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Review

# Goal-setting for behavior change in primary care: An exploration and status report

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ABSTRACT

*Objective:* This paper explores the behavior change method of goal-setting and reviews the literature on goal-setting in primary care for patients with chronic conditions.
*Methods:* A literature search was conducted resulting in eight articles meeting the criteria of goal-setting interventions in primary care for adults or adolescents with chronic conditions.
*Results:* Hypotheses are advanced that goal-setting is generally conducted by collaboratively working with patients to set short-term and specific goals, with follow-up to provide feedback to patients. The articles reviewed generally confirmed these hypotheses. This review did not focus on clinical outcomes, but on the processes of engaging patients in goal-setting discussions.
*Conclusion:* Evidence that goal-setting is superior to other behavior change methods has not been shown. Since goal-setting is being utilized as a behavior change technique in many primary care sites, primary care practices can benefit from information on how best to implement this innovation.
*Practice Implications:* Generally, clinicians are minimally involved in goal-setting discussions with their patients. Engaging patients in goal-setting can be done with interactive computer programs and non-clinical members of the primary care team.



Of the 2.3 million deaths in the US in 1998, 400,000 were associated with tobacco, 300,000 with diet and physical inactivity, and 100,000 with alcohol [1]—all modifiable human behaviors. Seventy-seven percent of the US adult population engage in a low level of physical activity, 58% are overweight, 23% use tobacco [2], and 53% have more than one of these risk factors [3]. However, physicians inconsistently provide health behavior change advice to their patients. From 1992–2000, diet and physical activity counseling took place in fewer than 45% and 30%, respectively, of primary care visits by adults with coronary heart disease risk factors [4]. Physicians in primary care seldom have time to engage in such discussions and may be unsure how to discuss behavior change with their patients [5,6].

New methods of assisting patients to improve health-related behaviors are being developed and used in primary care. These new methods – an overlapping array of techniques – include assessment of readiness to change, motivational interviewing, shared decision-making, the "5 As", and collaborative goal-setting.

This paper explores one element in the cluster of behavior change innovations: goal-setting. The purpose of the paper is to offer a status report on goal-setting in primary care: what is the theory behind goal-setting, what are some hypotheses regarding goal-setting for health behavior change, and how does the literature on goal-setting in primary care elucidate these hypotheses.

## 1. What is goal-setting?

Collaborative goal-setting for health behavior change is a process by which caregiver and patient agree on a health-related goal. The goal could be general (losing 10 pounds, exercising more, or reducing stress) or specific (drinking water rather than coca-cola, walking for 15 minutes four times a week, or attending a weekly yoga class to reduce stress). Specific goals are called action plans, which involve caregivers and patients agreeing on a concrete course of action to move the patient toward the more general goal. Ideally, action plans include what, when, where, and how often; for example, walk 1 mile to work every Monday, Wednesday and Friday, starting next Monday. Goal-setting is generally performed in a collaborative manner, negotiating goals and action plans with patients rather than telling patients what their goals should be.

Goal-setting and action-planning have become integral parts of many primary care improvement projects. The Health Disparities Collaboratives, sponsored by the Federal Bureau of Primary Health Care and involving hundreds of federally qualified community health centers, encourage health centers to report on behavior change goals agreed upon by patients; many health centers engage patients in action plan discussions [7]. The Chronic Care Model, a widely adopted guide to improving chronic care, includes as a

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central component self-management support which often involves goal-setting and action-planning [8]. The Chronic Disease Self-Management Program, pioneered by the Stanford Patient Education Research Center, involves patients making behavior change action plans in a group [9]. Two academic chronic care collaboratives and other ambulatory care quality improvement projects involving hundreds of primary care practices train their participants in goal-setting and action-planning. Web-based patient self-management support modules prompt patients to make action plans. Motivational interviewing, taught at a growing number of health professional schools, includes goal-setting as one of its components. The US Preventive Services Task Force, American Diabetes Association, American Association of Diabetes Educators, and American Heart Association all advocate goal-setting as one component of health promotion and chronic disease management.

