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HEALTH CARE DELIVERY SYSTEMS AND IMPLEMENTATION IN DIABETES (ME MCDONNELL AND AR SADHU, SECTION EDITORS)

Academic Detailing in the New Era of Diabetes Medication Management

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Abstract

Purpose of Review Educating clinicians on how to improve the medical management of type 2 diabetes in the modern pharmacologic era represents an enormous challenge given the number of medications available and the diversity across guideline recommendations. Academic detailing uses active social marketing techniques to deliver in-office, face-to-face educational encounters between a trained clinical educator (academic detailer) and a primary care clinician and can improve the quality of prescribing and management decisions, leading to better patient outcomes.

Recent Findings This updated review provides context on how academic detailing programs can improve diabetes-related clinical knowledge and practice among primary care providers, incorporating the perspective of a field-based academic detailer. It also profiles 4 diabetes-specific academic detailing programs varying in geographic scope and detailing approach, based in Massachusetts, Pennsylvania, Vermont, and Saskatchewan Province (Canada).

Summary Academic detailing can effectively overcome challenges to increasing the evidence-based use of newer glucose-lowering medications in primary care settings.

Keywords Academic detailing · Clinical education · Medication management

Introduction

Academic detailing is an approach to improve the care of patients through in-office, face-to-face educational encounters occurring between a front-line clinician and a trained clinical educator (sometimes referred to as "detailer"). This approach differs from more traditional forms of clinical education (e.g., CME courses) by delivering content interactively, typically in the clinician's own clinical practice setting and using the principles of social marketing to gain commitment to evidence-based behavior change [1]. The one-on-one nature of academic detailing visits allows not only a review of clinical content but also a collaborative exploration of how the clinician can implement the management changes that a detailer recommends. Academic detailing also differs from traditional pharmaceutical detailing in that the educational sessions do not promote a specific product but rather focus globally on the optimal management of a given condition. The conceptual framework for and evidence base supporting academic detailing overall and more specifically in the setting of clinical diabetes has been previously described [1, 2•, 3–5].

A recent review article summarized the conceptual framework of and evidence base in support of academic detailing [6••], including several academic detailing programs specifically for diabetes. The objective of this article is to update that review with insights from the perspective of an active academic detailer and to highlight new academic detailing programs

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that have been or are in the process of being developed and implemented to improve the care of patients with type 2 diabetes.

This update is motivated by recent changes in type 2 diabetes treatment guidelines, with increasing focus on the effects of antidiabetic medications on cardiovascular outcomes rather than glycemic control alone, representing a shift in management from the approach that most practicing clinicians were originally taught [7, 8]. Since the mid-1990s, both the prevalence of type 2 diabetes and the drug armamentarium has expanded at a far steeper slope than for other chronic diseases (e.g., HTN and asthma). This slope concept was first introduced in 2006 [9], and since then, several new pharmacologic classes of medications have been approved for diabetes. Several of the newer agents demonstrated, in randomized trials, reductions in cardiovascular and renal events. As clinicians attempt to incorporate the rapidly growing and changing evidence base into practice, rising prescription drug prices and insurance-related barriers to medication access further complicate patient management.

Academic Detailing in Action

During a recent academic detailing campaign to increase primary care referrals to CDC-approved Diabetes Prevention Programs (DPP), one of the coauthors (SB), a licensed clinical pharmacist, was visiting a primary care physician approximately 10 years out of residency working in a busy suburban clinic that was part of a large healthcare system. The majority of this academic detailing visit was spent discussing the evidence supporting lifestyle-based interventions to reduce incident diabetes risk, with the ultimate goal of increasing patient referrals to local DPP programs. At the end of the visit, the physician jokingly asked the detailer not to come back unless he could bring specific information about the use of newer glucose-lowering medications (e.g., sodium-glucose cotransporter-2 inhibitors (SGLT-2 inhibitors) and glucagon-like peptide-1 (GLP-1) receptor agonists). During the conversation, the physician reported that he had seen television commercials for many of these medications over the past year but was not comfortable prescribing these medications because they only became available after he had finished training. Notably, the academic detailer had observed drug samples in the clinic, indicating that the office also sees commercial sales representatives (a.k.a. drug representatives).

