



# Costs Associated with Implementation of Two Models of Diabetes Shared Medical Appointments

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## RESEARCH OBJECTIVE

- Shared medical appointments (SMAs) for patients with diabetes are an evidence-based and potentially efficient approach to provide self-management education and support in a group setting.
- The Invested in Diabetes study tests two approaches to implementing SMAs (standardized vs. patient-driven).<sup>1</sup>
- Objective:** For sustainability planning, we evaluated personnel time and cost, and other costs for starting and delivering diabetes SMAs in primary care.

## POPULATION STUDIED

### Population and Study:

- 21 of 24 primary care practices in Colorado and Kansas City randomized to one of two models for implementing diabetes SMAs. 3 practices stopped participation prior to data collection.
- Both models included six two-hour sessions using the Targeted Training in Illness Management curriculum for groups of approximately 5-15 patients with diabetes.
- Standardized approach is delivered by a health educator with accompanying provider visits.
- Patient-driven approach further incorporates behavioral health providers, peer mentors (volunteer position), and patient-led topic prioritization, in response to prior feedback from patient stakeholders.

## SMA IMPLEMENTATION

### Description of Cohorts and Roles:

- Initial cohorts at each practice took between 2 and 12 months to plan (6.25 month average)
- Cohorts reported were weekly (6 weeks), bi-weekly (3 months), and monthly (6 months)
- Roles required to deliver SMAs were filled by various staff (see Table 1), and include paid and volunteer positions.
- All practices attended an onboarding training. Patient-driven practices also had a peer mentor training.

## REFERENCES

- Kwan BM et al. 2020 in *Trials*
- Kaplan RS, Porter ME. 2011 in *Harvard Business Review*

## STUDY DESIGN

### Cost data collection and evaluation:

- Practices were surveyed around cost using Time-Driven Activity Based Costing<sup>2</sup> methodology at two time points to collect costs for the initial start-up period (prior to first cohort), and the SMA implementation for the first completed cohort (after the last SMA for cohort).
- Surveys asked staff hours devoted to activity groups during the two periods for each team member involved.
- Surveys asked for other costs associated with SMAs at each time, including staff training, non-recurrent start-up expenses, materials, and overhead.
- Staff hours are converted to costs using US Bureau of Labor Statistics mean salaries for each staff position/role. Salaries for volunteer roles were not calculated, but time is reported.
- To account for trainer time for trainings conducted by study staff, 5 hours of staff time was added to all practices for staff training. 5 additional hours were added to patient-driven practices for peer mentor trainings. This did not vary by how many staff or peer mentors were trained.
- Costs are broken down by start-up and implementation costs, and reported by SMA implementation model (standardized vs. patient-driven).

Table 1: SMA Roles within Practices

SMA Role	Who fills the role
Health Educator	- Certified Diabetes Educator, Registered Dietician - Program manager or coordinator (including DSME coordinator) - Lifestyle coach, health coach, other community health worker - Registered Nurse, nurse practitioner, licensed practical nurse - Case manager
SMA Coordinator	- Medical assistant, licensed practical nurse, registered nurse - Certified diabetes educator - Program coordinator
Prescribing Provider	- Physician (MD, DO) - Other provider (NP, PA) - Pharmacist
Behavioral Health Provider	- Health psychologist (PhD) - Social worker (LCSW, LSW) - Other BHP
Roles associated with indirect support	- Data analyst, IT professional, biostatistician - Office/clinic/practice manager - Administrative support staff, receptionist - Outreach coordinator, site coordinator, recruiter - Medical assistant, medical interpreter, patient navigator - Pharmacist - Registered dietician, certified diabetes educator - Chief medical officer, executive director

Table 2: Cost

	Start-up			Implementation		
	Personnel Time, hours	Personnel Cost, \$	Other Cost, \$	Personnel Time, hours	Personnel Cost, \$	Other Cost, \$
	Avg (Min, Max)	Avg (Min, Max)	Avg (Min, Max)	Avg (Min, Max)	Avg (Min, Max)	Avg (Min, Max)
Standardized SMAs	79.6 (21, 162)	\$3,420 (\$848, \$8,700)	\$957 (\$0, \$6,736)	53.4 (34.5, 100.5)	\$1,948 (\$1,085, \$3,397)	\$137 (\$0, \$615)
Patient-driven SMAs	131.1 (58, 213.9)	\$4,660 (\$1,229, \$9,877)	\$1,717 (\$0, \$7,629)	83.4 (49, 132)	\$2,430 (\$699, \$5,015)	\$177 (\$0, \$802)
All practices	102.5 (16, 140)	\$3,971 (\$848, \$9,877)	\$1,295 (\$0, \$7,629)	67.7 (34.5, 132)	\$2,177 (\$699, \$5,015)	\$156 (\$0, \$802)

### Cost Results:

- Reported costs of delivering diabetes SMAs varied considerably among practices, both in personnel time and other expenditures. Some practices did not report any additional expenditures for the SMAs, while others reported material costs, travel, portions of facility cost etc.
- As expected, delivering a model with a larger team involved more hours during planning and implementation than an approach with fewer personnel, plus modest increases in other costs.
- Differences in roles involved changed cost per practice, and could affect reimbursement. Roles selected were due to a combination of staff availability and interest in SMAs, as well as scheduling decisions made at each practice.

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## IMPLICATIONS FOR POLICY AND PRACTICE

- Practices seeking to implement diabetes SMAs should consider:
  - Diabetes SMAs may take considerable hours to set up and implement. Roles to involve may vary based on who is available at the practice, and desired reimbursement.
  - What elements of SMAs are most important to the care of their patients, as well as providers and other stakeholders.
  - The patient-driven approach studied resulted in costs that were close to double that of the standardized approach, and require practices to have integrated behavioral health.
  - The staffing resources required relative to available funding and/or potential reimbursement for each model.
  - Average per patient costs may be lowered if practices are able to deliver diabetes SMAs to relatively larger groups.
- Reimbursement options likely vary by factors such as setting, payer mix, and credentials of personnel involved in SMA delivery. While physician visit reimbursement is more lucrative, some sites chose to utilize other provider types or not have as many prescribing provider visits due to scheduling or not wanting patients to have to pay co-pays, resulting in lower reimbursement.
- Utilizing volunteers for the peer mentor role and not considering some costs (i.e., facility cost) to be attributable to SMAs may have reduced reported costs.

## CONCLUSION

- The patient driven SMAs are more expensive and resource intensive to deliver than the standardized SMAs. That said, practices seeking to implement diabetes SMAs should consider what elements of SMAs are most important to their patients and the resources required relative to reimbursement for each model.
- Time-Driven Activity Based Costing (TDABC) is an important methodology for determining implementation cost and capacity utilization of resources at the practice level for pragmatic trials.
- Future analyses will examine whether patient-driven SMAs lead to better clinical and patient reported outcomes relative to standardized SMAs.

## Contact information

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