As goal-setting and action-planning spread more widely in primary care settings, it becomes important to consider the question: what is the status of the evidence regarding the effectiveness of goal-setting/action-planning in improving healthy behaviors and clinical outcomes compared with the more traditional model of physicians, health educators, and other caregivers giving unidirectional advice to patients?

At this point in the evolution of goal-setting, it is challenging to perform a rigorous evaluation of this clinical innovation. Goal-setting is done in many different ways, is provided with different levels of intensity, and is often combined with other quality improvement innovations, making it difficult to design formal goal-setting studies. Moreover, some individual clinical staff members are more effective in collaborating with patients than others, resulting in the likelihood that goal-setting studies would be positive or negative based not only on the nature of the intervention, but also on the quality with which the intervention is carried out. The discussion of goal-setting presented here, then, is informal and explorative. First the theory behind goal-setting will be reviewed, some hypotheses will be presented, and the hypotheses will be explored through the goal-setting literature in primary care.

## 2. Methods

We conducted a search for articles that related to goal-setting interventions/action-planning for promoting behavior change using MedLine and the Cochrane Library databases to identify primary articles published in English. The focus was to identify articles in which: (1) the goal-setting intervention took place in a primary care practice or clinic; (2) goal-setting was the principal or only intervention and not an ancillary component of another intervention; (3) the goal-setting intervention was focused on adults and/or adolescents; (4) the study was published between 1995 and 2008; and (5) patients who were engaged in goal-setting had a disease requiring self-management activities or were in some other way determined to be a 'high risk' population, for which clear benefits associated with behavior change were likely to occur (Table 1). We excluded studies of goal-setting interventions that took place in community or specialty venues, focused on young children, were broad interventions of which goal-setting was only a small part, and those that did not address a chronic condition.

**Table 1**
Description of selected goal-setting studies in primary care.

| Study | Study details | Outcomes |
|---|---|---|
| Glasgow et al. [23] | 206 adult patients with diabetes were recruited in two primary care clinics and prior to an office visit were randomized (at the clinic level) to receive either touch screen computer assisted assessment for dietary behavior with action plan counseling and follow-up, or computer assisted assessment for dietary behavior (specifically dietary fat intake) followed by usual care, on the day of a scheduled primary care visit. The action-planning was done with an intervention staff member immediately following the regularly scheduled primary care visit. An office-based follow-up assessment was completed after three months. | Changes in self reported dietary behavior, satisfaction serum cholesterol and hemoglobin A1c. Three-month changes were significant for fat intake (fewer calories from saturated fat, fewer high-fat eating behaviors), serum cholesterol levels and satisfaction, but not hemoglobin A1. Intervention patients were more likely to meet general recommended guidelines regarding the percent of total daily calories from fat, and reported a decrease in daily fat intake of over 150 kcal. |
| Pill et al. [24] | 252 patients with diabetes in 29 clinics were recruited in a cluster randomized clinical trial (15 primary care practices were randomized to the counseling intervention and 14 to control) assessing the impact after 9–18 month follow-up of negotiated individual care plans conducted during primary care visits. Clinicians received at least two training sessions and study nurses provided on-going support. Changes in diabetes-outcomes including self-reported behaviors, health/well-being, and clinical outcomes were investigated. Clinicians in the intervention arm were also surveyed at follow-up. | 228 eligible patients were enrolled of whom 77 (81%) patients in the intervention arm and 95 (93%) in the control arm were interviewed at both baseline and follow-up. Few differences were found for patient outcomes. Intervention patients were more likely to initiate behavior change discussions. Although clinicians initially adopted the intervention, many reported that it was not sustained at two year follow-up (19% of practitioners still using the intervention) and analyses suggested that it was difficult to fully implement in practice. |
| Calfas et al. [25] | 173 adults with BMI score between 21 and 29 were recruited from four primary care settings and completed a computer assisted behavioral assessment followed by a behavioral intervention (PACE +) focusing on five behaviors based on accepted guidelines before a routine visit. The computer generated a printed action plan with one nutrition and one physical activity targeted behavior selected by the patient and the plans were then reviewed during the primary care visit with the clinician. Patients were then randomized to receive different levels of follow-up: mail only, infrequent phone and mail and frequent phone and mail (up to eight weekly phone messages and counseling) over four months. | Improvements in all five behaviors, patient and provider satisfaction, and differences between mode of follow-up (phone or mail) and frequency (1–3 times or weekly over the four months) were reported. Patients reported improved behaviors in all five areas, but greatest improvements were in the areas patients had selected for the action plan. There were no differences reported by mode of follow-up or follow-up intensity. Satisfaction levels were high in patient and provider reports. |
| Goldberg et al. [26] | 259 adult primary care patients with diabetes were randomized to either web-based computer-assisted SMS counseling with action plans or usual care as part of primary care visits over a six-month period. Clinicians and ancillary staff were briefly trained in using the computer programs for all patient care with additional models for the patient centered self-management support and action plan tools available in the intervention group. | Use of the SMS action plans at least once during the six-month intervention period for patients, levels of clinical staff use, and description of action plans. 9.8% of 132 intervention patients had one or more action plan sessions during the study period. The majority of use was by ancillary staff (26.3%) compared with physicians (3%). Frequency of session topics varied with: food/diet (33%), weight-loss (17%), exercise (17%), and foot care (11%) reported in the sessions. |