This case illustrates the challenges facing primary care clinicians as they seek to incorporate new medications into the treatment of patients with diabetes. With multiple novel therapeutic classes and differing agents within classes, physicians receiving separate detailing messages from a series of commercial pharmaceutical detailers will likely experience confusion or may end up with an unbalanced view of the current evidence. In this environment, a non-biased educational source focused on providing the best overall synthesis of the evidence with specific and clinically actionable recommendations can offer front-line clinicians the practical information they need to improve patient care and outcomes.

Case Studies of Academic Detailing Programs to Improve Diabetes Care

Case studies of 4 contemporary academic detailing interventions focused on diabetes care illustrate how these principles are applied in contemporary clinical practice. The programs studied differ in terms of scope, geography, messaging, and approach (Table 1) but share the goal of disseminating the best available evidence regarding the management of type 2 diabetes, with specific information about the advantages, disadvantages, and appropriate clinical uses of newer glucose-lowering medications. Alosa Health, a 501c3 not-for-profit organization based in Boston, Massachusetts, provided academic detailing services for cases 1 and 2 (Pennsylvania and Greater New Bedford programs).

Pennsylvania's Independent Drug Information Service

The Pennsylvania Pharmaceutical Assistance Contract for the Elderly (PACE) is a program of the Department of Aging that provides medication insurance coverage for low-income elderly individuals. For the past 15 years, PACE has supported the Independent Drug Information System (IDIS), an academic detailing service that makes visits to primary care physicians across Pennsylvania who care for large numbers of PACE recipients. The objective of the program is to improve evidence-based prescribing and value for PACE beneficiaries (a.k.a. cardholders).

The IDIS provides thousands of visits a year to ~ 900 unique providers annually throughout the state of Pennsylvania, delivered by a team of 6–8 academic detailers, each with at least one advanced clinical degree (e.g.. PharmD, RN). For each module, detailers receive extensive clinical content training, with both remote web-based presentations and face-to-face training sessions in Boston that combine further evidence review with academic detailing skills development.

The clinical content training for detailers in the IDIS program begins with 3-hour-long webinar-based trainings that summarize a comprehensive review of the available literature. Topic areas covered include updated epidemiology of type 2 diabetes and pre-diabetes, screening recommendations, a review of the most recently updated ADA-EASD clinical practice guidelines, basic pharmacology, rationale for individualized HbA1c targets, evidence review of safety and efficacy of

Table 1 Characteristics of four contemporary diabetes-specific academic detailing programs

	Pennsylvania IDIS (2019 Diabetes)	Greater New Bedford Community Health Center	Vermont AD Service	RxFiles
Geographic location	Pennsylvania	New Bedford, Massachusetts	Vermont	Saskatchewan Province, Canada
Practice setting				
Community Health Center		X		
Group practices	X		X	X
Solo, private practices	X		X	X
Clinics owned or affiliated with academic medical centers	X		X	X
Objective of diabetes-specific program	To improve prescribing for older adults with diabetes (PACE cardholders)	To improve glycemic control and overall care for patients with type 2 diabetes in the community	TBD	TBD
Scope of AD program				
Duration of disease-specific educational program, months	4	6–8	TBD	TBD
No. of acad. detailers	6–8	1	3–4	~ 5
No. of unique providers visited	~ 750	30	~ 300	~ 300
Clinical content/topic areas				
Diagnosis of T2DM	X	X	X	X
Role of newer glucose-lowering agents in pharmacologic management	X	X	X	X
Treatment goals	X	X	X	X
Titrating insulin	X	X	X	X
Special considerations for older adults	X			
No. of AMA Category 1 CME credits	1.75	n/a	1	n/a

all commonly used glucose-lowering drug classes (with an added focus on recently published or ongoing CV outcomes trials of SGLT-2 inhibitors and GLP-1 receptor agonists), practical steps for titrating insulin, and specific considerations for managing type 2 diabetes in older adults. During face-to-face training sessions in Boston, detailers are also provided an opportunity to interact with and direct questions at practicing general internists as well as an endocrinologist specializing in diabetes care. All physician course instructors are on the faculty of Harvard Medical School. Finally, detailers are also provided an opportunity to practice their newly acquired clinical knowledge on "standardized clinicians," licensed physicians role playing a variety of the challenges that might arise in actual visits. During these practice office visits, detailers are evaluated on their mastery of the clinical content, familiarity with printed materials, and detailing technique.

