NYS HEALTH FOUNDATION

HANYS Healthcare Association of New York State

A DIABETES CAMPAIGN COLLABORATION

MANAGING DIABETES CARE: Moving an Underlying Chronic Condition to the Forefront

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OVERVIEW

The current health care delivery system is not effectively managing diabetes, a chronic disease that is often a hidden driver of health care costs and utilization. The prevalence of diabetes is rising, and despite many patient contacts with the health care system, opportunities to intervene and reduce negative outcomes are missed.

A targeted focus on improving diabetes care delivery and patient outcomes is essential. Navigating the complexities of the health care system can be overwhelming, and many patients lack the knowledge and skills to self-manage their diseases. Medical knowledge is continually evolving and evidence-based guidelines and new best practices are updated frequently—the National Guideline Clearinghouse has 138 guidelines relating to diabetes alone. Simultaneously, payers and providers are under significant pressure to manage ever-rising health care costs.

This paper makes the case that in this complex environment, diabetes can be moved to the forefront by managing the diabetes patient at each point of contact with the health care system.

INTRODUCTION

Diabetes is a chronic disease that requires vigilant management by both patients and providers. As an underlying condition, it compromises the treatment of other chronic diseases, and its impact is seen throughout the health care system. Patients with chronic conditions such as diabetes often experience multiple transitions between inpatient and outpatient care settings within the health care system, including hospitalization, primary care, specialty practices, and emergency departments (EDs). Patients with diabetes also experience higher rates of hospital readmissions.

The burden of diabetes in the United States continues to increase. According to the American Diabetes Association (ADA), in 2011, 8.3% of the population (25.8 million) has diabetes, and an additional 79 million Americans have pre-diabetes.[1]

[1] American Diabetes Association (2011, January 26). *Diabetes Statistics*. http://www.diabetes.org/diabetes-basics/diabetes-statistics

Coordination of Outpatient Management

Proven tools for improving care coordination include referral systems, an interdisciplinary team approach, and diabetes education.

Practices using electronic referrals and referral agreements between primary care and specialty physicians have reduced patient wait times for a specialist appointment and the number of unnecessary in-person specialty visits.[2] Coordination with specialists is very important for diabetes patients, who often experience difficulty controlling their blood sugar and confusion around preventing or managing complications. These patients may need the care of an endocrinologist, nephrologist, podiatrist, ophthalmologist, and cardiologist to manage all aspects of their disease. A primary care provider and system that engages the patient in self-management and coordinates input from all of the specialists is essential for success.

Comprehensive care for diabetes and other chronic diseases requires the work of a diverse team of providers. Everyone from receptionists to medical assistants and nurses can help maximize the efficiency of the physician provider. These team members can also contribute both before and after a visit to remind patients about necessary laboratory tests and follow-up on patient self-management.[3]

The use of Certified Diabetes Educators (CDEs) is an important component of an interdisciplinary diabetes care team. CDEs can work within the practice, in another outpatient location, as well as in non-clinical programs to provide diabetes education.

Studies have shown the benefits of diabetes education. For example, a 12-month study examining the benefits of diabetes education among dialysis patients who had a diagnosis of diabetes for more than 20 years showed improvement after one year of diabetes education.[4] There was statistically significant improvement in self-care knowledge, quality of life, and self-management behavior, including monitoring blood glucose and good foot care. Patients also showed improvement in glycated hemoglobin (A1c) levels after three months and were able to sustain the improvement for the year. The study group did not experience any amputations, whereas the control group had five lower-limb amputations. Proper follow-up and coordination remains important, as the knowledge gained was only retained for six months.[5]

STUDIES HAVE SHOWN THE BENEFITS OF DIABETES EDUCATION.

A review of the literature shows that diabetes is one of two chronic diseases showing a significant improvement as the result of a self-management education program. Researchers hypothesized that this was because goals were easy to determine and the means of achieving these goals is accessible to patients. Patients can track progress in their homes (i.e., blood glucose monitoring). Diabetes self-management education also resulted in greater medication adherence, which contributed to improved outcomes.[6]

In addition to improved patient outcomes, significant savings are seen in patients (both commercially insured and Medicare) who complete diabetes education. Reduced hospital admissions produce savings, even when increased usage of medications and preventive services are factored in.[7]

Diabetes care management can lead to improved patient outcomes, better quality of life, and reduced health care costs. The essential elements for success are coordination across settings and continuity. Beginning with a treatment and discharge plan upon admission to a hospital, transitioning to a primary care setting, following up with the patient, and providing diabetes education to support improved management at home are key elements to achieve good outcomes. A combination of these strategies has proven to be most effective.[8]

[2] Bodenheimer, T. (2008). Coordinating Care—A Perilous Journey Through the Health Care System. *The New England Journal of Medicine*, 358, 1064-71.

