

Supplementary Online Content

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eAppendix. EPIC Intervention Description

This supplementary material has been provided by the authors to give readers additional information about their work.

APPENDIX

EPIC Intervention Description

Once participants were randomized to either the EPIC or traditional educational interventions, research personnel assigned them to cohesive groups of 5 to 7 members. Membership in a group was consistent for the full intervention period for both the EPIC and traditional education interventions.

The EPIC intervention groups met once every three weeks for four sessions, covering the three-month time span. All sessions were structured to a one-hour group session format, broken down into three components. They began with a 20-minute didactic discussion pertaining to the topic of the session, followed by a 20-minute problem-based group discussion, and then a 20-minute group discussion about personalizing the topic into one's daily routine. After the group session, the participants took turns meeting with the study clinician individually for 10 minutes each. Meanwhile, participants were encouraged to discuss the relevant session topic with each other. Peer discussions helped to prime individual discussion with the study clinician. Each of the four EPIC intervention sessions focused on a particular theme related to diabetes self-management and used materials contained within a workbook given to all participants at the start of the first session. Sessions were organized along the following order and content.

Session 1, the Diabetes ABCs:

This initial session focused on teaching participants the importance of monitoring their Hemoglobin A1c, blood pressure, and cholesterol levels. The session began with a 20 minute clinician-led discussion starting with introductions, elicitation of participants' expectations for the

intervention, and brief descriptions of all four sessions. The study clinician encouraged participants to describe their goals for their overall health and their diabetes-related concerns, e.g., health risks, anxieties directed at treatment outcomes, expectations of care, etc. Next, the clinician led a 20 minute problem-based group discussion about the patient's role in monitoring the control of their diabetes. The Diabetes ABCs were introduced, specifically how changes in the ABCs impact overall health. Session handouts (from the participants' workbook) included the diabetes "forecast"--a form relating diabetes control status to a weather forecast. The diabetes forecast gave context for clinicians to illustrate how the levels of particular Diabetes ABCs relate to future health risks. Case examples of patients (with sunny, partly sunny, and stormy forecasts of diabetes control) were introduced and reviewed to convey the link between patient's health behaviors and their level of diabetes control and future health risks. The final 20 minute discussion transitioned to each participant's individual case using the forecasts. Participants then set a personal goal for their diabetes HbA1c level, which served as a framework for guiding goal setting in the subsequent session. Peer discussions focused on comparisons of participants' current forecasts, prior levels of diabetes control, and ideas about how to improve forecasts.

The group discussions were followed by the one-on-one discussion with the study clinician. Clinicians reviewed the treatment plan described in the medical record by the patient's PCP, and elicited patients' experiences implementing the treatment plan into their daily lives. Participants discussed their preferences for lifestyle changes and home monitoring behaviors, and their perceptions of and adherence to medication regimens. Study clinicians integrated this information into collaborative goals with participants. These goals and action plans were then placed in the medical record so PCPs could review results as well. In cases where participants were experiencing adverse events or side effects to medications, study clinicians could change a medication type or dose and inform the PCP with an electronic alert.

Session 2. How to make Diabetes Goals and Action Plans

The purpose of this session was to expose participants to the basics of goal-setting theory and assist them in developing discrete action plans to achieve their broader diabetes goals. Clinicians spent the first 20 minutes of the group describing the characteristics of a high versus low quality goal. Discussion of goal-setting theory was kept succinct and guided by the participants' workbook to ensure that everyone could easily grasp the key points. Adherence to the following principles increases the chances of goal achievement, and thus, positive health outcomes:^{18;19}

- 1) High quality goals are specific with measurable steps that help to track progress and goal achievement. Avoid vague or ambiguous goals that do not lead to goal attainment.
- 2) High quality goals are challenging yet realistic. Challenging goals motivate participants to work harder toward goal accomplishment, but avoid setting unreachable standards.
- 3) Setting deadlines for goal achievement is recommended. There should be both short and long term deadlines with opportunities for reflection and feedback regarding progress.

In the 20 minutes following the educational lecture, participants reviewed case examples of diabetes goals and action plans. Through peer discussion, they rated the quality of the goals in the case examples and their likelihood of improving overall diabetes control. The last 20 minutes of group discussion involved completion of an action plan worksheet. Worksheets guided participants in the process of setting individualized, high quality goals and action steps. These worksheets were reviewed by the group to ensure that each goal met the criteria described above.

During the one-on-one discussion, clinicians challenged participants to reshape their PCP's treatment plan into a set of diabetes goals, each with an action plan. In most cases, goals focused primarily on diet and exercise changes, home monitoring of blood sugar and medication effects, and communication with PCPs about medication effects. Patients also developed goals about sleep, pain, and other barriers to diabetes self-management. In addition, medication regimens were revisited in such a way that medication adherence and monitoring were adapted into goals and action plans. Clinicians could recommend changes to medication types and dosages, and responses to those recommendations were driven by each participant. Participants either

developed action plans to discuss changes with their PCP or collaboratively set an alternative medication action plan with the study clinician. In both cases, study clinicians sent a research note to the PCP along with an alert if the medication regimen was changed.