In addition to developing training materials for detailers, the Boston-based team also develops concise, provider-facing documents that serve as visual aids to reinforce the detailing messages. These tools are designed by a professional graphic designer and distill the clinical recommendations to focus only on the information that is most relevant and useful for a busy primary care provider, including a chart listing the average cost of all the agents discussed. The materials are professionally printed and used by the academic detailers during educational encounters with front-line clinicians. Final materials rely heavily on clinical flow algorithms, graphics, and icons, rather than on large blocks of text. Materials developed by Alosa Health are available at alosahealth.org [10].

One major objective of the 2019 diabetes detailing program was to communicate to practicing clinicians the important message that optimal pharmacologic management of type 2 diabetes has moved substantially beyond HbA1c control alone. The Boston-based clinical materials development team initially struggled with how to prioritize messaging regarding the cardiovascular benefits (and potential adverse events) associated with select GLP-1 receptor agonists and SGLT-2 inhibitors. Some members of the team felt that specific agents (e.g., liraglutide, semaglutide, empagliflozin, canagliflozin, and dapagliflozin) should have a more prioritized role in the clinical treatment algorithm given the strong RCT-level evidence demonstrating CV benefit, especially when compared with the relative paucity of trial-based evidence for macrovascular benefit among older second-line glucose-lowering agents. Other members, evaluating the same body of evidence including RCTs, observational studies, expert reviews/commentary, national and international guidelines,

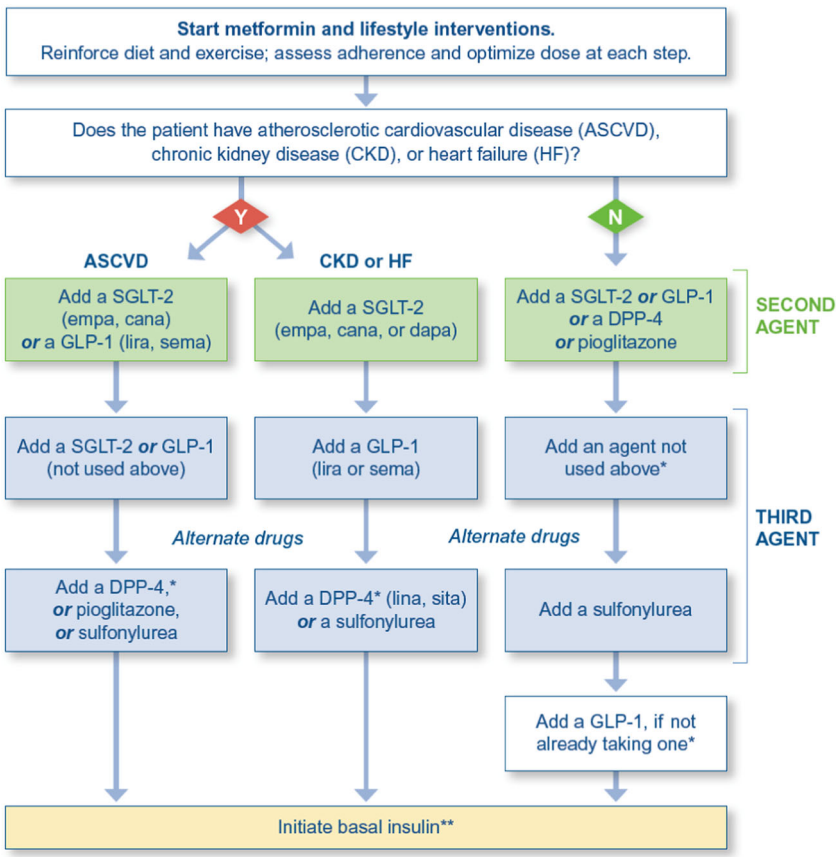
and meta-analyses, argued that these newer agents should be reserved primarily for patients most closely resembling those participating in the landmark cardiovascular outcome trials, namely those with pre-existing ASCVD, chronic kidney disease (CKD), or heart failure at baseline. Notably, these discussions occurred around the publication of the 2019 ADA/EASD Guidance and the ADA Standards of Care, but prior to the release of results from the REWIND trial [11], evaluating the CV effectiveness of dulaglutide for patients without pre-existing CVD.

