
In Brief

This article describes a diabetes champion program in its fifth year of operation. This educational intervention was designed to increase direct diabetes patient education and has grown into a vehicle for improving quality of care and patient safety and reducing gaps in the transitions of care.

Diabetes Champions: Culture Change Through Education

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There are currently 25.8 million people in the United States with diabetes, or 8.3% of the population, and an additional 79 million Americans with prediabetes.¹ Diabetes self-management education is essential, yet not enough patients receive it.² A recent report by the New York State Health Foundation found that, despite this growing epidemic, there are only 17,000 certified diabetes educators (CDEs) nationwide, 600 of whom work in the state of New York,

and the majority (68%) of whom provide < 26 hours/week of direct patient education.³

On inpatient hospital units, nearly 50% of admitted patients have diabetes as a primary or secondary diagnosis.⁴ The Long Island Jewish Medical Center (LIJ) is a 600-bed, urban, academic teaching hospital with a similar percentage of patients with diabetes and only two full-time CDEs designated to educate these patients. LIJ is located in Queens

County, N.Y., one of the three most ethnically and racially diverse counties in the United States. Patients are often uninsured or underinsured, with little or no access to outpatient education services. Therefore, inpatient diabetes education is a necessity. Admitted patients with newly diagnosed diabetes and those with known diabetes who may have their treatment altered to include insulin for the first time require education about how to safely administer insulin (if indicated), how to recognize and appropriately treat hypoglycemia, and how to safely dispose of sharps, among other survival skills.

The Albert Einstein Medical Center previously reported on an inpatient diabetes champion program with research funding support.⁴ Their program evolved from an inconsistently attended monthly program to an 8-hour program, followed in several months by a 4-hour case study session. The authors discuss the importance of funding support to allow nurse managers to replace staff attending the program and the incentive provided by CEUs. Their outcomes and lessons learned included better timing of blood glucose testing, insulin administration, and meals and nursing staff being more engaged and more confidently educating diabetes patients and actively questioning physician insulin orders.

Diabetes Nurse Champion Program

The LIJ Diabetes Nurse Champion (DNC) program was designed in 2010 to address the growing number of patients requiring inpatient diabetes education and the training needs of bedside nurses who are increasingly called on to educate these patients. Both the American Diabetes Association and the Joint Commission have identified the most successful inpatient diabetes programs as those possessing several clinical attributes, including, among others, specific staff education requirements and identified “program champions.”⁵ Whereas the Joint Commission is not specifically referring to diabetes nurse champions, the diabetes champions described here can also function as program champions in achieving improved inpatient glycemic management.

Nurse participants in the DNC program, who voluntarily enroll, represent all educational backgrounds and diverse ethnic groups and work

in all aspects of patient care and on all shifts. A pre-program needs assessment is conducted to identify their specific knowledge deficits with regard to diabetes.

The program consists of nine 90-minute sessions employing a variety of educational methods, including lectures, case studies, role-playing, team activities, and hands-on learning. Each weekly session is offered three times to enable staff on all shifts to attend. Fifteen continuing education credits are awarded to participants who complete the program. A comprehensive take-home exam is administered at the end of the program to help participants use the resources they have been given in the preceding weeks and to reinforce and synthesize their new knowledge. Participants track the number of hours they spend educating patients and staff and are mentored in their direct diabetes patient education so they can eventually take the CDE certification exam.

Program Methodology

The program’s curriculum is outlined in Table 1. It was designed to meet established criteria for the most effective ways to deliver an educational program (i.e., multiple sessions, < 30 participants⁶) and based on a model designed by a CDE at a different institution (L. Hughes, unpublished observations). Participants are encouraged to teach a patient the information they learn each week, so they continually build on their knowledge and skills each week of the program. These experiences are discussed at the following session. Many of the sessions have a hands-on component during which participants monitor their own blood glucose, operate insulin pens and insulin pumps, and learn to count the carbohydrate content of foods or meals. These skills are reinforced in class with role-playing, teach-back exercises, and direct observations of patient teaching sessions conducted by one of the two CDEs on the diabetes team. The diabetes team endocrinologist and nurse practitioner further reinforce staff knowledge during daily patient rounds.