**Table 1** (*Continued*)

| Study | Study details | Outcomes |
|---|---|---|
| Estabrooks et al. [27] | 422 patients with diabetes were recruited through 30 primary care clinics to develop action plans by using an interactive touch screen computer assisted assessment in the waiting room prior to a routinely scheduled primary care visit. Patients first answered a brief assessment about their dietary intake and physical activity, and then made action plans by selecting a behavior change goal in one of three areas: physical activity, restriction of dietary fat, or increase in fruit and vegetables. An action plan was printed out and reviewed with a care manager from the practice. Follow-up involved a brief telephone call two weeks later, and a six-month repeat of the assessment. | 49% ($n = 210$ patients) chose to increase physical activity, 27% ($n = 112$) to reduce fat intake, and 24% chose to increase fruits and vegetables ($n = 100$). Patients reported significant behavior change improvements in the area they chose to improve, at six months. All patients reported reductions in fat intake at six months, regardless of the action plan focus area. |
| Patrick et al. [28] | Randomized clinical trial of 878 adolescent girls and boys aged 11–15 years recruited through six primary care clinics selected to represent normal healthy adolescents based on well-child visit appointments. Participants completed either the PACE+ intervention before a routine clinic visit, focusing on diet, physical activity and sedentary lifestyle behaviors to generate action plans that were reviewed during the visit by the clinician, or were given sun protection information, with 12 months of follow up counselling. | Outcomes in the PACE+ group that were improved relative to control included reductions in sedentary behavior, more active days each week, and a greater percent meeting recommended health guidelines. |
| Handley et al. [29] | 274 patients with coronary heart disease risk factors were enrolled into a descriptive action plan study in eight primary care clinics – four public and four private clinics. Patients coming to routine visits received clinician-directed behavioral counseling to make a collaborative action plan, in a self-determined area. Prior to a scheduled visit, patients completed behavioral assessments with a research assistant and then made an action plan for diet, exercise, medication, stress, smoking, or other topic selected by the patient, in collaboration with their primary care physician during the visit. Follow-up involved a brief telephone call 2–3 weeks later, and a six-month self-administered mail-in survey. | The proportion of action plans made during a primary care visit, description of self-determined action plans at baseline, and self reported recall and completion in regards to the action plan, at three weeks. Most patients (83%) made an action plan with their clinician during the primary care visit and primarily selected physical activity (38%) and dietary change focused plans (30%). Telephone follow-up (86% follow-up rate) indicated high recall of the specific action plan (92%) and 75% of those contacted reported successfully completing the plan in the 2–3 week period. |
| Corser et al. [30] | As part of a feasibility assessment of a shared decision-making (SDM) intervention in a primary care clinic, 58 patients with diabetes were assessed using a pre and post-intervention design regarding goal-setting behavior, perceived levels of empowerment, self-management, and diabetes knowledge as well as hemoglobin A1C, weight and blood pressure levels. The goal-setting intervention consisted of: (1) a patient decision-support workbook emphasizing goal-setting, mailed to participants and then reviewed in the primary care clinic with a research nurse on a separate day than a scheduled clinic visit; (2) a brief provider education session on collaborative goal-setting; and (3) a prompt to both patients and clinicians to engage in action-planning at the next and subsequent primary care visit (patients were asked to develop a diabetes-specific goal with their doctor at their next clinic visit and doctors were asked to initiate a goal-setting session with the use of a prompt sheet). Chart review was completed on enrolled patients four months before and after the intervention. | Post-intervention, 75.9% of patients had at least one diabetes-specific goal documented in their medical record, with 75 goals recorded for 58 patients over the study period. Exercising more frequently, lowering blood sugar and lowering dietary fats were most frequently documented goals. Diabetes knowledge and mean number of diabetes management goals were significantly increased after the intervention ($p < 0.001$). Results also indicated that patients viewed as less healthy were more likely to have a primary interest in gaining greater confidence to engage in SDM dialogues with clinicians. |

