Finding Common Ground in the Use of Insulin Pens: Outcomes From A Patient-Provider Exchange of Barriers and Solutions

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Introduction

Physicians face multiple barriers when prescribing insulin therapy for T2DM patients; predominant among them is "clinical inertia," or "the recognition of the problem [of inadequate glycemic control] but the failure to act" (*Insulin*, 2006), referring to the reluctance to initiate or intensify insulin therapy. It is a leading factor in the failure to achieve therapeutic goals and avoid onset of complications. Similarly, physicians and patients may also experience psychological insulin resistance (PIR), which may make initiation and adherence to insulin therapy less likely.

Patient barriers to the use of insulin are typically present before its initiation and may persist throughout the course of the disease. Patients are commonly reluctant to begin insulin therapy because they are afraid of injections or because of concerns over complexity of therapy.

Clinical evidence demonstrates that insulin pens can provide tangible clinical benefits over the traditional vial and syringe method of administration. Insulin pens have been shown to be accurate and effective in patients with T2DM, and data suggest they contribute to increased patient adherence and satisfaction with treatment.

There is a clinical mandate to understand and address physician and patient factors that lead to clinical inertia and PIR and develop strategies to overcome those barriers, and to work collaboratively with patients to achieve optimal glycemic control. Members of the diabetes care team must be equipped to address those factors prior to insulin initiation and throughout the course of treatment.

Methods

Med-IQ developed and implemented a series of 18 live, interactive workshops designed to bring healthcare professionals and patients together to engage in a real-world discussion about their perceptions and barriers related to using insulin pens for the treatment of T2DM. This initiative sought to help clinicians formulate solutions that support appropriate initiation of insulin therapy with pens, develop effective communication strategies to help overcome PIR, reinforce patient and physician acceptance of this modality, and ultimately improve patient health outcomes.

The workshops were designed as interactive experiences that centered on a small group case-based discussions and dual perspectives of both healthcare professionals and local patients with T2DM.

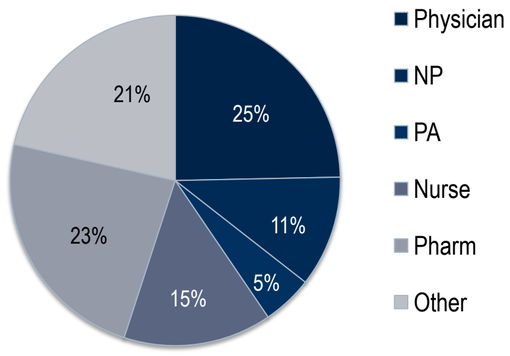
Patient education resources were developed and integrated into the faculty-led discussions so participants were afforded an opportunity to explore how to utilize these tools within their own practices on a routine basis. A CME-certified text-based activity was developed to reinforce workshop learning and extended the reach of the activity to healthcare providers across the US who treat T2DM patients.

Changes in knowledge, competence, and performance (self-reported) were evaluated using pre/immediate post/ 90-day post-activity surveys for the workshop series. The surveys included two confidence questions, three knowledge questions, three intent to change questions, and nine performance gain questions. Survey data from a limited sample of participants who completed the pre/immediate post/90-day survey were evaluated to assess immediate gains, retention, and longer-term gains in knowledge and competence and changes in performance. Changes in confidence and knowledge among online activity participants were evaluated using similar pre/immediate post-surveys including two confidence questions and three knowledge questions Results were considered statistically significant if the resulting chi-square statistic would have occurred by chance less than 5% of the time ($P < .05$).

Results

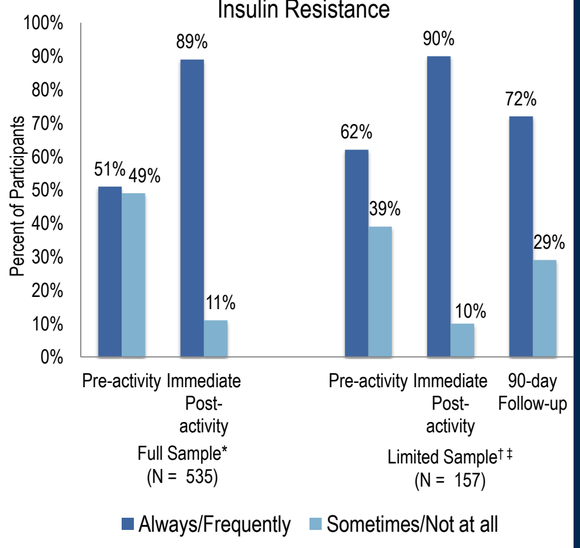
A total of 690 healthcare professionals participated in 18 workshops between March and December 2012. Participant demographics are shown in figure 1.