[3] Ibid.

[4] McMurray, S.D., Johnson, G., Davis, S., & McDougall, K. (2002). Diabetes Education and Care Management Significantly Improve Patient Outcomes in the Dialysis Unit. *American Journal of Kidney Diseases*, 40(3), 566-75.

[5] Norris, S.L., Englau, M.M., & Narayan, K.M. (2001). Effectiveness of Self-Management Training in Type 2 Diabetes. *Diabetes Care*, 24, 561-587.

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[7] Duncan, I., Birkmeyer, C., Coughlin, S., et al., (2009). Assessing the Value of Diabetes Education. *The Diabetes Educator*, 35(5), 752-60.

[8] Renders, C.M., Wagner, E.H., Valk, G.D., et al., (2001). Intervention to Improve the Management of Diabetes in Primary Care, Outpatient, and Community Settings. *Diabetes Care*, 24, 1821-33.

The Hospital

In the inpatient setting, a successful transition begins on admission. The American Association of Clinical Endocrinologists (AACE) and ADA recommend that the patient's ability to understand and manage his or her diabetes be evaluated upon admission. An inpatient stay also provides a good opportunity for diabetes self-management education and the use of CDEs to complement clinical care. Discharge planning is critical to ensure continuity of care in the post-hospital care phase. The following self-management items should be addressed by the care team with patients and their families:

- understanding the diabetes diagnosis;
- self-blood glucose monitoring and goal levels, post-hospitalization;
- hyperglycemia and hypoglycemia recognition, treatment, and prevention;
- identifying a health care provider who will manage diabetes after discharge;
- education about the importance of consistent eating;
- when and how to take medication and/or use insulin;
- sick day management; and
- proper use and disposal procedures for needles and syringes.

The transition of care plan should incorporate the AACE and ADA recommendation that the patient has a follow-up visit within one month of discharge with a primary care provider, endocrinologist, or CDE, and that the inpatient provider clearly communicates with the outpatient provider.[9] A referral from a CDE has been shown to increase the probability of follow-up.[10]

Care Transitions

A number of successful practices have proven to be effective in managing patient "hand-offs" or care transitions, which are defined as the movement of patients between health care providers or settings during a course of treatment. Among the Medicare population, one study showed that within 30 days of being discharged from the hospital, 31% of patients experienced two or more transitions, such as a transfer to a skilled nursing or rehabilitation facility, emergency department, or private residence.[11]

A study of Medicare patients using care transition interventions (CTIs) with a health coach showed a decrease in readmissions among the CTI group at 180 days post-hospital discharge, compared to the control group.[12] There was also an average $500 decrease in cost per patient for those enrolled in the CTI (n=379). Overall, this study produced a projected savings of more than $295,000 per year, after accounting for the cost of the intervention.[13]

TRANSITIONS BETWEEN SETTINGS OF CARE PROVIDE OPPORTUNITIES FOR INTERVENTIONS TO REDUCE NEGATIVE OUTCOMES.

Another study found that patients who have a clear understanding of their after-hospital care instructions are 30% less likely to be readmitted or visit the ED. A research team led by Brian W. Jack, M.D., developed a best practice model called Project RED.[14] The project checklist included 11 elements or best practices that, when used together, reduced readmissions by one third. In contrast to the Project RED group, the control group saw substantially higher ED costs ($21,389 vs. $11,285) and readmission costs ($412,544 vs. $268,942) within 30 days of hospital discharge. Even when adding the costs for follow-up primary care physician appointments ($55) for each intervention group patient, costs for Project RED participants were $412 lower, on average.

[9] Moghissi, E.S., Korytkowski, M. T., DiNardo, M., et al., (2009). American Association of Clinical Endocrinologists and American Diabetes Association Consensus Statement on Inpatient Glycemic Control. *Diabetes Care*, 32(6), 1119-39.

[10] Wheeler, K., Crawford, R., McAdams, D., et al., (2004). Inpatient to Outpatient Transfer of Care in Urban Patients With Diabetes. *Archives of Internal Medicine*, 164, 447-53.

[11] Clancy, C. (2009). Reengineering Hospital Discharge: A Protocol to Improve Patient Safety, Reduce Costs, and Boost Patient Satisfaction. *American Journal of Medical Quality*, 24(4), 344-46.

[12] Coleman, E.A., Min, S., Chomiak, A., & Kramer, A.M. (2004). Post-hospital Care Transitions: Pattern, Complications, and Risk Identification. *Health Services Research*, 39(5), 1449-66.

