

O₂ Saturation & Transcutaneous CO₂ Levels of Pregnant Workers Who Wear Protective Facemasks - FY15 (939ZNRX)

Objective

Three million industrial workers and 14 million healthcare workers use respiratory protective equipment (RPE) either routinely or occasionally. Of this number, a significant proportion are women and, at any given time, a sizeable number are pregnant, yet little is known regarding the impact of RPE upon the pregnant wearer. This study will examine the impact of N95 filtering facepiece respirators (N95 FFR) and surgical masks (SM) on oxygen saturation (O₂ Sat) and transcutaneous carbon dioxide (tcPCO₂) levels of pregnant workers.



Applicable Standards

- OSHA standard (29 CFR 1910.134)

Stakeholders

- Women healthcare workers (medical, dental, veterinary)
- Women industrial workers
- Respiratory protection program managers
- Public health agencies
- Obstetricians and Nurse Midwives
- Occupational Medicine physicians

Key Partners

- None

Project

- Conduct human physiologic testing in the NPPTL physiology lab.
- Determine tcPCO₂ levels and O₂ Sat of second and third trimester pregnant workers at baseline and while wearing N95FFR and SM
- Incorporate data from the project into the development of physiologic guidelines for respirator use

Milestones

- Q1 Data analysis (24 pregnant/22 non-pregnant subjects)
- Q2 Manuscript preparation (3 manuscripts)
- Q3 Manuscript submissions to journals
- Q4 Presentation at ISRP conference in Sept, 2014

Output

- Manuscripts published in peer-reviewed journals (2 to date) and a third manuscript is currently under journal review.
- Presentations at national/international conferences (1 to date).

Outcomes

- Use of physiological data (tcPCO₂ levels, O₂ saturation) by NIOSH, CDC, OSHA, FDA, ISO, etc. in the development of guidance criteria for use of protective facemasks during pregnancy
- Use of project outputs by other researchers investigating personal protective equipment use by pregnant workers

Updated: 4 Feb 2015