Session 3, How to Talk to Your Doctor

This session emphasized the importance of effective doctor-patient communication, and encouraged participants' active involvement during clinical encounters. Sessions began with a 20-minute segment in which participants viewed a video of an idealized doctor-patient encounter. Following the video, participants identified the specific communication elements within the encounter that made it effective. The study clinician encouraged participants to 1) ask questions to become better informed about the treatment plan and positive and negative outcomes of recommended treatments; 2) be prepared for their visit by setting goals for the encounter, knowing their medical history, writing down topics they want to discuss, taking notes during the visit, sharing all relevant information, prioritizing needs, and having a family member or friend present to listen to the conversation; and 3) communicate their health concerns to their clinicians, including expressing their preferences, beliefs about a healthy lifestyle, and questions concerning medications and side effects.²⁰ For the 20 minute case discussion, participants were given "tip cards" describing these doctor-patient communication principles. Participants discussed their experiences using elements from the tip card with clinicians. In the final 20-minute group discussion, participants made a communication action plan guided by the tip cards and peer discussions. Again, following the group session, one-on-one discussion between participants and the group clinician were conducted for 10 minutes each. Study clinicians reviewed participants' progress with their goals and action plans, and assisted participants in making refinements to action plans. Goals and action plans in this session focused on the full spectrum of diabetes self-management including barriers and facilitators of action plan success. In particular, action plans related to communicating with PCPs about self-management were developed.

Session 4, Action Plan Feedback & Review

The objective of this session was to reinforce and integrate the points delivered during the three prior sessions. Participants assessed their individual progress toward goal achievement through peer and clinician delivered feedback. The 20-minute didactic portion of the session recapitulated the topics of the three prior sessions to strengthen participants' grasps of the important concepts and clear up any remaining questions. For the case based 20-minute group discussion, participants were asked to write down their current diabetes goal and action plans with particular attention to goal quality. Discussion then focused on peer evaluation of goals and action plans, especially their expectations that goal attainment would lead to improvements in personal Diabetes ABCs Forecasts. During the final 20 minutes, participants were encouraged to schedule a future appointment with their PCP to review progress towards diabetes goals and receive feedback on action plans. Participants received a "treatment plan" form intended to facilitate shared decision-making about diabetes goals with PCPs. The treatment plan form used the same formatting as the worksheets in session 2 that guided the development of action plans. Participants placed all their active diabetes goals and action plans onto this treatment plan form after receiving peers' comments.

During the final one-on-one consultation, study clinicians provided participants with feedback on the self-management goals and action plans described on the treatment plan form. Study clinicians sent a research note to all PCPs describing the final self-management goals and action plans articulated by patients.

Training of Study Clinicians for EPIC Intervention

Training of study clinicians consisted of 1) a discussion introducing the objectives and approach of the EPIC intervention, 2) review of the contents of the participants' workbook used to facilitate peer discussion, and 3) running a pilot group clinic session and receiving feedback from an experienced group clinician. Study clinicians were introduced to the EPIC study method and objectives by

contrasting the typical clinician-centric approach to self-management with a patient-centered or patient empowerment approach to self-management.²⁵ This seems like common-sense, but is often overlooked by potential clinicians. The oversight is explained by the fact that most clinicians do not understand why titrating medications does not correlate directly with improved diabetes care.²⁵ EPIC is based on the premise that self-management is a means to integrate medical treatment plans with patients' goals, and then adapt those goals into everyday action plans. In this way, self-management ensures patients' mastery of the principles of diabetes care, implementation of collaboratively set treatments, communication of challenges, receptiveness to feedback, and eventually the initiative to adapt action plans without excessive assistance. Once patients are willing participants in this process, changes in medications (along with lifestyle changes and home self-monitoring) can result in better diabetes outcomes.²⁸ Next, training of clinicians involved walking through the materials contained in the intervention workbook. Particular attention was paid to empiric evidence defining high quality goal-setting and its association with goal-attainment,^{18;19} as well as the evidence linking effective doctor-patient communication and improved health outcomes^{9;20}

For the final training step, study clinicians led a "pilot" group session with clinic patients followed by a de-briefing to review strengths and weaknesses of the clinician. Comments to novice clinicians centered on 1) facilitating group discussion and 2) eliciting personal experiences of participants. These skills encouraged

patients' active mastery of the study objectives instead of relying on a passive classroom approach. Clinicians were ready to lead a session once they achieved a strong grasp of the intervention workbook and became comfortable leading a group clinic session.