PROVINCIAL SURVEILLANCE OF COMMUNITY-ASSOCIATED METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS

Hughes, Curtis, Dr Colin Bell, Dr Ross Davidson
Department of Biology, Acadia University, Wolfville, NS; QEII Health Sciences Center, Halifax, NS

Staphylococcus aureus is a Gram positive spherical pathogen which is responsible for a wide variety of infections, including nosocomial infections, skin and soft tissue infections, and necrotizing pneumonia. The advent of penicillin type drugs in the 1940’s brought about a novel method of S. aureus infection treatment, however, by 1961 S. aureus isolates were confirmed to be resistant to this form of antibiotic. Termed Methicillin Resistant Staphylococcus aureus (MRSA), this new superbug quickly established itself as a highly drug resistant opportunistic pathogen with a tendency to prey on the sick and immune compromised. Originally believed to be a hospital-associated pathogen, a more aggressive and virulent strain of this superbug was isolated from the community in 1981. Since the discovery of this community associated MRSA (CA-MRSA), CA-MRSA strains have been popping up all over the world in an increasing and alarming fashion. The purpose of this study was to determine the rate of CA-MRSA among all MRSA isolates collected within Nova Scotia in order to properly survey the rapid growth of this highly virulent pathogen. Over 500 isolates of MRSA collected from January 2008 – September 2008 and were tested for the Panton Valentine Leukocidin (PVL), a common CA-MRSA indicator, using the Polymerase Chain Reaction. The isolates that tested positive for PVL were then typed using Pulsed Field Gel Electrophoresis (PFGE) to determine the specific strain they belonged to. This data collection provides important information to the further understanding of the epidemiological patterns of CA-MRSA. The results of these tests showed that 12.19% of all MRSA isolates in Nova Scotia are CA-MRSA. These findings show an increase in the percentage of CA-MRSA in Nova Scotia. Furthermore, these findings highlight that the extremely high rate of CA-MRSA (21%) previously found in Cape Breton, Nova Scotia (District 8) is not consistent with the rest of the province. Future research is important to determine the reason for the high rate in Cape Breton, as well as to continue monitoring the quickly growing virulent pathogen.

Curtis Hughes graduated from Colonel Gray High School in Charlottetown, P.E.I. in 2006. Curtis is currently completing his Honours thesis in his fourth year Biology at Acadia. Curtis is an avid musician and plays guitar in the Acadia Jazz Ensemble. Curtis also participates in Acadia’s S.M.I.L.E program, which helps instill motor skills in kids with varying disabilities. Since attending Acadia, Curtis has been rewarded the Edyth and Ralph Dodds Scholar-Bursary as well as the Dr. Helen Holden Quinlan Memorial Bursary. Curtis hopes to attend medical school in the near future.