We used a combination of key words in our search strategy that included the following: behavioral health, behavior change, goal-setting, action plan, self-efficacy, chronic disease, self-management, patient education, self-care, primary care, negotiation, diet, exercise, physical activity, and nutrition. Secondary citations identified from the existing literature and five literature reviews [10–14] pertinent to the topic were reviewed to identify additional studies. In these articles, citations whose titles suggested that goal-setting or action plans were included in the intervention were identified. Forty-three primary studies were identified and reviewed, for which eight studies met the inclusion criteria for this review. The majority of excluded studies did not take place in primary care settings.

Based on two seminal reviews of behavior change theory that underlies the development of goal-setting in primary care [13,15], eight key components or principles that could be important for successful goal-setting were identified. These eight principles (Table 2) form the basis for the discussion of the articles.

## 3. Goal-setting theory

### 3.1. Workplace goal-setting

Serious study of goal-setting commenced around 1970 when Ryan introduced the concept that conscious goals affect action [16]. Until the 1990s, the field of goal-setting focused on such matters such as employee productivity in business enterprises. Research demonstrated that when managers set specific performance goals for employees, the employees did better than if they were simply asked to "do your best" [15].

A concept intertwined with goal-setting is self-efficacy [17]. Self-efficacy means confidence in being able to perform a certain task. An intuitive way of thinking about self-efficacy is "If you think you can do something, you will probably succeed; if you don't think you can do something, you will probably fail [18]." Self-efficacy is behavior-specific, as another simple aphorism points out: "I am 100% confident that I can get to work this morning, but I have zero confidence that I can climb Mt. Everest [18]." Self-efficacy can be measured by asking people a few questions about their level of confidence in being able to carry out a particular task; self-efficacy measures have been validated in a number of research situations, including measures that take only one or two minutes to assess [19].

A cyclical relationship exists between goal-setting and self-efficacy. When people achieve their goals, their self-efficacy goes up. People with higher self-efficacy set more ambitious goals than people with lower self-efficacy. In the upward cycle, the process of achieving goals increases self-efficacy which in turn stimulates the setting of higher goals. A downward cycle develops when people fail to meet their goals, causing self-efficacy to drop, leading to goal abandonment. Success breeds further success while failure leads to more failure [15].

**Table 2**
Goal-setting components.

1. Is the goal general or specific?
   Calfas: Specific
   Corser: General
   Estabrooks: Specific
   Glasgow: Specific
   Goldberg: Specific
   Handley: Specific
   Patrick: Specific
   Pill: Not discussed

2. Is the goal proximal (short-term) or distal (long-term)?
   Calfas: Proximal
   Corser: Distal
   Estabrooks: Proximal
   Glasgow: Proximal
   Goldberg: Proximal
   Handley: Proximal
   Patrick Proximal
   Pill: Not discussed

3. Is the goal assigned by the practitioner or set collaboratively between practitioner and patient?
   Calfas: Collaboratively
   Corser: Collaboratively
   Estabrooks: Collaboratively
   Glasgow: Collaboratively
   Goldberg: Collaboratively
   Handley Collaboratively
   Patrick: Collaboratively
   Pill: Collaboratively

