

## Methicillin-resistant *Staphylococcus aureus* (MRSA)—changing epidemiology and workplace considerations

Until the mid-2000s, methicillin-resistant *Staphylococcus aureus* (MRSA) infections were predominately hospital acquired (HA-MRSA) and seen mainly in patients and health care personnel. However, since 2005, community-acquired MRSA (CA-MRSA) infections—a different genotype from HA-MRSA—have increased dramatically in BC.<sup>1-3</sup> Recent annual surveillance data indicate that CA-MRSA accounted for about 25% of MRSA in BC, with the remainder mostly HA-MRSA.<sup>2</sup> Therefore, acquisition of MRSA in both occupational and non-occupational (community) settings should be considered, including in health care workers.

One-third of the population is estimated to be asymptomatic carriers of *staphylococcus aureus*, with MRSA nasal carriage estimated from 0% to 8%, varying by population, geography, and region.<sup>1,2,4,5</sup> MRSA is not reportable in BC.<sup>6</sup>

HA-MRSA can be distinguished from CA-MRSA based on genetic, epidemiologic, or microbiological profiles.<sup>3</sup> Three genotypes of MRSA account for 90% of all genotypes throughout Canada.<sup>1,2</sup> MRSA-2 is usually associated with HA-MRSA; MRSA-7 and MRSA-10 are usually associated with CA-MRSA. A third grouping of MRSA, called livestock-acquired MRSA (LA-MRSA), has been recently identified in Canada and can potentially affect livestock workers,<sup>7</sup> but to date, no known human infections have been associated with these strains in BC (written communication with D.M. Patrick and L.M. Hoang, BC Centre for Disease Control, 2 February 2018).

*This article is the opinion of WorkSafeBC and has not been peer reviewed by the BCMJ Editorial Board.*

Known reservoirs for *staphylococcus aureus* are humans and livestock, and survival outside of the host is highly variable—ranging from 30 minutes to 60 days.<sup>8</sup> The incubation period is variable and indefinite—ranging from 1 to 10 days for infection to develop once it enters compromised skin or mucous membrane. The communicable period is as long as a purulent lesion is present or carrier state persists.<sup>8,9</sup> With respect to HA-MRSA, both MRSA-carrier and/or infected patients and health care workers can act as vectors for transmission in hospital settings, with hands being the most important means of transmission. HA-MRSA risk factors for patients include hospitalization, surgery, or dialysis in the past 12 months; presence of an indwelling catheter; and residence in a long-term care home.<sup>3,6,8-11</sup>

Although anyone can acquire CA-MRSA, populations at increased risk include those with risk factors summarized as the 5Cs: crowding, frequent skin contact, compromised skin, sharing contaminated personal items, and lack of cleanliness.<sup>4,6,8,10,11</sup> These factors may also need to be considered in certain workplaces, such as child care services, military living quarters, or shelters.

In a health care worker with a confirmed MRSA infection, work circumstances, possible direct contact or exposure to an infected patient, and incubation period, along with the risk factors outlined above, are considered by WorkSafeBC when adjudicating a claim.

HA-MRSA results in respiratory tract, urinary tract, bloodstream, and postsurgical infections, whereas CA-MRSA predominantly causes skin and soft tissue infections such as fu-

ncles, carbuncles, or abscesses.<sup>3,6,10</sup>

Management of HA-MRSA and CA-MRSA is based on clinical presentation. Physicians can refer to the BCCDC and IDSA Guidelines for both management and exposure control for HA- and CA-MRSA carriers and those with clinical infection.<sup>6,12</sup> MRSA bacteria is resistant to  $\beta$ -lactam agents, including cephalosporins and carbapenems. After treating active infections and reinforcing hygiene and appropriate wound care, decolonization is not usually required in carriers but may be considered for those with recurrent skin and soft tissue infections or ongoing transmission among household members or close contacts, or for colonized health care workers who have been identified as likely sources of transmission.<sup>4,6,12</sup>

Unless directed by a health care provider or an employer's infection control policy, workers with MRSA infections should not be routinely excluded from going to work. Exclusion should be reserved for those with wound drainage that cannot be properly covered and contained with a clean, dry bandage, and for those who cannot maintain good hygiene practices. Workers with active infections should be excluded from activities where skin-to-skin contact with the affected skin area is likely to occur until their infections are healed.<sup>4</sup>

If you require further information regarding an MRSA claim, contact the Occupational Disease Services Client Services Manager at 604 231-8842.

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non-opioid therapies and there was a lack of nonpharmacological therapies their patients could access and/or afford.

Four respondents reported that they knew patients who had gone to the streets for opioids and had died from an overdose. Two seemed to be a patient or former patient of the physician-survey participant. Another death was reported by a substance abuse physician and another by a physician in a smaller community. The reason given for the use of illicit opioids seemed to be that patients could not tolerate a reduction in their opioid dose and had either been cut off abruptly or tapered rapidly enough that they sought illicit medications.

This study shows that despite the intention to reduce harm from opioids, the standard is causing collateral

damage to patients with chronic pain, and to a lesser degree to patients with cancer pain or those receiving palliative care. Physicians' interpretations of the standard seem highly influenced by their perceived relationship with the College and a more collaborative approach to safe prescribing is recommended by respondents. For physicians to manage chronic pain with less dependence on opioids, there is a clear need for greater access to non-pharmacological therapies, funding of alternative medications, and timely access to multidisciplinary clinics.

—**Romayne Gallagher, MD**  
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A full report on this survey is available from the author (rgallagher@providencehealth.bc.ca).

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