Millions of people need assistance when it comes to obtaining and effectively administering medicine. For example, globally, 113 million women have unmet contraceptive needs, which lead to 54 million unintended pregnancies and 26 million abortions. And every day, more than 115 people in the United States die after overdosing on opioids. Subcutaneous implants can help meet some of these contraceptive needs and treat opioid addiction, but administration and removal is difficult.

The Solution

A team of researchers, including Kathleen H. Sienko, Ph.D., Ibrahim Mohedas, Ph.D., and Carrie Bell, M.D., and undergraduate mechanical engineering capstone design students from the University of Michigan, have developed the SubQ Assist, a device for less specialized health workers that facilitates the consistent and accurate administration of subcutaneous implants for both contraception and the opioid addiction treatment, Naltrexone.

The SubQ Assist ensures that the implant is administered just beneath the skin and above the subcutaneous fat, which allows for easy removal when the implant needs to be replaced. The device eliminates primary sources of user error that occur when performing the current procedures by restricting the implant insertion depth and removing the need for manual tenting of the skin during insertion.
The SubQ Assist offers easy application for subcutaneous implants

**Significant Need**
Subcutaneous contraceptive implants are one of the preferred methods of long-term contraception by the World Health Organization. But, the barrier to increase access to this form of contraception is the training that is required to safely administer the implants. Additionally, subcutaneous implants are used to treat opioid addiction. Opioid overdoses in the United States increased 30 percent from July 2016 to September 2017 in 52 areas in 45 states.

**Compelling Science**
The SubQ Assist is clipped to any standard blood pressure cuff and wrapped around the patient’s upper arm. The cuff is then inflated to a pressure of 40 mmHg, which pushes the skin and subcutaneous tissue directly into the device’s cavity.

**Competitive Advantage**
The SubQ Assist is disposable, can be included in an implant kit, and relies on a blood pressure cuff that medical professionals already use. Additionally, implants that are compatible with the SubQ Assist are in development for Parkinson’s disease, hypothyroidism, testosterone replacement therapy, prostate cancer, diabetes, and more.

With help from MTRAC, the SubQ Assist provides a competitive advantage to implant manufacturers and would allow increased access to contraception and treatments for a wide range of diseases.

**Overall Commercialization**
The SubQ Assist was designed to be adaptable to a range of different pharmaceutical implants that are available or in development. The team is currently exploring potential strategic partnerships with pharmaceutical implant developers and distributors with the goal of establishing a licensing agreement.

**Regulatory Pathway**
FDA approval will be pursued under the “Medical Device Accessory” classification.

**Intellectual Property**
Provisional PCT has been filed.