

# Innovative Methods in Measuring Education Outcomes

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## Objectives

After viewing this poster, participants will be able to 1) Identify innovative research methods that can be used to measure educational outcomes, at both the physician and patient level; 2) Understand the key variables to consider when designing a patient level outcomes assessment (level 5); and 3) Learn how to use patient level data to measure an educational program's effectiveness in facilitating positive changes in physician practice performance as well as improvements in patient outcomes.

## Background

Since 2002, educational outcomes measurement has been a key component of Pri-Med Institute (PMI) educational activities. PMI's outcomes methodology has been refined during this time to measure Kirkpatrick's outcomes levels 1 through 4. The wave of the future for gauging and validating effectiveness of CME programs is the development of tools to measure patient level outcomes (level 5). Parallel outcomes measures can be used to assess whether gains in clinician confidence and competence as a result of CME are translated into better care of patients. In the long run, patient outcomes research will allow CME providers to tailor programs in ways that enhance benefits to both clinicians and patients.

Validated indicators including national epidemiology data, clinical studies, clinical practice assessments, and outcomes studies show that primary care practitioners need clinically-focused, evidence-based, real-world education to meet knowledge, performance, and patient-care gaps in type 2 diabetes. These gaps exist for multiple reasons, including a lack of current knowledge and performance in prevention, screening, diagnosis, and treatment.

More than 23.6 million Americans, or roughly 7.6% of the population, have diabetes,<sup>1</sup> with worldwide prevalence estimated to reach 380 million by the year 2025.<sup>2</sup> The economic costs associated with treating diabetes in the United States are estimated to be \$174 billion.<sup>2</sup>

## Collaborative Partnership to Develop Educational Initiatives and Measure Patient Outcomes

To address the unmet needs in clinical practice gaps in physicians' care of people with diabetes, Pri-Med Institute and the American Diabetes Association (ADA) formed a collaborative partnership to design an innovative multi-channel educational diabetes curriculum. The program used live educational interventions occurring in US cities selected for high prevalence rates of diabetes, increased incidence of people at risk for developing diabetes, and cities with greatest access to clinicians treating the diabetic population. Additional reinforcement was provided via twelve online activities posted at pri-med.com, radio broadcasts, and podcasts. Patient education materials were made available onsite to live program attendees. In addition, the program included innovative patient assessment surveys designed to objectively measure level 5 outcomes – the impact on patient health status resulting from changes in physician treatment strategies and performance.

## Program Design

The Pri-Med/ADA Diabetes In-Depth educational program was developed in collaboration with key thought leaders in the area of diabetes and related comorbidities. The program was centered on adult learning principles to maximize impact of the education. Two central tenets drove the design of the program: 1) that multiple interventions are required for behavior change, necessitating a curriculum approach; and 2) that interactivity through use of audience response systems (ARS) and case-based learning is critical to increasing the impact of education.

The live program was comprised of 10 case-based sessions created to permit the attendee to easily translate knowledge into competence in behavior and improved patient care.

## Methods

As an accredited provider with exemplary status in measuring program effectiveness, PMI has innovative mechanisms in place to perform outcomes measurements. The goal of PMI's outcomes initiatives has been to assess the impact of its CME activities on physician competence, performance, and patient care, as well as to identify barriers to behavioral change that may be targeted in future education.

To assess the impact of the 2008 Diabetes In-Depth CME program on clinicians and the patients they treat, Pri-Med Institute and the ADA launched a rigorous, multi-component outcomes research study: the 2008 National Clinician Study of Diabetes Care. This comprehensive study expanded upon PMI's robust, standardized approach to measuring outcomes. Using numerous research methodologies, the study employed quantitative research, qualitative interviews, and patient assessments to measure outcomes.

The quantitative research component included a 20-minute online survey

administered to physicians prior to the educational program. This survey was used to establish baseline measurements. The same survey instrument was distributed again six weeks after yielding the post education responses. The survey was designed and reviewed by clinical experts, market research experts, and clinical practitioners. Additionally, it was reviewed by Pri-Med Institute's external advisory board and faculty involved in the education.