Figure 1. Workshop Participant Profession
N = 690



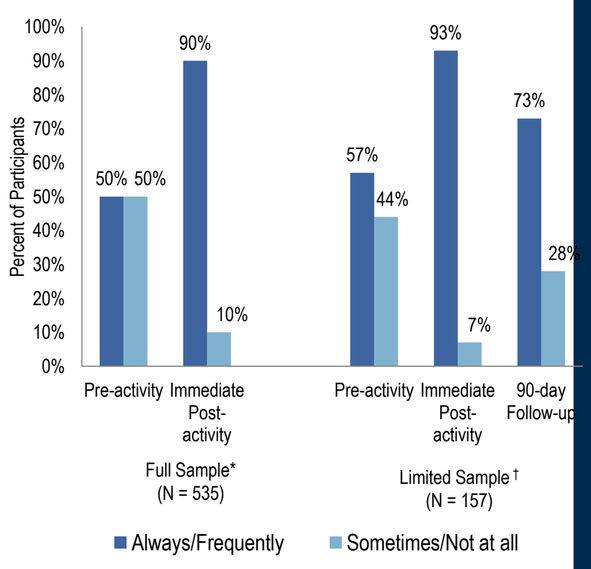
Of the workshop participants, 535 (77.5%) completed both a pre- and post-activity survey. A limited sample of participants completed the additional longer term follow-up survey (157; 29% of survey respondents). Changes in knowledge and clinical performance are shown in figures 2-5.

Figure 2.
Frequency Workshop Participants Evaluate or Intend to Evaluate Patients for Psychological Insulin Resistance



*$P < 0.001$ pre-activity to immediate post-activity comparison
†$P < 0.001$ pre-activity to immediate post-activity and immediate post-activity to 90-day follow-up
‡$P = 0.003$ pre-activity to 90-day follow-up

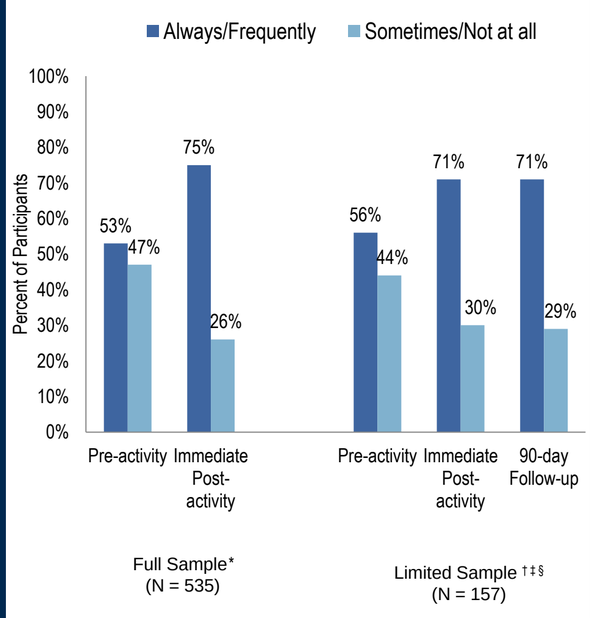
Figure 3.
Frequency Participants Address or Intend to Address Psychological Insulin Resistance



*$P < 0.001$ pre-activity to immediate post-activity comparison
†$P < 0.001$ pre-activity to immediate post-activity and immediate post-activity to 90-day follow-up, and pre-activity to 90-day follow-up

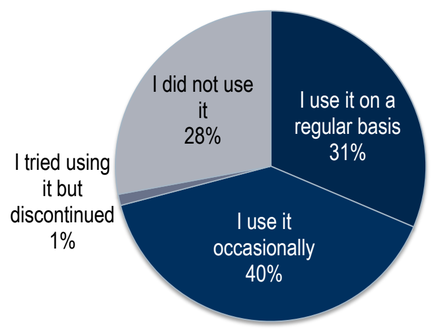
Results – Cont'd.

Figure 4.
Frequency Workshop Participants Consider or Will Consider Insulin Pen Therapy



*$P < 0.001$ pre-activity to immediate post-activity
†$P = 0.005$ pre-activity to immediate post-activity
‡$P = NS$ immediate post-activity to 90-day follow-up
§ $P = 0.003$ pre-activity to 90-day follow-up

Figure 5. Participants who Report Using Patient Education Handout Provided During Workshops



A total of 2993 learners participated in the online activity between June 2012-June 2013. Participant demographics are shown in figure 6. Pre- and post-activity survey data was evaluated for 217 participants (7.3%). Changes in knowledge are shown in table 1.