4. Is one purpose of setting goals to build self-efficacy?
   Calfas: Not discussed
   Corser: Not discussed
   Estabrooks: Not discussed
   Glasgow: Yes
   Goldberg: Yes
   Handley: Yes
   Patrick: Not discussed
   Pill: Not discussed

5. Are patients asked how confident they are that they can achieve the goal?
   Calfas: No
   Corser: Not discussed
   Estabrooks: No
   Glasgow: Yes
   Goldberg: Yes
   Handley: Yes
   Patrick: No
   Pill: Yes

6. Did patients receive feedback on their performance in striving toward a goal?
   Calfas: Yes
   Corser: Yes
   Estabrooks: Yes
   Glasgow: Yes
   Goldberg: Yes
   Handley Yes
   Patrick: Yes
   Pill: No

7. Are patients who meet their goal given an external reward?
   Calfas: No
   Corser: No
   Estabrooks: No
   Glasgow: No
   Goldberg: No
   Handley: No
   Patrick: No
   Pill: No

8. Was the goal-setting conducted within the primary care clinician visit or separate from the visit?
   Calfas: Before and during the clinician visit
   Corser: Both separate from the clinician visit and during the visit
   Estabrooks: Before the clinician visit
   Glasgow: Immediately after the clinician visit
   Goldberg: During the clinician visit or conducted by non-professional staff
   Handley: During the clinician visit
   Patrick: Before and during the clinician visit
   Pill: During the clinician visit

Why does goal-setting affect performance? It directs a person's attention toward goal-relevant activities, it energizes people to perform better and with greater persistence, and it leads to the building of skills on how to achieve the goals [15].

Workplace goal-setting research of the 1970s and 1980s – focusing on managers setting goals for employees – found that two factors facilitating goal achievement were importance and confidence. People believing that achieving a goal is important, and people who are confident of their ability to achieve the goal (i.e. people with high self-efficacy for that behavior), perform better. Moreover, employees who receive feedback on their progress in reaching a goal perform better than employees who set a goal without receiving feedback [15].

Another finding of workplace goal-setting research is a distinction between proximal and distal goals. Employees given distal (long-term) goals do not perform as well as those given both distal and proximal goals (short-term goals that are steps toward distal goal achievement) [15].

Finally, goals can be assigned (ordered by a manager), set collaboratively (between manager and employee) or self-set (by the employee). Some evidence from the workplace literature suggests that performance does not vary according to how the goal is set [13].

### 3.2. Health-related goal-setting

The seminal paper of Strecher et al. brought goal-setting theory to the problem of health-related behavior change [13]. Strecher explores the similarities and differences between workplace and health-related goal-setting. On the one hand, the activity of assisting patients to adopt healthy behaviors is quite different from the process of managers setting goals for their employees; on the other hand, many workplace goal-setting findings translate to the health care arena. Goal-setting in regards to health care, however, has not been studied as thoroughly as workplace goal-setting.

Health behavior change goals are generally not central life goals; in fact, health-related goals often conflict with other life goals. For example, a goal to spend 30 minutes a day exercising may conflict with the goal to be a successful surgeon, which may require a 16-hour workday. Because health-related goals are generally secondary in importance to other life goals, motivation to reach those goals may be of a weak and vacillating nature.

If the findings of workplace goal-setting could be translated into health behavior change, the following set of hypotheses might emerge:

1. General vs. specific: It is hypothesized that patients asked to set specific healthy behavior goals would be more successful than patients asked to "do your best."
2. Proximal vs. distal: Perhaps the most important lesson from workplace goal-setting research is the distinction between proximal and distal goals, with people setting both proximal and distal goals performing better. If this holds true for health behavior change, then patients setting a goal to lose weight would be less successful than those agreeing to lose weight and also setting concrete, achievable short-term goals, for example substituting water for sodas, that represent steps toward the distal weight-loss goal. The distal-proximal distinction gives rise to the related but somewhat separate activities of setting goals and making action plans. Distal goals are more general and difficult to achieve; their achievement is enhanced by making specific (proximal) action plans. Thus a general (distal) goal would be to lose weight while an action plan would be to substitute water for sodas. It is hypothesized that patients asked to set proximal healthy behavior goals would be more successful than patients only setting distal goals.