[13] Coleman, E.A., Parry, C., Chalmers, S. & Min, S. (2006). The Care Transitions Intervention. *The Archives of Internal Medicine*, 166, 1822-28.

[14] Clancy, C. (2009). Reengineering Hospital Discharge: A Protocol to Improve Patients Safety, Reduce Costs, and Boost Patient Satisfaction. *American Journal of Medical Quality*, 24(4), 344-46.

Methodology and Data Sources

Hospital discharge data were obtained from the Statewide Planning and Research Cooperative System (SPARCS) for all hospitals in New York State for the years 2000 through 2010. Hospital discharge data were used to calculate emergency department utilization, inpatient hospital utilization, lower extremity amputations, and readmissions.

New York State Behavioral Risk Factor Surveillance System (BRFSS) data were obtained for 2009 through the Maximizing Essential Tools for Research Innovation and Excellence (METRIX) project. BRFSS is an annual statewide telephone survey of adults developed by the U.S. Centers for Disease Control and Prevention and administered by the New York State Department of Health (DOH). BFRSS is designed to provide information on behaviors, risk factors, and utilization of preventive services related to the leading causes of infectious and chronic diseases, disability, injury, and death among the non-institutionalized population aged 18 and older. BRFSS data were used to describe the demographics and prevalence of certain health characteristics of diabetes and non-diabetes adults in New York State. In addition, prevalence estimates for adults with diabetes, calculated using BRFSS data, were obtained from DOH for the years 2002 through 2008.

The 5% 2009 Medicare Standard Analytic Files (SAFs) were used to estimate the prevalence of diabetes in the New York State Medicare population and the prevalence of evidence-based care measures relating to high-quality diabetes care. The 5% SAFs represent a nationally weighted sample of all Medicare enrollees and include claims from all settings of care (inpatient, outpatient, home health, skilled nursing facilities, hospice, and physician/provider claims). All data analyses were performed using SAS v9.1 software.

For the analysis using the BRFSS data, a diagnosis of diabetes was determined by the respondent indicating yes to the question: "Have you ever been told by a doctor that you have diabetes?" A follow-up question was asked if the respondent was female: "Was this only when you were pregnant?" Gestational (pregnancy-related) diabetes, pre-diabetes, and borderline diabetes were not counted as diabetes cases in calculating prevalence rates. Due to the complex sampling methods, data were analyzed using the "Proc Surveyfreq" procedure, and weights were applied to generalize the results to the New York State adult population. Weighted estimates and 95% confidence intervals were generated.

SPARCS data were used to calculate ED and inpatient hospital utilization, and lower extremity amputation rates. Diabetes was identified by the presence of a diagnosis code of 250.X or 648.0. Lower-extremity amputations were identified by the presence of an 841.0-841.9 procedure code. Lower-extremity amputations with secondary diagnosis codes of trauma and certain related cancers were excluded.

SPARCS data were also used to calculate 30-day readmission rates. A readmission is defined as a return acute hospitalization for any reason to any facility following a previous acute admission within 30 days. Readmission rates calculated were 30-day, all-cause, all-payer, and unadjusted. All-cause readmissions were used because diabetes is a major risk factor for other diseases and is often a secondary diagnosis rather than the primary reason for admission or readmission, and medical expenditures for those with diabetes are more than double than for people without diabetes.

Identifying the prevalence of routine diabetes care was analyzed using the 2009 5% SAFs. Measures included identifying if an A1c test, lipid, and eye exam were performed on the patient in 2009. Routine care components were identified using Current Procedural Terminology codes according to the Centers for Medicare and Medicaid Services' 2006 National Measurement Specifications Diabetes Quality of Care Measures. Individuals were identified as having diabetes by the presence of a diagnosis code of 250.X or 648.0 on any claim from any setting during the year.

