

# Featured Research

## Sepsis Prevention: A Population Health Approach

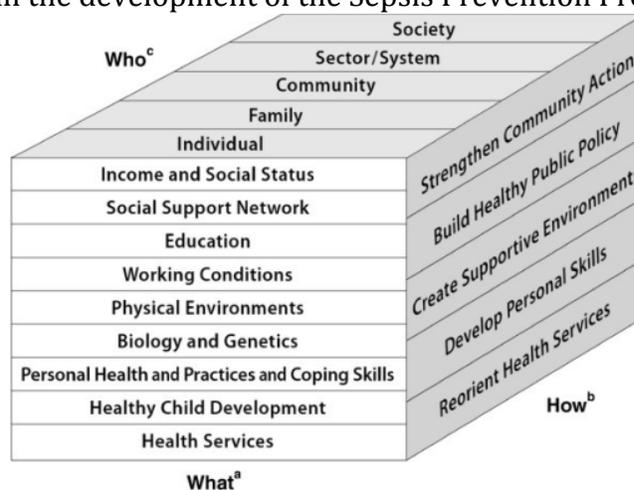
By **Dakota Sander, Danielle Robertson, and Nicole Boutin**

**Background:** *Dakota Sander, Danielle Robertson and Nicole Boutin were part of a group of fourth year nursing students from the University of Saskatchewan completing a community health nursing placement at Parkridge Rehabilitation Centre (PRC), a rehabilitation and long term care facility. PRC has been experiencing an increase in sepsis amongst their resident population, resulting in the requirement of hospitalization for treatment. The Saskatchewan Ministry of Health challenged PRC to find ways to decrease the prevalence of sepsis in their facility. Due to health care budget constraints, this facility reached out to the clinical group of fourth year nursing students to minimize the educational gap amongst their multidisciplinary team. These three nursing students not only worked with the frontline care providers at PRC, but they also expanded their target audience to include care providers at other long-term care facilities throughout the Saskatoon Health Region. The goal of their research project and presentation was to help enhance the practice and knowledge of those caring for vulnerable residents, specifically related to the prevention and early recognition of sepsis. Through their work, they are hoping to ultimately decrease the prevalence of sepsis amongst their target population.*

**In the span of four weeks, they reached over 260 frontline care providers, and created educational binders for the future use of the facilities!**

**How the Population Health Promotion Model aided in the development of this project:**

The Population Health Promotion Model was utilized in the development and implementation of the Sepsis Prevention Project. This model explains the relationship between population health and health promotion. The Population Health Promotion Model encompasses three aspects, the "who, what, and how," all of which were taken into account in the development of the Sepsis Prevention Project.



**WHO** – This project addressed the population at the community level, concentrating on Parkridge Rehabilitation Centre (PRC), a rehabilitation and long term care facility, as well as other long-term care communities within the Saskatoon Health Region.

**WHAT** – The Social Determinants of Health that were focused on included education, physical environments, and health services. The Sepsis Prevention Project aimed at altering these Social Determinants of Health by educating frontline care providers about sepsis prevention strategies such as infection control and clean technique as well as early identification of sepsis so that prompt diagnosis and intervention may occur.

**HOW** – The goal of this project was to strengthen community action and develop personal skills. Considering that the “base” of the Population Health Promotion Model refers to evidence based decision making, assumptions and values, the Sepsis Prevention Project placed an emphasis on the importance of collecting accurate, evidence based information regarding sepsis as a medical condition as well as sepsis within long-term care settings. A number of reliable sources were used, including peer-reviewed journals, interviews with ICU intensivists as well as both leaders and members of Sepsis Initiatives in various acute care settings.

**Fact: 30% of people who develop sepsis will not survive and of those who do survive 30% will die within one year of developing sepsis.**

### **What is Sepsis?**

- Sepsis is a serious medical condition resulting from a systemic, overwhelming response to an infection. The immune system sets off a response that involves widespread inflammation, swelling and blood clotting.
- Sepsis is life threatening!
- It can lead to septic shock, multiple organ dysfunction syndrome (MODS) and death, especially if it is not recognized early and treated promptly.

### **Recognizing Sepsis:**

- Altered mental status
- Temperature >38 degrees or <36 degrees Celsius (or deviation from baseline)
- Heart rate greater than 90 beats per minute
- WBC greater than 12 or less than 4
- Respiratory rate greater than 20 per minute
- Watch for signs of new edema

### **Barriers in long-term care environments:**

- Physicians are not always on site and they see patients infrequently
- Quick prescribing of antibiotics and transferring to acute care is difficult
- More dependent on the communication between the RNs and the different levels of care providers regarding condition changes of the residents
- Lack of laboratory capabilities for appropriate and timely diagnostic tests

### **Signs and symptoms to monitor during morning/bedtime care:**

- Changes in mental status
- Changes in urine colour/odor
- Using clean technique when changing catheter bags

- Proper hand hygiene
- Proper perineal care
- Personal Protective Equipment – preventing cross contamination

**Fact: Urinary Tract Infections make up 40% of nosocomial infections and can lead to urosepsis.**

**Prevention is key in decreasing the prevalence and impact of sepsis!**

- Proper hand hygiene & aseptic technique
- Use of personal protective equipment
- Changing gloves between different procedures
- Personal hygiene including
  - Oral care in the morning & at night (especially important at bedtime)
  - Perineal care
- Catheter Care
  - Keeping catheter bag below level of bladder
  - Maintain a closed drainage system
- Ventilator Care
  - Maintain head of bed at 20-45 degrees
  - Suction using aseptic technique
  - Provide clean tracheostomy care without touching inner cannula
- Preventing & Treating Pressure Ulcers
  - Turning & repositioning
  - Reduce shear, friction & moisture

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