

# Supplementary Appendix for: Adoption Barriers for Continuous Glucose Monitoring and Their Potential Reduction With a Fully Implanted System: Results From Patient Preference Surveys

Robert Engler, Timothy L. Routh, and Joseph Y. Lucisano

Full text of the description of the fully implanted CGM system is provided below. In Survey 2, the final question was customized to Current Users, Past Users, or Never Used by asking respectively if the respondent would “switch to,” “resume use with,” or “start using.”

*A new ‘long term’ implanted glucose monitor is being developed to offer significant improvements over current CGM systems. Please read the following description carefully before answering the questions that follow.*

*This new CGM system uses a sensor that is fully implanted under the skin, and sends glucose readings wirelessly to a handheld receiver/display. Once the sensor is implanted, nothing is attached to the skin, and nothing passes through the skin. The sensor is intended to be unobtrusive to users: it is designed to operate without attention or maintenance for 12 months, and to impose no restrictions on exercise, bathing, or swimming. As with other implanted devices of similar size, people who used this CGM sensor in a clinical trial reported that they were often unaware of its presence. The sensor has been designed to be highly reliable - there have been no failures of the sensor during implant testing.*

*As has been confirmed in clinical tests so far, the implanted sensor will need calibration with a finger-stick only once or twice a month, as opposed to the recommended two to four times per day for current CGM sensors. Calibration involves entering a finger-stick glucose measurement into the receiver/display, without any need to touch or disturb the implantation site. The implanted sensor is about 1.7" long and a third of an inch thick (see picture), and is inserted via a 15-minute doctor's office procedure, similar to those already used to implant other medical devices. The doctor numbs the location for the implant and inserts the sensor under the skin through an incision, which typically heals in about two weeks. At the end of 12 months, the sensor is removed and replaced via a similar procedure. The most likely location for the sensor is the lower abdomen with the insertion site below the bathing suit line. The handheld receiver/display, which may be located up to nine feet away, receives signals from the sensor every few minutes. It stores and displays glucose readings and trends, and warns when blood glucose readings exceed high or low limits - these can be set by the user.*

*If this implanted-sensor CGM system was available, approved by the FDA for adjunctive use for diabetes management (like current approved CGMs), suggested by your doctor, and covered by your insurance, how likely would you be to get and use the implanted glucose monitor?*