The curriculum is based on the American Association of Diabetes Educators (AADE)’s AADE7 Self-Care Behaviors, which include healthy eating, staying active, monitoring, taking medications, reducing

risks, problem-solving, and coping.⁷ Concrete teaching tools, including injection pads, saline pens, divided plates, glucagon teaching kits, blood glucose meters, monofilaments, and carbohydrate-counting books, are given to participants, who are also supplied with patient-education materials that have been developed by the health system and approved as having the appropriate fourth- to fifth-grade reading level by health literacy staff. These materials are made available on a shared computer drive and thus are available to all staff for distribution to patients. Information about all of the health system’s diabetes support groups is also available on the shared drive.

The take-home test was initially administered as an in-class exam but was changed to a take-home format to reduce participants’ test-taking anxiety. Participants have 1 week to complete the test, which includes multiple-choice and open-ended questions, as well as a 16-question insulin test developed for nurses and physicians at Johns Hopkins University.⁸ Given that 39% of all inpatient medication errors in the United States involve insulin, insulin knowledge and safety is a major focus of the program.⁹ To this end, a diabetes discharge checklist has also been developed as part of the champion program to assist champions in helping prescribers write appropriate discharge prescriptions for diabetes medications and supplies.

Program Results

Aspects of the program were presented at AADE national conferences in 2011, 2012, and 2013, and the program has been replicated in eight other hospitals in the North Shore Long Island Jewish Health System. Although this program continues to evolve and is offered in multiple sessions at our institution, not all of the champion programs at other sites within our health system follow the same format, and some are offered in a single-day training session. A study is underway to determine whether one educational format is more effective than others within our system with regard to the number of staff and patients educated or the retention of champions after training.

The program has also been adapted into a multidisciplinary Diabetes Champion (DC) program open to non-nurse health care providers.

Throughout the entire North Shore Long Island Jewish Health System, there are 455 diabetes champions, the majority of whom are registered nurses. At the LIJ site, there are 154 champions from various professional disciplines. Including multiple disciplines has enriched the discussions and the depth of knowledge for all participants and is helping to change the culture of our institution with regard to multidisciplinary diabetes care.

Figure 1 presents data regarding the distribution of LIJ program participants by their professional disciplines. To date, 134 registered nurses, 2 nurse practitioners, 1 physician, 10 physician assistants, 3 pharmacists, 3 registered dietitians, and 1 physical therapist have completed the program. All inpatient units, as well as the operating room, post-anesthesia care unit, and ambulatory care unit, have at least one diabetes champion. Of the nurses who have completed the program, four have become CDEs, and three of the four have been hired as inpatient diabetes educators in other health system hospitals.

The first multidisciplinary course offered was in 2013 in the clinical decision unit (CDU). This course included four registered nurses, 10 physician assistants, and one physician. The curriculum included more

information about acute complications of diabetes such as severe hypoglycemia, diabetic ketoacidosis, and hyperosmolar hyperglycemic state. Specialized courses for specific units, such as obstetrics or pediatrics, can be particularly helpful in meeting staff needs for knowledge about diabetes as it relates to the specific needs of their patient population. As more institutions adopt CDUs for short-stay patients, this might be a specific model to consider. For this course, we varied not only the curriculum, but also the format to accommodate the schedules of CDU staff members. The program was offered in three 4-hour sessions bridging the day and evening shifts. Our CDU program also included some novel approaches to delivering patient education and earmarked some research funds to supply diabetes medications to uninsured, Medicaid-eligible individuals.

