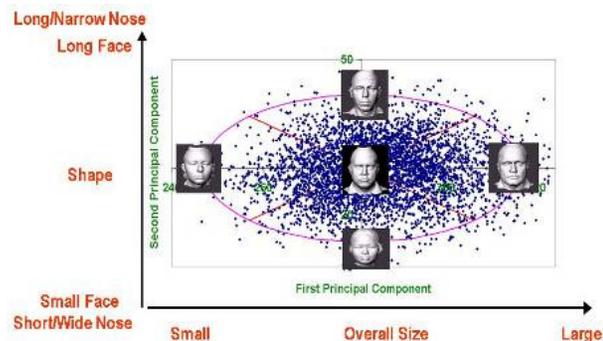


# Development of Computer-Aided Face-Fit Evaluation Methods – FY15 (927PP09)

## Objective

- Establish up-to-date respirator fit-test panels and test headforms to be incorporated into the national and ISO standards
- Develop an anthropometric database of Asian workers
- Investigate the correlation between 3-D parameters and face fit

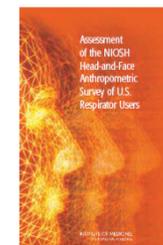


## Applicable Standards Related Activities

- ISO TC94 SC15 WGs 1-3
- 29 CFR Part 1910.134

## Stakeholders

- OSHA, MSHA, ANSI, ISO
- Respirator Users
- Manufacturers



## Key Partners

- Texas Tech University
- Canada National Research Council
- Tongji Medical College, China
- Florida State University
- NIOH, South Africa
- Instituto de Salud Pública (ISP), Chile

## Project Scope

- Develop an anthropometric survey detailing the face size distributions of respirator users using both traditional measurement methods and three-dimensional (3-D) scanning systems
- Investigate the extent to which facial features can predict respirator fit and protection
- Develop respirator fit test panels using the traditional bivariate approach and the principal component analysis (PCA)
- Develop test head forms

## Milestones FY15

- Q2 Submit a manuscript on development of headforms for SC6 standards to eClearance .
- Q4 Complete draft technical standards on headforms for the SC6 committee.
- Q4 Evaluate the NIOSH respirator fit test panels with Censor 2010 data

## Outputs

- Manuscripts published or submitted to peer review journals (18)
- Presentations at conferences (21)
- Standards committee meetings & public meetings (12)

## Outcomes

- The techniques and methods developed in this study resulted in the ability of manufacturers to design respirators with improved face-fitting characteristics (60+ outcomes have been achieved to date)
- Fit Test Panel and head forms incorporated in respirator testing and certification and ISO standards
- Outputs have been cited 100+ times in the peer-reviewed literature
- Chile and South Africa have adopted the anthropometric survey methodology for studies on the characteristics of their populations

Updated: 04 Feb 2015