Introduction
Staphylococcus aureus is a well known pathogen in horses, yet the role of other coagulase-positive staphylococcal species is unclear. Non-aureus staphylococcal species, including Staphylococcus pseudintermedius and Staphylococcus delphini, are important pathogens in some species, can be multidrug resistant and could be a concern in horses.

Materials and Methods
- Methicillin-resistant or unusual staphylococci isolated at the Ontario Veterinary College (OVC) by the Animal Health Laboratory (AHL) routinely undergo further characterization. During 2011, six staphylococci isolates from horses that were not methicillin-resistant S. aureus (MRSA) were tested.
- Isolates were identified through Matrix-assisted laser desorption/ionisation-time of flight mass spectrometry (MALDI-TOF), S. pseudintermedius or S. delphini PCR, and sodA sequence analysis.
- Isolates were further characterized, as indicated, by dru typing, PFGE, mecA PCR, mecA homologue (mecaAASSD) PCR, penicillin-binding protein 2a (PBP2a) latex agglutination test (LAT), and broth microdilution and/or disc diffusion.
- A search of AHL’s database was performed to determine the frequency of methicillin-resistant or unusual staphylococci isolated at the OVC and private practice from January 2011-August 2012.

Results
Six isolates were evaluated; 2 were identified as methicillin-resistant S. pseudintermedius (MRSP) and 4 as S. delphini (Table 1).

Methicillin-resistant S. pseudintermedius
- MRSP-1 was classified as di11a, a predominant MRSP clone in dogs; MRSP-2 could not be dru typed.
- A high level of resistance was noted, including to beta-lactams, chloramphenicol, clindamycin, erythromycin, gentamicin, tetracycline and trimethoprim/sulfamethoxazole (TMS); Table 2.
- The mecA PCR, mecAASSD, PCR, and PBP2a LAT for MRSP-2 were negative.
- Two of the S. delphini isolates (SD-1, SD-2) were possibly related by PFGE, with a 4 band difference (Figure). The remaining isolates were unrelated to each other and the 2 related isolates.

AHL Database search
- Eight additional S. pseudintermedius cases were identified; 6 (75%) of which were MRSP. Five were from infections, one horse was colonized and inadequate data were available to classify the other two. One additional S. delphini isolate was identified.

Discussion
- MRSP is an important emerging pathogen in dogs and cats, yet has been rarely identified in horses. Although not available for these cases, obtaining a history of domestic animal contact would be useful, as between-species transmission may have occurred.
- The roles of these bacteria in disease in horses is unclear but given their ability to cause opportunistic infections in other species and limited reports of S. pseudintermedius infections in horses, they should not be dismissed.
- We were unable to document the presence of mec for one of the MRSP isolates. It is possible mec was lost during manipulation or storage of the isolate, alternatively, a novel mec element may be involved.
- While rarely reported, MRSP might be overlooked in horses. Misidentification as S. aureus is possible if laboratories assume coagulase positive staphylococci from horses are S. aureus. Since typical phenotypic methods to detect methicillin-resistance in S. aureus are ineffective for S. pseudintermedius, MRSP can be misidentified as methicillin-susceptible S. pseudintermedius or S. aureus. Given the rapid expansion of this pathogen in dogs and its highly resistant nature, ongoing surveillance is indicated.
- S. delphini has rarely been identified in horses, but it may be misidentified with conventional methods. Although in these cases colonization/contamination appeared most likely, these findings suggest this opportunist can be found in horses and might be pathogenic in certain situations.
- The use of additional identification methods (e.g., MALDI-TOF, Staphylococcus species-specific PCR) is important to differentiate S. delphini and S. pseudintermedius and will be critical in ongoing surveillance for the emergence of these species in horses.