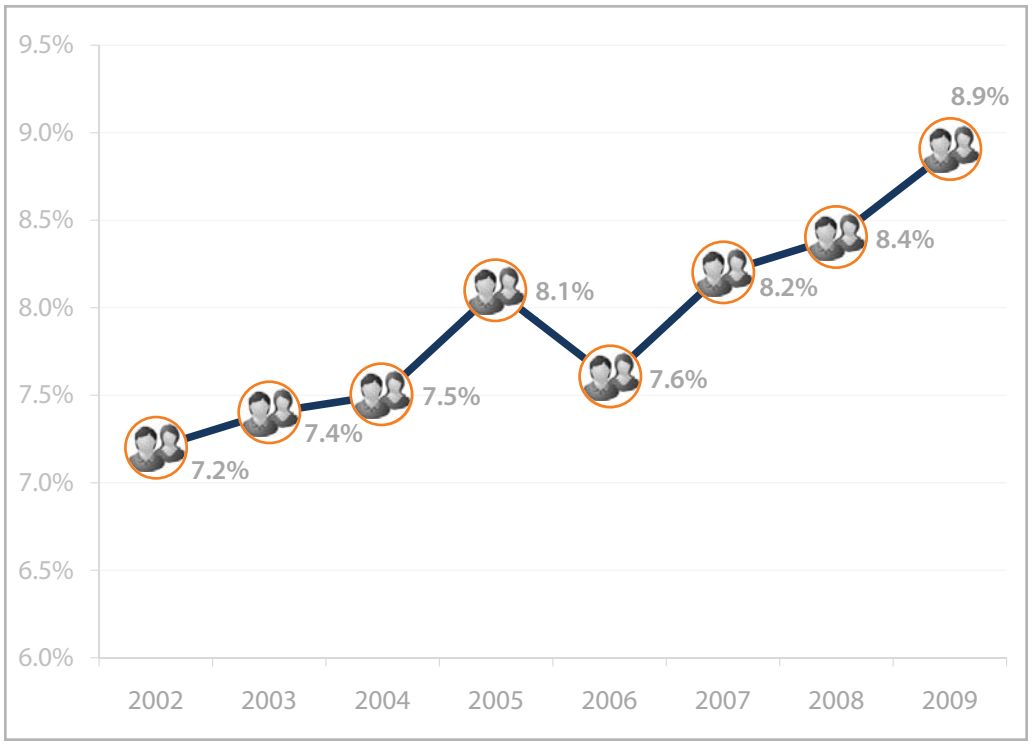
A READMISSION IS DEFINED AS A RETURN ACUTE HOSPITALIZATION FOR ANY REASON TO ANY FACILITY FOLLOWING A PREVIOUS ACUTE ADMISSION WITHIN 30 DAYS.

KEY FINDINGS

Diabetes prevalence is steadily rising in New York State.

- An estimated 8.9% of adults in New York State have been diagnosed with diabetes (Figure 1).
- The prevalence has increased by 20% since 2002.
- Borderline diabetes, pre-diabetes, and gestational diabetes are not included in this estimate, making the true number of adults living with diabetes even higher.

FIGURE 1. Estimated Adult Diabetes Prevalence in New York State, 2002-2009.



Source: New York State-specific BRFSS estimates, CDC.

Diabetes patients differ from non-diabetes patients on a variety of demographic variables including age, race/ethnicity, annual household income, and education level.

- People with diabetes tend to be older than those without diabetes, especially those aged 50 and up (Table 1).
- People with diabetes are less likely to be non-Hispanic and white or non-Hispanic and black than those without diabetes.
- People with diabetes tend to report a lower annual household income, especially in the less than $15,000 range (19.9% vs. 9.4%), and the $15,000 to $25,000 range (26.5% vs. 14.7%). They are also less likely to report in the highest income category of over $50,000 (27.4% vs. 52.1%).
- People with diabetes report a higher minimum level of education but fewer report completing college than those without diabetes (23.2% vs. 40.2%).

Individuals diagnosed with diabetes are more likely to have a doctor and have seen one in the past 12 months.

- People with diabetes were more likely to identify one or more doctors as their personal doctor than those who do not have diabetes (94.3% vs. 78.8%) (Table 1).
- People with diabetes were also more likely to have seen a doctor for a routine checkup in the last 12 months than those without diabetes (90.6% vs. 71.7%).

TABLE 1. Prevalence of Demographic and Health Factors by Diabetes Status*
Weighted to Reflect the NYS Adult Population