Ultimately, the consensus among the materials development team was to present the recommendations on choice of second- and third-line agents along three tracks: one for those with pre-existing ASCVD, a second track for patients with known CKD or CHF, and a final track for the majority of patients with diabetes who typically present to primary care clinics (i.e., patients with type 2 diabetes but without pre-existing ASCVD, CKD, or CHF at baseline). Figure 1 shows an example clinical algorithm with these three tracks developed in early 2019 for selecting glucose-lowering medications when lifestyle and optimized metformin have been inadequate for controlling blood sugar in a patient with type 2 diabetes.

At the time of writing, academic detailers in the IDIS program had completed diabetes-specific educational visits with 446 unique providers across 207 practices in Pennsylvania. Preliminary feedback from providers has been extremely positive. For example, among 81 completed post-visit surveys, mean provider satisfaction scores across questions ranged from 4.88 to 4.96 (scale from 1 to 5, with 5 indicating the highest level of satisfaction). Qualitatively, many providers expressed enthusiasm for the updated clinical algorithms. One physician stated that she would use the cost list and a chart on safety and efficacy of the various medication options during patient visits to help with shared decision-making. Another reported finding the information regarding cardiovascular protection of certain medications to be extremely useful. Pennsylvania's academic detailing program for the management of type 2 diabetes will continue until Fall 2019, with the goal of visiting over 750 unique clinicians.

The Greater New Bedford Community Health Center

The Greater New Bedford Community Health Center (GNBCHC) is a safety-net patient-centered medical home providing comprehensive primary care services in the Greater New Bedford area, in southeastern Massachusetts.



* Avoid prescribing a DPP-4 and GLP-1 together.
** **Basal insulin can be initiated if needed at any point.**

Fig. 1 A clinical algorithm developed in early 2019 for the Pennsylvania IDIS academic detailing program for selecting glucose-lowering medications for patients with type 2 diabetes who have not reached their HbA1c goals despite lifestyle and optimized metformin. (Algorithm developed by Alosa Health, www.AlosaHealth.org, a nonprofit organization dedicated to improve patient outcomes by identifying and disseminating the best evidence available to support health care professionals in providing optimal care for their patients. Used with permission)

The Health Center employs approximately 30 clinicians and is part of a larger accountable care organization that tracks quality measures, including the proportion of patients with type 2 diabetes meeting HbA1c goals. In 2018, the GNBCHC implemented an academic detailing program to enhance clinician knowledge of lifestyle and pharmacologic management for diabetes and thus improve the care of its ~ 2000 patients living with type 2 diabetes, many of whom are low-income and covered by the Massachusetts Medicaid (MassHealth) program. The Health Center worked with Alosa Health to develop a tailored academic detailing program for type 2 diabetes management, employing 1 part-time RN as the academic detailer. The Health Center identified a site champion with responsibilities in quality improvement/population health management who helped refine the detailing strategy, facilitate provider scheduling and access, and who was active in both design and analysis of the baseline needs assessment and post-visit debriefings. Multiple detailing visits were completed with each of the 30 identified providers, with most visits occurring between August 2018 and January 2019.