3. Collaboration: One piece of workplace goal-setting research which may not translate into the health arena is the finding that performance is the same whether the goal is assigned, collaboratively set, or self-set. A body of research on health-related behaviors strongly suggests that when patients participate in decisions, they are more likely to adopt the behaviors decided upon [20]. A physician telling a patient, "Your goal should be to lose 10 pounds" is assigning a goal, much like the manager assigning goals for employees. In contrast, collaboratively set goals are made in a discussion, sometimes a negotiation, between a health provider and patient, with the patient agreeing to the goal out of internal motivation rather than external pressure. In contrast to the workplace finding of no performance distinction between assigned and collaboratively set goals, it is hypothesized that patients perform better with collaboratively set goals.
4. The purpose of the goal-setting activity: Often, patients asked to improve their diet, exercise, and take their medications have difficulty following so many pieces of advice. If patients are given the opportunity to choose one behavior change to focus on, success is more likely. When patients achieve a goal, their self-efficacy goes up. When self-efficacy is high, more ambitious goals are set. Thus the purpose of goal-setting is to increase patients' self-efficacy (confidence). For example, patients who set a goal to walk half a mile each day and succeed are likely to set a higher goal, for example to walk one mile each day. Conversely, those who fail to walk half a mile might abandon all exercise goals because their level of confidence (self-efficacy) has fallen. In health-related behavior change, self-efficacy has been associated with healthier behaviors [9]. Some health-related behaviors require skill, for example home glucose monitoring; many patients do not check their sugars because they do not possess the skill. Setting a goal to check sugars every day requires skill development, which in turn improves self-efficacy. It is hypothesized that goals should be set that build self-efficacy.
5. Assessment of the patient's capacity to succeed: Two key factors facilitating goal achievement are importance and confidence. The increasingly popular school of motivational interviewing has placed importance and confidence at the center of its assessment of patients' capacity to adopt healthy behaviors [21]. Patients who do not think it is important to change their diet in order to reduce cholesterol are unlikely to make dietary changes. Patients who agree on the importance of improving their diet, but lack confidence in their ability to do so, are also less likely to succeed. It is hypothesized that goal-setting generally works best if the person engaging the patient in a goal-setting discussion assesses the patient's level of importance and confidence.
6. Feedback: Patients who set behavior change goals and receive follow-up phone calls, e-mails or repeat visits, which provide feedback and encouragement on their progress, will perform better than those who set a goal without feedback. This hypothesis is supported by evidence showing that regular follow-up enhances sustained adoption of healthy behaviors [22].
7. Rewards: Strecher's review of health-related goal-setting addresses the role of external incentives (rewards) in enhancing goal achievement. An external reward might be an employer reducing employee health insurance contributions for employees who stop smoking. It is hypothesized that internal motivation to achieve a goal may be more important than external rewards, though external incentives might play a role [13].
8. Site: In primary care, goal-setting discussions can take place during the clinician visit, or can be done before or after the visit by non-clinician staff or via computer programs. It is hypothesized that, due to lack of time during the clinician visit, goal-setting discussions will be more effective when done before or after the visit by a non-clinician staff member or via computer.

As noted above, it is difficult to perform a rigorous evaluation of this clinical innovation. The eight hypotheses have not been tested with well-designed research trials. On the other hand, goal-setting research has begun to provide descriptive data regarding these eight hypotheses. The next section of this paper explores the goal-setting literature's contributions to an understanding of this behavior change method. Because so many people engage in behavior change discussions when they seek primary care services, and because such a large proportion of primary care visits involve health-related behavior change, we are focusing on the use of goal-setting in primary care.

## 4. The primary care goal-setting literature

Eight articles were found involving goal-setting in the primary care setting [23–30]. Five of the eight studies involved patients with type 2 diabetes, one study enrolled patients with cardiovascular risk factors including diabetes, and two studies looked at healthy adults or adolescents, some of whom were overweight. How does the primary care goal-setting literature deepen understanding of the eight hypotheses?