	Diabetes		Non-Diabetes	
	%	95% CI	%	95% CI
Prevalence	8.9%	8.1% - 9.7%	91.1%	90.3% - 91.9%
Sex				
Male	51.6%	46.9% - 56.3%	47.4%	45.5% - 49.2%
Female	48.4%	43.7% - 53.1%	52.6%	50.8% - 54.5%
Age				
18-24	1.2%	0.0% - 2.7%	14.1%	12.3% - 15.9%
25-29	0.9%	0.0% - 1.9%	7.8%	6.6% - 9.1%
30-34	1.8%	0.4% - 3.1%	10.5%	9.3% - 11.8%
35-39	2.0%	0.3% - 3.6%	8.9%	7.9% - 9.9%
40-44	6.2%	3.2% - 9.3%	10.6%	9.5% - 11.7%
45-49	6.5%	3.9% - 9.1%	9.4%	8.5% - 10.3%
50-54	11.4%	8.0% - 14.7%	9.4%	8.6% - 10.3%
55-59	12.5%	9.0% - 16.0%	6.9%	6.2% - 7.6%
60-64	14.8%	11.7% - 17.8%	6.1%	5.5% - 6.7%
65-69	12.9%	10.1% - 15.7%	4.5%	4.0% - 5.0%
70-74	9.5%	7.3% - 11.7%	3.2%	2.8% - 3.6%
75-79	8.6%	6.4% - 10.8%	3.3%	2.8% - 3.8%
80+	10.8%	8.4% - 13.1%	4.1%	3.7% - 4.6%
Race/Ethnicity				
White, Non-Hispanic	52.8%	47.9% - 57.6%	61.2%	59.2% - 63.2%
Black, Non-Hispanic	21.5%	17.0% - 25.9%	13.0%	11.5% - 14.4%
Hispanic	16.6%	12.4% - 20.9%	16.7%	15.0% - 18.3%
Other race, Non-hispanic	7.6%	4.5% - 10.8%	7.7%	6.5% - 8.9%
Multiracial, Non-Hispanic	1.5%	0.5% - 2.5%	1.5%	0.9% - 2.0%
Annual Household Income				
Less than $15,000	19.9%	15.7% - 24.1%	9.4%	8.1% - 10.7%
$15,000-$25,000	26.5%	22.0% - 31.0%	14.7%	13.3% - 16.1%
$25,000-$35,000	11.8%	8.1% - 15.5%	9.6%	8.5% - 10.7%
$35,000-$50,000	14.4%	11.3% - 17.6%	14.1%	12.8% - 15.4%
$50,000 or more	27.4%	22.7% - 32.1%	52.1%	50.1% - 54.1%
Highest Level of Education Completed				
Some High School	16.9%	13.1% - 20.7%	9.7%	8.3% - 11.0%
Graduated High School	36.7%	32.2% - 41.2%	25.8%	24.2% - 27.4%
Some College/Technical School	23.2%	19.5% - 26.9%	24.3%	22.7% - 25.9%
Graduated College/ Technical School	23.2%	19.1% - 27.3%	40.2%	38.5% - 42.0%
Self-Reported General Health Status				
Good or Better	55.1%	50.4% - 59.7%	88.1%	87.0% - 89.3%
Fair or Poor	44.9%	40.3% - 49.6%	11.9%	10.7% - 13.0%
Body Mass Index				
Normal Range	16.9%	13.4% - 20.5%	42.1%	40.2% - 44.0%
Overweight	36.7%	32.0% - 41.5%	35.5%	33.7% - 37.2%
Obese	46.3%	41.5% - 51.2%	22.4%	20.9% - 23.9%
Health Care Coverage				
Yes	88.1%	83.5% - 92.7%	85.7%	84.0% - 87.4%
No	11.9%	7.3% - 16.5%	14.3%	12.6% - 16.0%
Have an Identified Personal Doctor				
Yes, only one	84.3%	80.9% - 87.7%	78.6%	77.0% - 80.3%
More than one	10.0%	7.5% - 12.5%	7.1%	6.2% - 8.0%
No	5.7%	3.1% - 8.3%	14.2%	12.7% - 15.7%
How Long Since Your Last Routine Check-up?				
Less than 12 months	90.6%	87.9% - 93.4%	71.7%	70.0% - 73.4%
Between 1 and 2 years	4.9%	3.1% - 6.7%	14.7%	13.3% - 16.0%
Between 2 and 5 years	1.9%	0.4% - 3.4%	7.2%	6.2% - 8.1%
5 or more years	2.1%	0.6% - 3.6%	6.0%	5.2% - 6.9%
Never	0.4%	0.0% - 1.2%	0.4%	0.2% - 0.6%