Figure 6. Online Activity Participant Profession
(N = 2993)

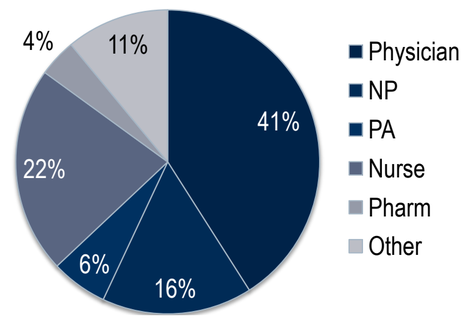


Table 1. Insulin Pens Barriers and Benefits: Knowledge Changes Among Workshop and Online Learners

	Benefits/limitations of pen therapy on T2DM management		Benefits/limitation of pen therapy on adherence		Clinician barriers to appropriate insulin initiation	
	Online Activity (N = 217)	Workshop (N = 535)	Online Activity (N = 217)	Workshop (N = 535)	Online Activity (N = 217)	Workshop (N = 535)
Pre-activity	25%	61%	28%	35%	39%	NA
Post-activity	38%	73%	16%	50%	65%	NA
P value	0.001	0.001	0.001	0.001	0.001	NA

Discussion and Conclusions

Discussion:
Clinicians participating in this initiative, who self-report caring for more than 92,783 patients with type 2 diabetes, demonstrate critical improvement in overcoming clinical inertia, including:

- Significant gain in percent of participants who recognize the need to frequently evaluate patients for psychological insulin resistance and demonstrate intent to implement changes in practice (51% to 89% gain in full sample; 62% to 90% gain in limited sample, $P < 0.001$ for both)
- A significant 10% increase in participants who self report always/frequently evaluate patients for the presence of PIR following participation in the workshop series (62% at baseline, 72% at 90-days post-workshop; $P = 0.003$)
- Significant gain in percent of participants who recognize the need to frequently address psychological insulin resistance and demonstrate intent to implement changes in practice (50% to 90% gain in full sample; 57% to 93% gain in limited sample, $P < 0.001$ for both)
- A significant increase in participants who self report that they always/frequently address barriers related to PIR following participation in the workshop series (57% at baseline, 73% at 90-days post-workshop; $P < 0.001$)

At baseline slightly over half of participants in both the full sample (53%) and the limited sample (56%) reported they 'always' or 'frequently' consider insulin pen therapy for appropriate patients with T2DM. Significantly more participants indicated that they intended to 'always' or 'frequently' consider insulin pen therapy immediately following the workshop (75% full sample, 71% limited sampled; $P < 0.001$ for both) and that gain was sustained in the longer-term follow-up period (limited sample 71% ; $P < 0.001$ compared to baseline).

The vast majority of workshop participants report using the patient education piece developed within this initiative at least occasionally (71%).

Learners in both the workshop series and the online activity showed significant improvements in knowledge regarding the benefits and limitations of insulin pen technology. However, there was a paradoxical decrease in knowledge among online activity participants related to adherence concerns with pen technology. This observation is likely related to a poor quality assessment question.

Conclusions:
Timely initiation and efficient optimization of insulin therapy is a critical component of successful management of type 2 diabetes for many patients. However, reluctance to initiate insulin by either the patient or clinician hinders optimal glycemic control and allows for an unacceptable risk for diabetes-related complications. This initiative sought to break down the barriers that prevent optimal integration and intensification of insulin therapy. The outcomes from our initiative demonstrate that a series of patient/provider exchanges led to critical changes in the historical clinical practices which perpetuate a cycle of clinical inertia and suboptimal glycemic control. Finally, the substantial clinician-reported use of the patient education piece designed within this initiative suggests a continued need for resources to support improved patient/provider dialogue about insulin.

Acknowledgments

The authors wish to acknowledge and thank: the American Association of Diabetes Educators (AADE) for assistance recruiting patient faculty, Ali Bennett , for project management; LaWanda Abernathy for participant recruitment; Mary Catherine Downes, Samantha Roberts, and Amy Sison for outcomes management; Kenny Khoo for data management; Marika Bonaguidi for IT assistance and Lisa Reinhart for editorial assistance.

Supported by an educational grant from Sanofi US.