up to 15 months: 5%
- 15 up to 18 months: 11%
- 18 up to 21 months: 4%
- 21 months or greater: 25%

Increasing incidence of CA-MRSA in northern Saskatchewan, with new case incidence rates being as high as 196 per 10,000 per annum in one health region.

97.4% of sampled MRSA were CMRSA 7 (USA400).

Incidence highest in the July-Sept quarter.

13.8% had recurrence after 2 months with 41.3% of those within 6 months.
• Northern Antibiotic Resistance Partnership (NARP) involves the establishment of active surveillance sentinel sites, a case-control study, and community, school, and health worker educational initiative.

• A collaboration of federal, provincial, regional and First Nations health authorities and laboratories.

• See www.narp.ca

Summary
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Proportion of Staphylococcus aureus resistance: July 2006 – June 2007
CMRSA Types by Health Region
(July 2006 - June 2007)

- CMRSA 2, 4, 6 & 8
- CMRSA 7
- CMRSA 10