

**Automated Mass Referral to
Diabetes Self-Management Education Support Services:
A Pilot Project**

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Disclosures



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Diabetes mellitus

- Chronic metabolic disorder
- Characterized by hyperglycemia
- Markedly elevated risks
 - Microvascular complications
 - Macrovascular complications
- Severe impairment, lost quality of life

Epidemiology

- Prevalence

- Nationwide: 11.6% (and rising steadily)
 - 1 in 5 African Americans
 - 1 in 5 individuals of low socioeconomic status
- South Carolina: 13.5% (6th highest in nation)
 - 8th leading cause of death (5 per day)
 - Additional 11% prediabetic
- Family Medicine Residency Program: **23.8%**

- Economic toll (2020)

- Hospital charges: more than \$663 million
- Total cost of care: \$5.9 billion (*\$16,750 per patient*)

Diabetes self-management education and support (DSMES)

- Evidence-based knowledge and skills training
- Accounts for patient needs, goals, and life experiences
- Covered by most healthcare plans



Benefits of DSMES

- Improved coping, self-efficacy, quality of life
- Better glycemic control
- Optimized medication usage
- Prevention or delay of disease progression
- Fewer acute care visits and hospitalizations
- Reduced financial burden

When to refer

- When diagnosed with diabetes
- During medical appointments
- When complications arise
- When life changes make diabetes management more challenging

PBLI project

- **Problem:** DSMES services underutilized
 - Within first year of diagnosis
 - Privately insured: 6.8%
 - Medicare: 5%
 - In South Carolina (at any point): 50%
 - Family Medicine Residency patients: **2.4%**
- **Purpose:** improve uptake of DSMES in Residency patient population
- **Hypothesis:** automated referral of patients with diabetes will increase utilization of DSMES



Study design

Sex	Age (years)		Marital status		Race		Employment status							
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%						
Male	532	39.9	18–44	165	12.4	Single	405	30.3	American Indian or Alaska Native	2	0.1	Employed	215	16.1
Female	800	60.1	45–64	488	36.6	Married	561	42.0	Asian	9	0.7	Not employed	112	8.4
			65–84	631	47.3	Separated/ Divorced	184	13.8	Black	914	68.5	Retired	369	27.6
			≥85	51	3.8	Widowed	152	11.4	White	373	28.1	Disabled	121	9.1
					Unknown	33	2.5	Unknown	35	2.6	Unknown	518	38.8	

- Sample size: 1,332 patients

- Inclusion criteria

- Residency patients 12/03/2022 – 08/03/2023
- Any diagnosis of diabetes (excluding gestational)
- Age > 18 years
- Living

Methods

- Preintervention (12/03/22–08/03/23)
 - Collected data from Epic EHR database queries
 - Diabetic patients seen at the Family Medicine Residency Program
 - Patients referred to the Diabetes Center
 - Patients seen at the Diabetes Center
 - Collaborated with IT to create new batch order
- Intervention (08/04/23)
 - Automated batch referral of *all* 1,332 diabetic patients
- Postintervention (08/04/23–03/04/24)
 - Repeated EHR queries

Results

- Unique patients seen at the Diabetes Center
 - Preintervention: 4.0 per month
 - Postintervention: 10.9 per month (**173% increase**)
- Total encounters
 - Preintervention: 9.4 per month
 - Postintervention: 24 per month (**156% increase**)

	Total encounters	Unique patients	Patients per month	Percentage of sample
Preintervention	75	32	4.0	2.4
Postintervention	192	87	10.9	6.5
Change (%)	156	173		

Discussion

- **ADA recommendation:** all diabetic patients participate in DSMES
- **Utilization remains low**
- **Barriers to participation**
 - Lack of patient or physician awareness
 - Lack of transportation, insurance coverage
 - Lack of compliance
 - Lack of referrals
- **Potential solution:** automated mass referral
- **Benefits of mass referral**
 - Time and cost effective
 - Minimal administrative burden
 - Low risk of human error
 - Improved multidisciplinary integration and longitudinal care

Limitations

- § Staffing restraints
- § Short project timeline
- § Incomplete demographic data (*e.g.*, socioeconomic status)
- § Limited longitudinal data due to EMR transition

Recommendations

- Examine longitudinal effects
 - Metabolic markers
 - HbA1c
 - BMI
 - Fructosamine
 - Lipids
 - Renal function
 - Outcomes
 - Hospital admission rates
 - Microvascular complications
 - Macrovascular complications
 - Medication utilization
- Initiatives to increase community awareness of available resources
- Regularly scheduled automated referrals

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