Short-Term Cost Benefit of Pre-Conception Care for Diabetes

Strict blood glucose control before and during pregnancy is crucial in preventing maternal and fetal complications (1–3). We previously reported an estimate of the cost savings associated with pre-conception care for women with diabetes (4). Pre-conception care resulted in $1,720 in net savings per enrollee, with a benefit-cost ratio of 1.86. Included in these estimates were medical care costs for 3 years after discharge from the neonatal intensive care unit (NICU), as well as lifetime costs of medical care, residential care, and community services for individuals with handicaps resulting from congenital malformations.

But do these results hold from other perspectives, such as the third-party payer who is only responsible for medical care costs associated with maternal and neonatal adverse outcomes and not long-term care costs? How relevant are medical costs 3 years after discharge in a health care environment where a patient may switch insurance plans? Such questions have been raised by representatives from managed care and the insurance industry who are trying to decide whether to provide coverage for pre-conception care for women with diabetes.

To address these questions, we recalculated the cost-benefit analysis excluding costs associated with post-NICU medical and long-term care. The cost savings per enrollee from the short-term third-party payer perspective were $480, and the benefit-cost ratio was 1.24. This indicates that significant benefits of pre-conception care accrue during pregnancy and during the initial hospitalization of the mother and infant. We conclude that postdischarge and long-term care costs are not deciding factors in the cost savings associated with pre-conception care for women with established diabetes.

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Pump-Pocket Complications During Long-Term Insulin Delivery Using an Implanted Programmable Pump

Renard et al. (1) recently reported on seven patients with IDDM implanted with a programmable pump for intraperitoneal insulin therapy who experienced a high rate of pump-pocket complications (24.0/100 patient-years) resulting in explant of five pumps. This high rate of pump-pocket complications was associated with intense physical activity, which might increase the mechanical pressure exerted by the pump edges on the surrounding tissues.

The rate of pump-pocket complications reported in previous trials has been relatively low (2.7–8.5/100 patient-years) (2–6), with the exception of a trial using a square pump (7). Seromas and hematomas can occur immediately after implantation and usually resolve within a few days. Infections of the pump pocket can result from skin erosion, contiguous skin infections, or seeding from the skin flora when refilling the reservoir or during diagnostic and surgical procedures. A hematogenous route of infection has also been described (8). Infections and skin erosions usually result in pump explant, as is true for other prosthetic devices (9), while pump migration requires surgery for pump fixation.

To assess whether the rate of pump-pocket complications was underestimated in previous small-scale studies or whether it has increased in new pump models, we reviewed all pump-pocket complications that occurred during the multicenter trial with the Infusaid Model 1000 implantable programmable pump for insulin delivery in patients with IDDM. A total of 117 pumps were implanted in 137 patients at 16 centers. Subcutaneous pockets were created either in the abdominal wall (97%) or in the infraclavicular fossa (3%). The pumps remained implanted for a total of 435 patient-years and were used for insulin therapy for 366 patient-years, either through the intraperitoneal or intravenous route. After depletion of the pump battery, 55 pumps remained implanted for a further 69 patient-years while patients were waiting for replacements. The status of the pump pocket was assessed monthly at each pump refill and quarterly when the pumps were no longer active. During the study, pump pockets were accessed ~7,000 times by transcutaneous puncture (for refilling the pump reservoir and for diagnosis and management of reduced insulin flow) and 284 times during surgery (for pump implant, fixation or replacement, fixation of migrated catheters, catheter replacements, and explants).

Twenty-three pump-pocket complications occurred in 19 patients at eight centers. All pump-pocket complications occurred with pumps implanted in the abdominal wall and none with those in the infraclavicular fossa.

Nine pump-pocket complications occurred within 2 months after pump implantation. Two hematomas (one associated with vigorous physical activity immediately after implant) and two seromas of the pump pocket resolved spontaneously. One patient had delayed healing of the incision made for catheter replacement and pump explant, requiring debridement of the wound. The incision in another patient became infected and re-