

## ABSTRACT

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**THE EFFECT OF SHIFT WORK ON CORTISOL PRODUCTION IN FEMALE HOSPITAL EMPLOYEES: STUDY IN PROGRESS**

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**Introduction** Cardiovascular disease (CVD) is currently the leading cause of death worldwide, contributing to 30% of all deaths. CVD etiology is complex, with many modifiable and non-modifiable risk factors. Epidemiological evidence generally supports an association between shiftwork and an increased risk for CVD. However, the underlying physiological mechanisms remain poorly understood. Limited research suggests that the production of cortisol may differ between shift workers and non-shift workers, resulting in physiological changes that potentially increase the risk of CVD among shift workers. This study will focus on females who comprise the largest proportion of workers in healthcare settings.

**Objectives**

- 1) To describe and compare total cortisol levels and its diurnal pattern in relation to current shiftwork status, and cumulative duration of exposure to shiftwork.
- 2) To determine if current shiftwork status and/or cumulative duration are associated with total cortisol levels, and diurnal pattern.

**Study design and methods** Female participants were recruited from a tertiary acute care teaching hospital in southeastern Ontario, Canada between September 2011 and February 2014 (n=330). An interview and a questionnaire were used to ascertain shiftwork exposure, and covariate information. Urine samples were provided at every void over a 48-hour period to approximate free cortisol levels. A multivariate regression model will be used to describe, and determine the significance of the effect of shiftwork on total cortisol and its diurnal pattern.

**Hypotheses** We anticipate that the overall production of cortisol will be higher in current shift workers than non-shift workers. Cumulative duration of shiftwork exposure will be associated with higher total cortisol levels and with cortisol patterns in a dose-dependent manner.

**Relevance** Shift work is a highly prevalent work pattern: approximately 30% of Canadians are employed in shift work positions. Determining the mechanisms through which shiftwork may influence CVD has the potential to inform interventions.