1. General vs. specific: Six of the eight articles described specific action plans rather than general goals, suggesting that the primary care goal-setting literature is actually about action-planning as a key aspect of goal-setting. These articles recognize that a major difference exists between clinicians who work with patients to set general goals (lose 20 pounds or reduce blood pressure to 130/80) and those who engage patients in concrete action plan discussions (stop eating pizza and do not add extra salt to meals).
2. Proximal vs. distal: Corporate goal-setting experience suggests that proximal (short-term) goals are more effective than distal (long-term) goals. In health care, proximal goals – also called action plans – tend to be more specific (e.g. substituting water for sodas beginning today) than distal goals, which are usually more general (e.g. losing 20 pounds). Six of the eight studies encouraged patients to set proximal and specific goals. The primary care goal-setting literature appears to endorse the importance of goal-setting to be both specific and proximal.
3. Collaboration: Goal-setting theory distinguishes the goal-setting process as practitioner-set goals, goals set collaboratively between the practitioner and patient, or patient-set goals. In all eight studies, practitioners were trained to engage in collaborative goal-setting with patients. In two studies in which goal-setting discussions were audiotaped, it was evident that some professionals failed to conduct collaborative goal-setting and persisted in telling patients what their goals should be. Health care behavior change researchers see a difference between a manager assigning a goal to an employee and a practitioner ordering a patient to set a goal. Directive goal-setting may succeed in workplaces, but is likely less effective in the health care setting in which the patient is not beholden to the practitioner to the extent that employees are beholden to their employers.
4. The purpose of the goal-setting activity: The process of setting goals with patients may focus on substantial behavior change that improves a clinical outcome (e.g. losing 20 pounds which reduces HbA1c from 10 to 7) or may attempt a smaller behavior change that is not sufficient to improve a clinical outcome (e.g. walking for 15 minutes three times a week) but which increases

the patient's self-efficacy (confidence in the ability to make a positive change). Of the eight articles included in this review, only three explicitly discussed that the purpose of engaging patients in goal-setting discussion is to improve self-efficacy. The self-efficacy issue is important clinically because some health professionals reject goal-setting because the behavior changes are not big enough to improve clinical outcomes. For example, patients doing fast walking 30 minutes every day can reduce cardiovascular risk, while those making an action plan to walk slowly for 15 minutes three times a week are not reducing risk. The argument supporting the latter activity is that success in making this small change improves self-efficacy and may lead to further, clinically significant changes; while failure in 30 minutes of daily fast walking leads to nothing.

5. Assessment of the patient's capacity to succeed: Are patients asked how confident they are that they can achieve the goal? In four of the reviewed articles, patients were asked about their level of confidence. In most cases, articles using the self-efficacy argument to justify goal-setting described that patients were asked their level of confidence in achieving the goal. Self-efficacy is the same as confidence, and if the purpose of setting a goal is to increase self-efficacy, it is reasonable to ask patients how confident they are that they will be able to achieve their action plan.
6. Feedback: Did patients, after agreeing to an action plan, receive follow-up phone calls to check on their progress? In seven of the eight articles follow-up was done, underscoring the critical importance of this activity. This is one area in which the hypothesis that feedback/follow-up is important to chronic illness self-management has been demonstrated in research studies [22].
7. Rewards: Are patients who meet their goal given an external reward? In none of the eight studies were external rewards (whether money or gift certificates or reduction in co-pays) given. This has become a topic of some interest in health care behavior change. Some health plans have given monetary gifts to patients who lose a certain amount of weight or who stop smoking. However, this practice does not appear to have entered the primary care goal-setting research agenda.
8. Site: In only two of the eight studies was goal-setting always conducted during the clinician visit. Other studies involved goal-setting activities before or after the clinician visit, conducted by non-clinician staff members, or arranged for parts of the goal-setting process to take place during the clinician visit and other parts separate from the visit. Five of the eight studies utilized a computerized goal-setting program. In three of the five computer studies, patients would self-set their goals on the computer, engage in a brief discussion with a clinician, followed by a longer discussion and/or follow-up phone calls by a non-professional counselor. Another of the computer studies did not involve the physician at all, but featured a counseling session plus phone follow-up by a non-professional counselor (usually a trained medical assistant). Yet another computer study involved the physician or non-professional staff member engaging in goal-setting discussions with patients using the computer program in the session; non-professional staff were far more likely than physicians to use the computer program.