The quantitative instrument included: three detailed patient-case vignettes reflective of different aspects of the educational content presented; more than 25 case-based clinical measures investigating clinicians' practical knowledge and treatment strategies when faced with a specific patient scenario; and over 15 measures of clinicians' attitude towards diabetes and their role in patient care and patient education. Results from the surveys fielded prior to and after the education were analytically compared to measure changes across a number of areas - focusing on competence, performance, and patient care impact.

In addition, these quantitative data were supplemented by a series of in-depth interviews conducted by a trained and experienced physician interviewer and designed to gather additional detail and qualitative insights regarding physicians' key learnings and practice changes. The qualitative research component included 20 telephone interviews about 30-40 minutes in length and were conducted among physician participants four weeks after participation in the program. The results from these interviews have been assessed and triangulated with the broader findings being reported but not included in this poster.

## Level 5 Patient Outcomes

The Pri-Med/ADA program also featured an innovative method of capturing level 5 outcomes to objectively measure the impact of patient health status resulting from change in physician treatment strategies and behaviors. The Patient Assessment study methodology included a 10-minute, print-based confidential patient survey of more than 30 health measures designed by healthcare consumer research professionals and clinical experts.

The survey was distributed by practice managers/administrative personnel to diabetic patients at the clinician practice following the patient visit. Patients of clinicians who had participated in educational activities comprised the "patients of attendees" group. Participating clinicians were recruited on-site at the Pri-Med/ADA live programs, or by invitation after their participation in the program had been verified. Additionally, PMI drew from its robust database of clinician practices to recruit into the Patient Assessment study physicians who had not been exposed to the educational program and their patients. These physicians' patients comprised the "patients of non-attendees" control group.

Each patient survey was uniquely coded with an alphanumeric identifier to enable appropriate categorization and ensure data reliability. Surveys were handled by a third-party data tabulator, to preserve patient anonymity. Nominal incentives were provided to patients and clinicians for their participation. The Patient Assessment study explored the impact on patients of key educational messages to which clinicians were exposed during the educational program. In specific, the patient study: examined patients' experience at the point of care with their primary care practitioner; assessed how clinician behaviors impacted patients' knowledge and perception of their condition; and investigated changes in patients' health and health behaviors.

Results gathered from patients of attendees and non-attendee clinicians were analytically compared to assess differences in care provided by physicians – and correlated differences in patients' attitudes toward treatment and management of their condition; awareness of key measures and metrics; and involvement in their own condition management.

## Results

### Number of Participants

In 2008, 4193 physicians attended the live, on-site educational programs. In addition, 447 patients completed patient assessment surveys. Of those, 157 comprised the "patients of non-attendees" control group; 290 comprised the "patients of attendees" group.

### Patients Seen per Week

Overall, the participants reported seeing an average of 74 patients per week. Of those, 33% of the patients were reported to have diabetes, or approximately 25 patients with diabetes per week.

### Markets Included in the Studies

The live educational sessions were carried out in the following U.S. cities: Baltimore, Maryland; Boston, Massachusetts; Jacksonville, Florida; Dallas, Texas; Rosemont, Illinois; Pittsburgh, Pennsylvania; Tampa, Florida; Kansas City, Missouri; San Diego, California; Houston, Texas; Phoenix, Arizona; and Nashville, Tennessee.

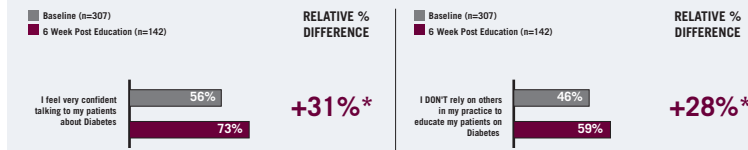
## Results

### Clinical Outcomes Reveal Changes Among Physicians

Physician responses gathered from the quantitative clinical outcomes research studies fielded before and after the educational intervention were compared analytically. Results revealed consistent changes across numerous attitudinal and behavioral measures related to clinicians' roles in providing diabetes-focused patient education at the point of care. Some key changes are highlighted below:

