**Alexandra Carlson**

**Campus:** Baylor Scott and White Health, Temple, TX

**Research Area:** Use of maternal carcinoembryonic antigen for early diagnosis of feto-maternal hemorrhage

**Mentor:** Joanna Stacey, MD, Gloria M. Conover, PhD and Steven Maxwell, PhD

Alexandra Carlson, M4 student in the College of Medicine, is co-writing a case report as a capstone project from her MEID 820 selective to submit for peer review publication under the clinical guidance of Joanna Stacey, MD, Division Director, Gynecology at Baylor Scott & White Health (Temple, TX); and MEID 820 Professors [Gloria M. Conover, Ph.D](https://medicine.tamu.edu/faculty/gloria-conover.html). [Steve Maxwell, Ph.D.,](https://medicine.tamu.edu/faculty/maxwell.html) and Sheila Green. Their article proposes a novel diagnostic test to detect feto-maternal hemorrhage early and accurately before severe complications develop. Feto-maternal hemorrhage (FMH) is the bi-directional flow of fetal and maternal blood into each other’s circulation which may endanger the life of the mother and her child. A proposed novel diagnostic alternative to the standard of care today is measurement of maternal serum carcinoembryonic antigen (CEA). CEA is produced in gastrointestinal tissue during fetal development and can theoretically be measured in detectable amounts after the first trimester.1 It is currently widely used as a tumor marker for some types of cancer, primarily colorectal cancers.2 Disruption of the maternal fetal barrier due to placental abruption and/or preeclampsia may cause a rise in CEA level in maternal serum. Their report aims to suggest a new diagnostic test for earlier diagnoses, thus enabling earlier intervention for feto-maternal hemorrhage with a potential to be lifesaving.

1. 2. LINDGREN J. Carcinoembryonic antigen in fetal tissues and in maternal serum. *Acta Pathologica Microbiologica Scandinavica Section A Pathology*. 1980;88A(1-6):49-53. [https://api.istex.fr/ark:/67375/WNG-VDM3NH64-9/fulltext.pdf](https://api.istex.fr/ark%3A/67375/WNG-VDM3NH64-9/fulltext.pdf). doi: 10.1111/j.1699-0463.1980.tb02464.x.
2. Ercan, Serif; Kaymaz, Ozge; Yucel, Nihal and Orcun, Asuman. Serum Concentrations of CA 125, CA 15-3, CA 19-9 and CEA in Normal Pregnancy: A Longitudinal Study.