## 5. Discussion: practice implications

As noted earlier in this paper, many primary care practices have instituted goal-setting as part of their management of patients with chronic illness. Does the literature – even with a lack of robust evidence on the effectiveness of goal-setting – suggest the best ways in which primary care practices might design goal-setting as a regular feature of their practice? Two issues are addressed here: (1) how do the hypotheses listed above and the literature reviewed suggest that goal-setting discussions be structured; and 2) how does the literature reviewed assist primary care practices to organize themselves in order to engage their patients in goal-setting?

### 5.1. Structuring goal-setting discussions

Goal-setting authors strongly favor the use of specific and proximal goals rather than vague, long-term goals in goal-setting discussions with patients. All goal-setting authors utilized goals that were collaboratively set with patients. The purpose of goal-setting was not clarified by most of the authors, who did not distinguish between goals that would truly improve clinical outcomes vs. goals whose goal was to improve patient self-efficacy (confidence). Primary care practices engaging in goal-setting may meet resistance from clinicians (clinicians is defined as physicians, nurse practitioners, and physician assistants) who correctly feel that the action plans are too insignificant to impact clinical outcomes. Clinicians who understand that improving outcomes is not the immediate purpose of the action plan – that the purpose is improving patients' confidence in ability to self-manage their disease – are more likely to agree with the goal-setting process. Related to unclarity as to the purpose of goal-setting, half of the articles reviewed did not describe assessing the patients' confidence in their ability to succeed with their action plans. If the purpose of action-planning is to increase self-efficacy (confidence), then checking the patient's level of confidence at the time of conducting the action plan discussion becomes an important feature of the action-planning process. Finally, most of the articles reviewed provided follow-up phone calls after the action plan discussions. Thus the articles reviewed in conjunction with the hypotheses provide a helpful guide to primary care practices on how to conduct goal-setting with patients.

### 5.2. Organizing primary care to engage patients in goal-setting

The eight articles reviewed provide advice that can assist primary care practices to organize themselves to conduct goal-setting discussion with their patients. A major barrier to instituting goal-setting in primary care is the reluctance of clinicians to add any time-consuming activity to their visits with patients. In the Corser, Goldberg, and Pill articles, physicians were reluctant to engage in goal-setting and generally did not do so. Goldberg found that non-clinician staff were nine times more likely to work on goal-setting with patients than clinicians. A companion article to the Handley study, a study in which clinicians performed the entire goal-setting process, found that clinicians spent an average of 7 minutes in goal-setting discussions and two-thirds of the clinicians reported that lack of time was a major barrier [31]. In four of the eight reviewed articles, clinicians played little or no role in goal-setting discussions.

Five of the eight studies used interactive computer programs to work with patients on setting behavior change goals, thereby reducing time spent by primary care practice clinicians and staff. Using computer technology would assist primary care practices to implement goal-setting. In five of the eight studies, non-clinician staff members – in some cases in conjunction with computer technology – spent time with patients on goal-setting. Training non-clinician staff – either with or without computers – would seem to make the introduction of goal-setting easier for primary care practices, though finding protected staff time for this activity is not easily accomplished.

## 6. Conclusion

Collaborative goal-setting is a novel paradigm increasingly being adopted by health care personnel in the management of patients with chronic conditions. The state of knowledge regarding goal-setting for patient with chronic conditions is as yet incomplete. Controlled trials involving goal-setting are needed to establish whether or not this activity improves outcomes. Such trials might involve goal-setting as the sole intervention vs. usual care, or might be designed to test a group of chronic disease interventions with goal-setting as one feature vs. the same group of interventions without goal-setting. The latter design recognizes that goal-setting is best viewed as part of a larger educational and motivational effort for patients with chronic illness, for which ongoing support and follow-up is required. Even without offering evidence on goal-setting and clinical outcomes, the goal-setting literature, created in the corporate world and adapted to health care, offers a rich set of learnings on how goal-setting can be implemented in primary care medical practice.

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