Opportunity & Objectives
The duck-billed speculum, used industry wide, does not provide sufficient retention of lateral vaginal walls when used for the growing demographic of obese women and those who have borne multiple children, whose walls lack the tone to support themselves. To address this demographic, the new design will support the walls, providing sufficient view and access during examinations.

Related Work and State of Practice
A vaginal speculum is a medical instrument used to open vaginal walls in order to gain access to the cervix. Common exams include pap smears, colposcopies and biopsies. Women that fall in either of these categories stated above don’t have the strength in their vaginal walls to hold open when the speculum is in use. Doctors currently use “tricks” to overcome this obstacle such as using a glove or a condom around the duck billed speculum to try to gain 360-degree retention.

Commercialization Plan & Partners
The team plans on working with Wayne State University’s Intellectual Property division to secure a patent on the final design. Next steps include further testing on volunteer patients and partnering with manufacturers to produce fully functional prototypes. The team is partnered with Wayne State OBGYN, Dr. Maurice Recanati, as the SME, in order to fine tune specifications, along with Dr. Mohammad Ali Ozbeki to help refine the design process.

Technical Approach
A rolled sheet method was determined to be the preferred approach, based on the following criteria through a Pugh analysis: sufficiently restrains lateral walls, disposable/single use, safety, ergonomic, intuitive operation, low cost, biocompatibility.

Features of the rolled sheet method:
• Shaft to drive sheet expansion and retraction
• Rubber coating or o-rings in place of gears allow for self-locking, removing need for locking mechanism
• Single-piece main body and shaft injection molded
• Sonic welding sheet to main body

Simulation Results
The simulation results comply with the system’s mechanical requirements set by the team and recorded in the DVP&R. The Food and Drug Administration (FDA) does not have specific requirements for vaginal specula other than physical safety and biocompatibility.

Discussion & Conclusion
The team plans on working with Wayne State University’s Intellectual Property division to secure a patent on the final design. Next steps include further testing on volunteer patients and partnering with manufacturers to produce fully functional prototypes. The team is partnered with Wayne State OBGYN, Dr. Maurice Recanati, as the SME, in order to fine tune specifications, along with Dr. Mohammad Ali Ozbeki to help refine the design process.

References