Since the evidence review and clinical materials were conducted in early 2018 (i.e., prior to the December publication of the ADA-EASD guidelines) [8], the clinical algorithm for selecting second- and third-line agents was slightly different than that described above for the Pennsylvania IDIS program. In general, for patients with HbA1c < 9% despite optimized doses of metformin, diet, and exercise, the recommendation was to choose a SGLT-2 inhibitor or GLP1 receptor agonist with proven CV benefit for patients with established CVD and any of 4 drug classes (SGLT-2 inhibitors, dipeptidyl peptidase-4 inhibitors (DPP-4s), GLP-1 receptor agonists, sulfonylureas (SUs)) for patients without established CVD, with more detailed recommendations based upon whether hypoglycemia was a major concern (Fig. 2).

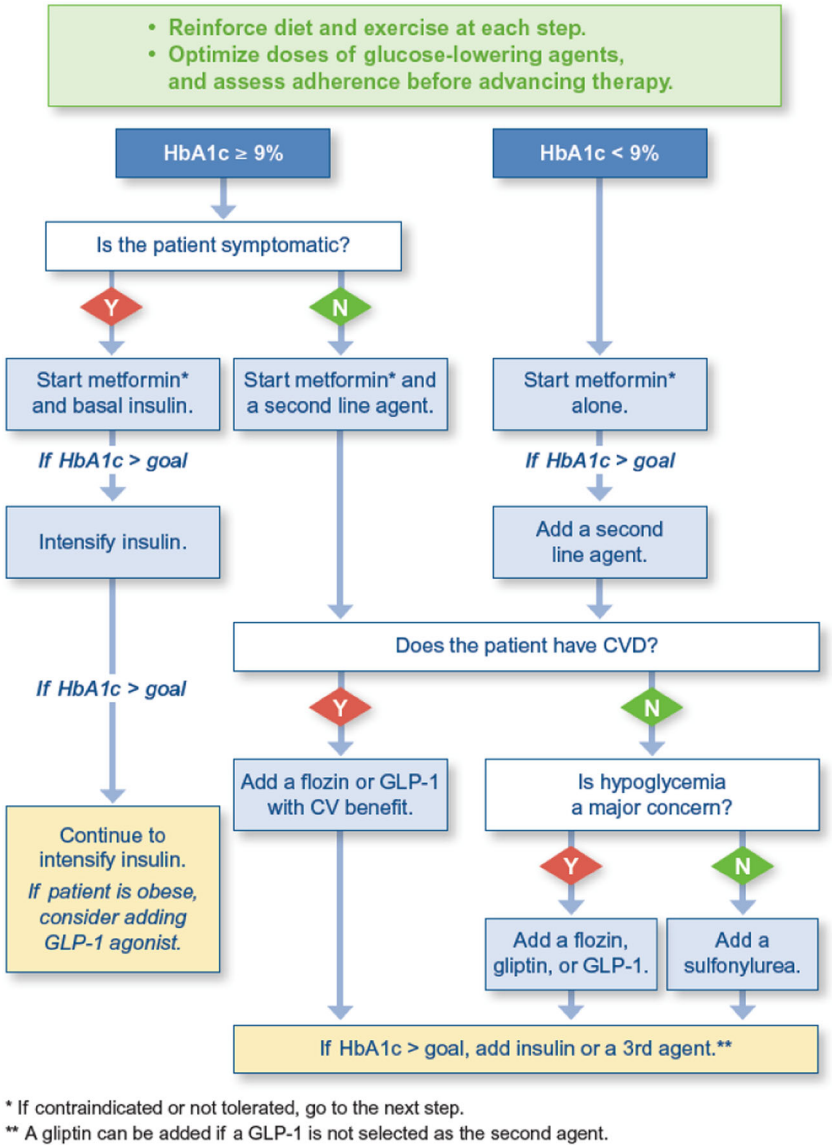


Fig. 2 A clinical treatment algorithm developed in early 2018 for the Greater New Bedford Health Center's diabetes-specific academic detailing program. (Algorithm developed by Alosa Health, www.AlosaHealth.org, a nonprofit organization dedicated to improve patient outcomes by identifying and disseminating the best evidence available to support health care professionals in providing optimal care for their patients. Used with permission)

Initial visits at GNBCHC consisted of meeting primary care providers (MDs, NPs, PAs), introducing the diabetes treatment algorithm and conducting a baseline needs assessment. Subsequent visits focused on more in-depth discussions of challenging patient scenarios or overcoming barriers to more effective management.