In the first 6 months after the CDU medication project, there was a reduction in the 30-day readmission rate from 48.4% to 7.7% for patients who received free diabetes medications while awaiting Medicaid insurance approval. The free medication was coupled with a follow-up ambulatory care unit (ACU) medical appointment to achieve this dramatic reduction. All of the nurses in the

ACU have completed the diabetes champion program.

The latest group of 52 diabetes champions represents various ethnic groups, and 12 of the participants speak a language other than English. The languages spoken by participants in this group included Spanish, French, Slovakian, Russian, Haitian Creole, Korean, Kannada, Yoruba, Hindi, and Malayalam. This is encouraging because type 2 diabetes is disproportionately represented in ethnic and racial minorities, and there is a tremendous need for diabetes education provided in a variety of languages. In New York State, 90% of CDEs are non-Hispanic whites, and only 17% speak a language other than English.³

Interest and enrollment in the program continues to grow, as evidenced by Figure 1. This speaks to the current epidemic of diabetes, the increasing number of inpatients affected by this chronic condition, and the growing number of patients receiving their diabetes diagnosis while they are inpatients.

Discussion

With diabetes champions present throughout the hospital, more patients are receiving some degree of diabetes education than could ever have been seen by only the two staff CDEs.

Table 1. DNC Program Curriculum

Week	Educational Content	Teaching Method	Type of Presenter
1	Patient education strategies and methods	Lecture and role-play	RN, CDE # 1 (DLJ) and #2 (EDG)
2	Pathophysiology and categories of diabetes	Lecture and case studies	RN, CDE #1
3	Medical nutrition therapy and exercise	Hands-on learning, lecture, and carbohydrate-counting game	RD, CDE, and PT
4	Blood glucose monitoring, A1C, and ketone testing	Lecture and hands-on learning	RN, CDE #2
5	Oral hypoglycemic agents and incretin-based therapies	Lecture, case studies, and question-and-answer period	PharmD
6	Insulin therapy	Lecture, hands-on learning, and group activity	RN, CDE #1
7	Insulin pump therapy and continuous glucose monitoring	Lecture and hands-on learning	RN, CDE #2
8	ADA standards of care; risk reduction, complications surveillance, and foot exams	Discussion and foot exams on partners	Wound care nurse
9	Review of exam results	Question-and-answer period	RN, CDE #1 and RN, CDE #2

PharmD, pharmacist; PT, physical therapist, RD, registered dietitian, RN, registered nurse.

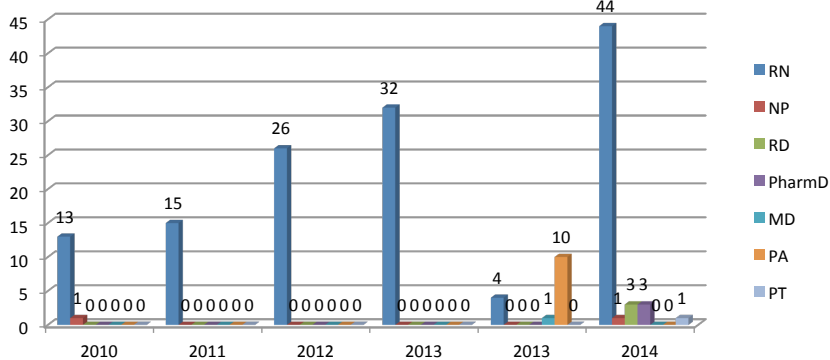


Figure 1. DNC program participants by professional discipline. MD, physician; NP, nurse practitioner, PA, physician’s assistant.