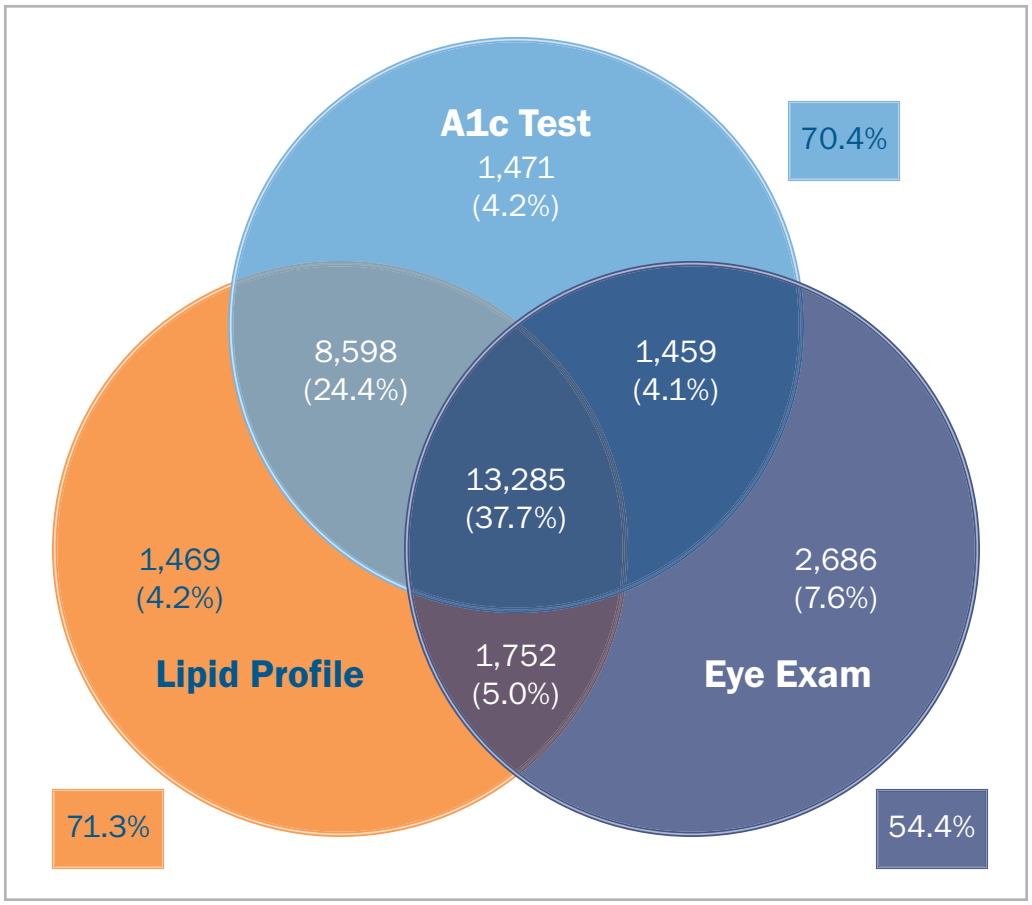
* Self reported by answering yes to "Have you ever been told by a doctor that you have diabetes?"

Source: 2009 NYS Behavioral Risk Factor Surveillence System (BRFSS)

Despite seeing a doctor regularly, patients with diabetes are not receiving the recommended routine testing and evidence-based practices.

- Only 37.7% of Medicare patients in New York State received an A1c test, lipid profile, and eye exam in 2009 (Figure 2).
- 12.8% of patients with diabetes did not receive any of the routine recommended care.

FIGURE 2. Number of Diabetes Patients Receiving Recommended Care at Routine Visits, 2009.