After the first round of visits, it became clear that one of the barriers to optimal pharmacologic management was an incomplete understanding among providers regarding who should complete prior authorizations for antidiabetic therapies. Some providers thought it was the responsibility of the on-site diabetes educator (it was not), while others thought it was the responsibility of the ordering provider. Another barrier was the fact that providers did not think they had enough time to complete prior authorizations and perceived the paperwork to be complex. To help address these concerns, Alosa Health developed a tip sheet with example wording for completing MassHealth prior authorizations for 4 classes of medications (DPP-4s, GLP-1 receptor agonists, SGLT-2 inhibitors, and insulin). Other deliverables for follow-up visits included a sheet describing how to initiate and titrate insulin, assessing medication non-adherence (reported by many providers as one of the great barriers to achieving glycemic targets), and managing hypoglycemia. Since many patients receiving care at the Health Center are often without stable housing and may not have continuous access to refrigeration during the summer, materials were developed to provide more accurate information about storage recommendations (e.g., 10–14 days when temp > 86 °F) for both opened and unopened insulin. Many patients treated at the Health Center are employed in the transportation and fishing industries requiring long periods of time (e.g., 1–3 weeks) away from their primary residence. Therefore, materials were developed to assist with this lifestyle and to help providers overcome perceived barriers to insulin initiation among patients who feared losing their license to work as commercial long-distance truck drivers.

Vermont Academic Detailing Service

The Vermont Academic Detailing Service has been providing clinical education services for primary care clinicians in Vermont for 20 years. Based in the Office of Primary Care at the University of Vermont, the program is supported through a tax on manufacturers participating in the Vermont Medicaid program. In part due to its longevity and the limited number of primary care providers in the State, detailers in the Vermont AD program have developed long-lasting relationships with their target clinicians. Clinical topics are chosen by the program's Advisory Board, including representatives from state agencies, private insurers, and legislators. Materials are developed in coordination with the faculty within the Office of Primary Care.

Vermont's AD program is currently in the process of updating its type 2 diabetes topic to incorporate changes from the most recently published ADA guidelines. Unlike the relatively simplified clinical treatment algorithm developed for the Pennsylvania program, Vermont's program uses the same 2019 algorithm developed by ADA/EASD. In addition, Vermont's updated topic includes information about contemporary blood pressure and lipid management for patients with diabetes, incorporating recommendations from the 2019 ADA Standards, the 2017 ACC/AHA BP, and 2018 ACC/AHA lipid guidelines [12–14]. Other topics and data in the materials will include Vermont-specific epidemiology, individualized HbA1c goals, metformin dosing among patients with renal insufficiency, state-specific insurance concerns, how to choose among second-line glucose-lowering therapies (incorporating recently published evidence regarding the newer classes of medications), and choice of first injectable therapy.

RxFiles (Saskatchewan Province, Canada)

Several Canadian provinces fund ongoing academic detailing programs. One of the larger programs, named RxFiles, began in Saskatchewan in 1997 and employs approximately 5 full time equivalent academic detailers. The not-for-profit service is funded by a grant from the provincial Ministry of Health. Additional revenue from sales of its comprehensive Drug Comparisons Charts allow for continuous updates to the resources. RxFiles' Drug Charts are available both as a printed book and digitally through the website (rxfiles.ca) and a mobile App. Related EBM Trial Summaries and other support tools are also available online. Like the Vermont- and Alosa Health-supported academic detailing programs, RxFiles does not accept any funding from pharmaceutical companies.