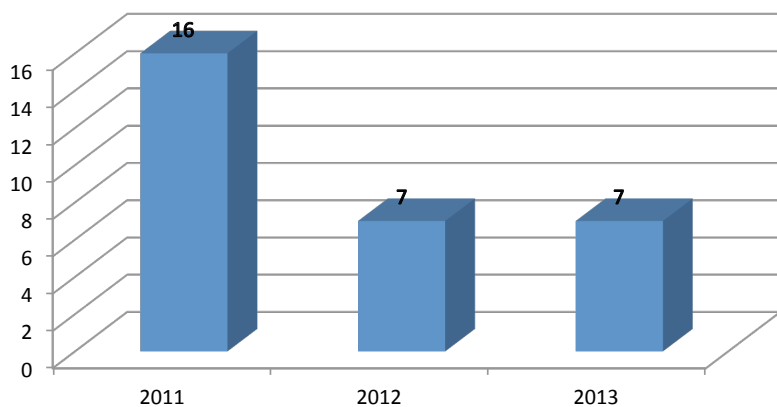


Figure 2. Number of insulin errors at LIJ, 2011–2013.

Although we can track the number of patients on the individual units receiving diabetes education (retrospectively, on a monthly basis), we do not yet have the statistical program in place to allow us to pull these data in a real-time format.

On a weekly basis, we receive calls from champions who are questioning orders potentially made in error (e.g., physician orders to hold basal insulin for patients on NPO status). Such errors have been equally divided among prescribing, dispensing, and administering insulin, as research has shown is common.¹⁰ Other common potential errors that have been averted by watchful champions have included insulin pens being prescribed for discharge without a corresponding prescription for pen needles and more serious errors such as a 70/30 premixed insulin being prescribed with meals in addition to glargine basal insulin at bedtime.

Figure 2 shows the number of actual medication errors reported in the past 3 years. The 2010 and 2011 programs occurred in the summer

and fall, respectively. In 2012 and all subsequent years, the programs began in January to maximize the measureable annual impact of the program. Although we did anticipate the benefits of more direct patient education, we did not expect the effect the champion program has had on insulin errors, including the prevention of insulin pumps being disconnected before basal insulin has been prescribed. By increasing staff knowledge, the program has encouraged a “culture of safety” as outlined by Hellman.¹⁰

Moving Forward

Our first DC clinical update symposium, which was open to all health system diabetes champions, was held this spring. This full-day event, which participants gave an average 4.9 rating on a 5-point evaluation scale, gave champions the opportunity to discuss best practices with their colleagues from other hospitals within the health system. Sessions included presentations about diabetes and depression and how to recognize depression in

patients; blood glucose pattern analysis; a role-play exercise for diabetes foot exams; and an overview of diabetes applications for mobile devices. Some topics went beyond the reach of the basic diabetes champion course to help prepare champions to take their CDE certification exam.

An online champion journal club is also planned. An existing monthly journal club usually has only 8–10 participants because of timing and scheduling conflicts, much the same as that reported by the Albert Einstein program.⁴ A more flexible, Internet-based option with CEUs is in development to increase access to, and participation in, this resource.

Another major project in development is a return-on-investment analysis of a possible change that would allow interested nurse champions to receive no patient assignment for their 13th shift of each month, allowing them to spend a full 12-hour shift seeing diabetes patients in need of education. This would increase their direct hours of patient education, shortening the time before they are eligible to take the CDE certification exam. It would also give existing CDEs the opportunity to provide more direct mentorship to further the champions’ professional development needs and goals. The original model of the Albert Einstein program included the nurse champions shadowing the CDE, but this was abandoned because of scheduling conflicts.⁴ This challenge could be overcome with an allowance for a “free” 13th shift each month.

The overall program goal is to continue to evolve and find the most efficient ways to develop more diabetes educators. Some of the technologies employed so far include online scheduling, through which participants can indicate in advance which session time they plan to attend each week, and video recording of the sessions, the product of which can then be shared with staff members who could not officially participate in the course. Feedback from patients has been incorporated into course discussions. For example, recommendations regarding which mobile device applications patients have found most useful have been passed on to the champions, who are then able to recommend these products to other patients.

In summary, DC programs are an effective way to deliver direct diabetes patient education in the inpatient set-

ting. They can improve quality and patient safety and help to close gaps in care in the transition from inpatient to outpatient settings. Further research is needed to determine which program format results in the greatest sustainability of diabetes champions within the institution.

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