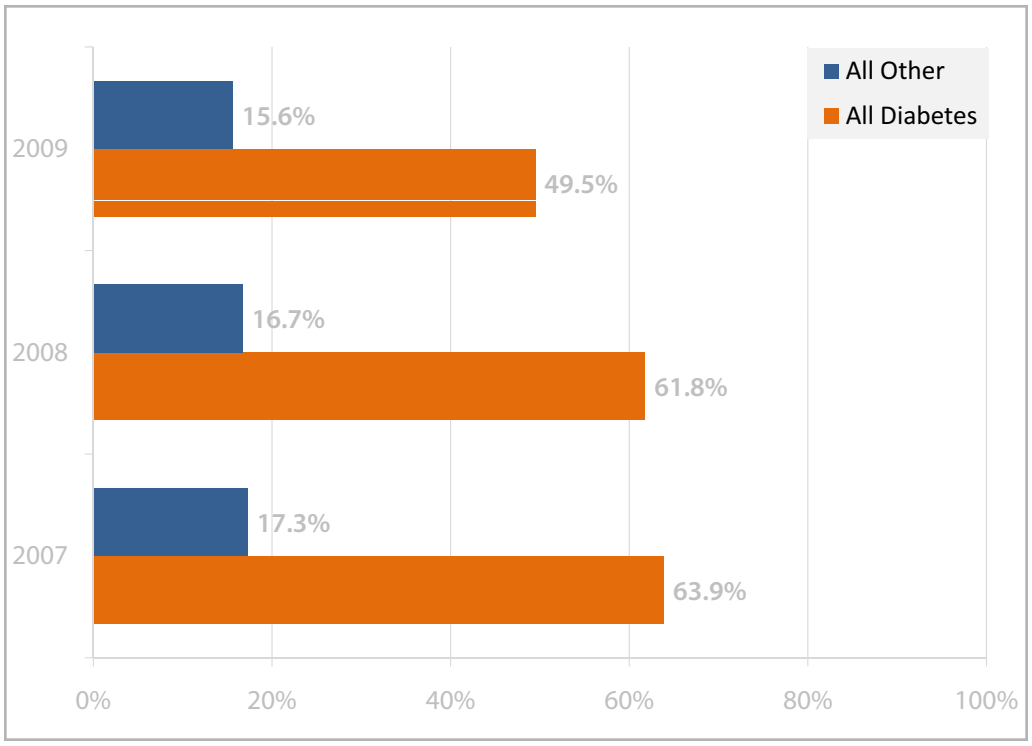


Source: 2009 5% Medicare Standard Analytic Files

Individuals with diabetes are more likely to be admitted to the hospital as an inpatient following a visit to the ED for any reason, compared to those without diabetes.

- Although the trend has decreased since 2008, almost half of ED visits by a patient with diabetes result in admission to the hospital (Figure 3).
- This is a stark contrast to only 15.6% of patients without diabetes resulting in hospital admission.

FIGURE 3. Emergency Department Utilization with a Primary or Secondary Diagnosis of Diabetes, 2007-2009.

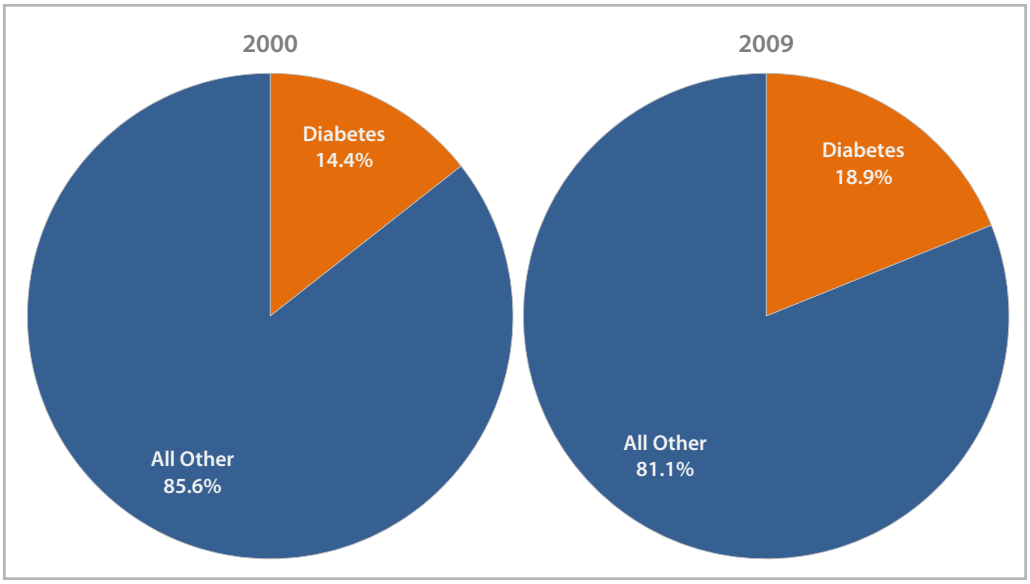


Source: SPARCS, 2007-2009.

The total percentage of patients being admitted to the hospital having diabetes is rising, increasing by nearly 30% since 2000.

- The number of patients admitted to the hospital who have diabetes has risen 30% from 2000 to 2009 (Figure 4). In 2000, 14.4% of all patients admitted had diabetes, while in 2009 that percentage increased to 18.9% of all patients admitted (Figure 4).

FIGURE 4. Percent of Patients Admitted to the Hospital With Diabetes, 2000-2009.



Source: SPARCS, 2000-2009.

In 2009, patients with diabetes were 2.4 times more likely to be readmitted to the hospital for any reason than patients without diabetes.

- The overall readmission rate in 2009 for diabetic patients was 25.6%, compared to 10.6% for non-diabetic patients (Table 2). Readmission rates were higher in all of the top ten Diagnosis Related Groups (DRGs) for diabetes patients than non-diabetes patients, even for DRGs seemingly unrelated to the disease (Table 2).

TABLE 2. Readmission Rates of the Top Ten Admission DRGs, 2009.