Figure 1

#### Attendees Report Increased Confidence And Self-reliance In Providing Patient Education

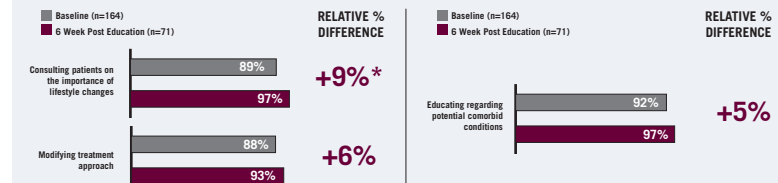


Source: Pri-Med Quantitative Clinical Outcomes Study, November 2008  
 \* indicates a statistically significant difference (p<0.05)

All clinicians were posed a battery of attitudinal questions related to their perceptions of the physician-patient interaction at the point of care. Consistently, physicians who had attended the education revealed higher comfort levels with speaking to and educating their patients about Diabetes. As Figure 1 exemplifies, clinicians' confidence in speaking with patients about Diabetes increased a relative 31% after the education. In addition, their levels of self-reliance regarding patient education on diabetes increased by 28%.

Figure 2

#### Nearly All Attendees Accept Patient Counseling As A Primary Patient Management Responsibility



\* indicates a statistically significant difference (p<0.05)

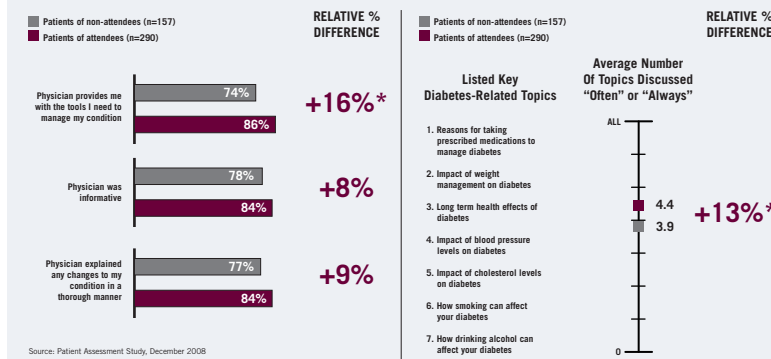
Primary care physicians were specifically asked to identify what they considered to be their primary responsibilities when managing a patient with Diabetes. As Figure 2 depicts, nearly all (97%) primary care physicians who had attended the educational intervention acknowledged that counseling on the importance or lifestyle changes and patient education were fundamental responsibilities.

### Parallel Patient Assessment Examines Resulting Patient Impact

Patient responses gathered from the Patient Assessment study fielded among the practices of attendee and non-attendee physicians were likewise compared analytically. On measures specifically designed to examine the physician-patient interaction at the point of care, patients of attendee clinicians revealed consistently higher levels of patient education and discussion provided by their physicians than patients of non-attendees. Similarly, patients of attendee clinicians benefitted from these deeper physician-patient interactions exhibiting more positive outlooks regarding their condition and more active involvement in their own health management.

Figure 3

#### Patients Of Attendees Indicate Deeper Physician Discussions Across A Wider Range Of Diabetes Topics

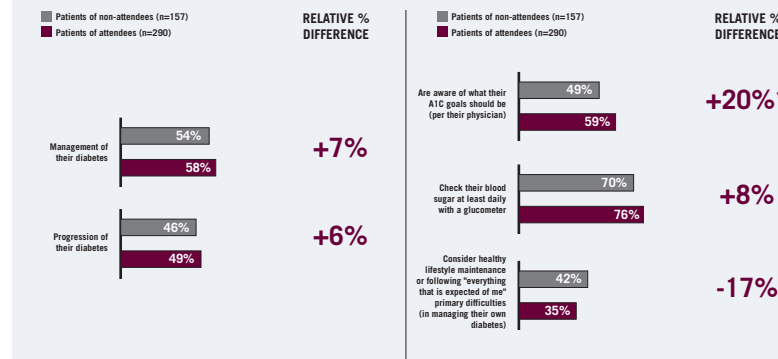


Source: Patient Assessment Study, December 2008  
 \* indicates a statistically significant difference (p<0.05)