RxFiles Charts are extremely detailed, rating multiple drug classes along several domains side by side. For example, its Chart on anti-hyperglycemic diabetes agents in type 2 diabetes evaluates metformin, SUs, thiazolidinediones, meglitinides, DPP-4s, GLP-1 receptor agonists, SGLT-2 inhibitors, and insulin based upon their effects on death, major CV events, a1c, weight, hypoglycemia risk, heart failure/edema, GI tolerance, cost, and other considerations. The Charts give an overall rating for each drug class (or sometimes for individual drugs within a class), on a 5-category scale, ranging from advantage to neutral to disadvantage (with half steps in between). For diabetes treatments, RxFiles most recent Chart rates metformin as the only drug class that is overall advantageous followed by liraglutide, empagliflozin, and insulin, which are rated between advantageous and neutral. The Charts differ from the materials produced for the Pennsylvania, New Bedford, and VT programs in that they present drug classes side by side in a large table, rather than through a clinical flow algorithm based upon a patient's clinical characteristics or comorbidities.

Unique Aspects of Academic Detailing in Diabetes (Lessons Learned)

The experience from these case studies suggest that diabetes-specific academic detailing is different than that for other clinical topics. For example, one of the detailers in the PACE program reported that his diabetes-specific visits have been more didactic than with other clinical topics (e.g., hypertension, hyperlipidemia, and depression). For those other topics, while there was usually some back and forth discussion between the detailer and clinician, the detailing "ask" only slightly modified pre-existing clinical practice or behavior. For example, the detailer might have summarized the visit by asking for use of a specific drug first or to avoid a specific agent. The evidence highlighted during those visits may confirm what the practicing clinician was already doing. In these encounters, the clinician usually believes that he or she has a good handle of the disease area or clinical condition.

In contrast, the detailer-provider experience has been different for diabetes. Providers are reportedly more engaged despite the fact that the visits may be longer in duration. The detailer described feeling more like a teacher in a classroom where students are eager and willing to learn more.

A consistent theme across diabetes-specific detailing programs has been that clinicians are confused about when and how to use the newer pharmacologic agents. One PCP stated: "I use metformin and glipizide, or maybe a DPP-4 inhibitor. I know there are new meds [available], but I don't seem to use them too often, or don't know what to use." In some cases, the detailer noted that providers confuse individual agents across newer drug classes (i.e., confusing GLP-1 receptor agonists with SGLT-2 inhibitors) prior to receiving the educational encounter.

Another lesson learned was the fact that practicing clinicians are most interested in diabetes-specific information that is simple, clear, and grounded in practicality. For example, providers responded very well to color-coded clinical materials displaying the comparative effectiveness and safety of various classes of glucose-lowering medications, a figure displaying the comparative prices of glucose-lowering medications, and to information intended to streamline prior authorization requests from payors.

Conclusions

Recent evidence has resulted in dramatic changes to the pharmacologic management of type 2 diabetes. This body of knowledge has been incorporated in recently published, authoritative clinical treatment guidelines. Unfortunately, busy front-line clinicians often do not have time to keep up with the rapidly advancing science nor have they had time to comprehensively review frequently updated treatment guidelines. Many primary care providers continue to struggle with understanding when to initiate, use, or discontinue newer glucose-lowering medications. Academic detailing is a proven approach to improve clinician knowledge, practice, and familiarity with evidence-based prescribing with the goal of ultimately improving patient outcomes. Early lessons from 4 case studies of academic detailing programs in Massachusetts, Pennsylvania, Vermont, and Saskatchewan province suggest that this approach can be an effective way to overcome challenges to the evidence-based use of newer glucose lowering medications in primary care settings. Clinical materials can be developed in a way that is practical, accessible, informative and engaging to practicing primary care providers. Insurance-related, operational and administrative challenges do need to be taken into account when developing provider-facing educational interventions for type 2 diabetes in the US.

Compliance with Ethical Standards

Conflict of Interest Jing Luo, Michael A. Fischer and Sandeep Bains consult for Alosa Health. Jing Luo also receives personal fees from Health Action International.

Ellen Dancel and Paul Fanikos are employees of Alosa Health.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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- •• Of major importance

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