State Rank Based on Volume of Initial Admissions	DRG Name	Diabetic Patients 2009			Non-Diabetic Patients 2009		
		Number of Readmissions	Total Admissions	Readmission Rate	Number of Readmissions	Total Admissions	Readmission Rate
1	Heart failure & shock	5,705	14,852	38.4%	6,976	39,024	17.9%
2	Chronic obstructive pulmonary disease	4,375	11,379	38.4%	5,301	33,501	15.8%
3	Esophagitis, gastroent & misc digest disorders	3,670	15,012	24.4%	4,585	50,949	9.0%
4	Alcohol/drug abuse or dependence w/o rehabilitation therapy	3,644	10,799	33.7%	4,792	34,563	13.9%
5	Simple pneumonia & pleurisy	2,808	11,456	24.5%	3,996	41,449	9.6%
6	Septicemia w MV 96+ hours	2,690	9,393	28.6%	3,601	25,617	14.1%
7	Cardiac arrhythmia & conduction disorders	2,201	8,721	25.2%	3,425	30,191	11.3%
8	Nutritional & misc metabolic disorders	2,226	8,133	27.4%	3,056	25,742	11.9%
9	Perc cardiovasc proc w drug-eluting stent	1,674	7,635	21.9%	2,705	27,013	10.0%
10	Chest pain	2,341	11,526	20.3%	3,007	43,519	6.9%
New York State All Readmissions		113,521	443,657	**25.6%**	144,678	1,362,327	**10.6%**

Source: December 1, 2008 - December 31, 2009 SPARCS Data (excludes OB, neonatal, rehab, and transfers)

DISCUSSION AND POLICY IMPLICATIONS

The data and successful practices discussed above clearly indicate that the health care system has an opportunity to improve the delivery and management of diabetes care. Fortunately, there is a significant amount of emerging evidence and best practice models that will assist providers to take the necessary steps to manage chronic disease, particularly diabetes.

For hospitalized diabetes patients, there are lessons that can be drawn from the field. First and foremost, the hospital admission rates for diabetes management (indicated by a primary diagnosis of diabetes) are relatively low, less than 2%, yet the average diabetes population in a hospital (indicated by a primary or secondary diagnosis of diabetes) is close to 20% and these patients are 2.4 times more likely to be readmitted. This means hospitals should address the diabetes diagnosis regardless of the primary reason for admission.

Often, diabetes is negatively impacted by another illness and is situationally controlled in the hospital—a precise transition plan between the hospital and primary care provider is needed to ensure the stability and management of diabetes post-discharge.

Ultimately, both the diabetes patient's and family's ability to self-manage the disease is critical. Educational services are available such as CDEs and centers accredited by the American Association of Diabetes Educators or ADA. There is evidence that these programs complement provider care and education, and increase the patient's and family's ability to effectively manage their own care and take steps to prevent complications.

While the benefits of more fully integrating diabetes care into primary care practices is well established, in many hospitals, such programs are not part of routine discharge plans. "Fully integrated" can mean at the provider's site, complementary to the provider care plans, or even provided in group sessions or virtually, using telemedicine. The knowledge gained from programs that have already achieved success should be spread to others to further advance coordinated diabetes care.

In addition, the hospital inpatient stay provides an opportunity to assess a patient's ability to self-manage diabetes. If there are limitations, it is important to start addressing diet, management, and lifestyle via education from the nursing staff, nutritionists, community health workers, and hospital-based CDEs. This education and support should be transitioned into the post-hospital care plan. Since the data clearly show the negative impact of diabetes on readmission rates, a robust discharge plan, using some of the models discussed above, is essential.

The future of health care costs and quality depends on the provision of team-based care and patient self-management. There are clear lessons for managing diabetes patients in the community. For example, despite seeing a doctor regularly, only 35% of Medicare diabetes patients receive three of the top diabetes prevention practices. It is likely that diabetes "hides" behind the other reasons the patient sees their primary care physician, and that the patient and provider focus on the primary reason for the visit—an acute symptom—not addressing the chronic disease prevention steps in this visit.

The Patient-Centered Medical Home (PCMH) is a model of care directed by a personal physician who, working with a team of health care professionals and medical staff, and using health information technology, coordinates all necessary care from prevention, to acute treatment and specialist care. The PCMH model, which unites the strategies of team-based care, patient self-management education, and appropriate transitions between settings under one umbrella, is becoming the gold standard for improving care quality and efficiency. Regardless of the reason for the primary care visit, the PCMH system triggers the provider to address unmet diabetes practices such as A1c or blood pressure control, or even the need for an annual ophthalmology visit. Given the growth in chronic disease and its cost to the patient and system, it is necessary to further strengthen the primary care system's ability to provide this type of management.

Lastly, payers can play an instrumental part in catalyzing, supporting, and even rewarding the changes required. Reimbursement should be aligned with the best practice delivery systems. This challenges payers to rethink current payment practices, the need to incentivize change, and recognition of excellent care and outcomes.

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