All patients were asked via a battery of attitudinal questions to indicate their perception of the quality of physician-patient interaction that occurred at the point of care during their most recent visit. They were also provided a list of commonly discussed topics related to comorbid conditions and lifestyle management, and asked to assess the breadth of communication and frequency with which they discussed these topics with their physician. These statements were designed to provide parallel measures posed in the clinician quantitative study related to physician-patient communication and breadth of topical discussion. This parallelism enables validation of clinicians' reported behaviors from patients' point of view. As Figure 3 indicates, patients of clinician attendees reported more informational discussions with their physicians and greater provision of health management tools than patients of non-attendees. In addition, they indicated more frequent discussion with their physician across a wider range of critical diabetes topics.

Figure 4

#### Patients Of Attendees Exhibit More Positive Mindset And Active Involvement In Their Own Health Management



\* indicates a statistically significant difference (p<0.05)

To further assess the impact of the most recent clinical visit, Pri-Med Institute also asked patients to gauge their own health status and to provide insights on their own health management. As depicted above, patients of attendee clinicians were consistently more likely than non-attendees' patients to indicate they felt "better" regarding the management and progression of their diabetes. Similarly, patients of attendee clinicians – who had benefitted from higher quality interactions with physicians than their counterparts – reported consistently greater awareness and active involvement in managing their own health. For example, these attendees' patients were 20% more likely to be aware of their A1C goals; and 8% more likely to self-monitor their blood sugar daily or more.

## Discussion

In this poster, we examined the design, implementation, and evaluation of a multi-channel CME curriculum produced via a collaborative partnership. Both quantitative and qualitative outcomes measurement fielded around the curriculum has shown that this clinically focused, evidence-based, real-world educational initiative has positively impacted physicians' confidence in treatment, competence, and practice performance.

Out of the numerous clinical behaviors assessed among clinician respondents in the outcomes surveys, Pri-Med Institute focused in on aspects of the physician-patient interaction – an identified gap in clinician performance and a key educational message. By examining, via the Patient Assessment study, patients' perceptions of the communication they received from their clinician at the point of care, Pri-Med Institute was able to gather reliable parallel insights from diabetics patients that validated self-reported changes in physician competence and performance identified in the quantitative clinician study.

In addition, patient results indicate that these improvements in communication apparent among the attendee clinician group, ultimately, are correlated with more informed patients and patients more likely to take steps to actively manage their own condition effectively. Such patient behaviors not only impact personal health, but could also ultimately mitigate issues related to treatment regimen compliance and reduce the enormous costs associated with diabetes.

These findings help demonstrate how physician participation in CME curriculums has a positive impact on clinical behaviors – and, ultimately, patient treatment and health status. Outcomes research methods can, and should, be used to help refine future education in a therapeutic area. CME providers must continue to design level 5 outcomes measurements to better understand how their programs impact both clinicians and their patients.

## Future Directions

Based on our findings, it is clear that the future of CME activities lie in educational curriculums that are measurable in their impact on both physicians and their patients. For CME providers, innovations in assessment of patient outcomes are critical are further means of measuring effectiveness of CME. Patient assessment tools, such as the survey used here, provide a good starting point for ongoing innovation in CME design and implementation. In the future, other tools, such as comparative analysis of clinical data from electronic medical records, should also be addressed and possibly incorporated into patient outcome measurements.

## References

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## Acknowledgements

The authors would like to acknowledge the following organizations for their financial support  
 Abbott, Amylin Pharmaceuticals, Inc. and Eli Lilly and Company, Novo Nordisk Inc., Takeda Pharmaceuticals North America, Inc., and Merck & Co., Inc.

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Note that for results based on samples of these sizes (449 clinicians; 447 patients), there is a 95% confidence that both sets of results have a statistical precision of ±4.6% of what they would be if the entire respective audiences had been surveyed. Alternately, there is a 95% probability that the "true" value of the population of interest is within the margin of error (+/- 4.6%) observed in the survey results.