

# **ANNOTATED BIBLIOGRAPHY**

## **CHOICES & CHANGES:**

### **CLINICIAN INFLUENCE AND PATIENT ACTION**

#### **Annotated Bibliography**

**Abridged and Revised Version - 2005**



2003, 2005

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Institute for Health Care Communication  
171 Orange Street, 2<sup>nd</sup> Floor 2R, New Haven, Connecticut 06510-3111  
1-800-800-5907

**CHOICES & CHANGES:  
CLINICIAN INFLUENCE & PATIENT ACTION**

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## I. THE CHALLENGES OF PROMOTING HEALTHY BEHAVIORS: PREVALANCE AND COST

Anonymous. (1994). *Noncompliance with medications (Task Force Report)*. Baltimore: The Task Force for Compliance.

<i>Description of Context</i>	Exploration of costs and reasons for the high rate of noncompliance with medication.
<i>Topic/Scope</i>	Patients' failure to take prescribed medications correctly is pervasive and accounts for up to \$100 billion in healthcare and productivity costs. Medical problems due to medication noncompliance include failure to improve, worsened condition, and/or relapse. Patterns of noncompliance include not filling prescriptions, discontinuing medication too soon, and not refilling prescriptions. Reasons documented for noncompliance are patient concerns about cost, side effects, belief the medication will not work, and perceived improvement in condition. Noncompliance has an economic impact on hospital and nursing home admissions, pharmacies and productivity at work. Intervention by the physician is extremely important and can have an impact on noncompliance. Specific strategies include: (1) Treating noncompliance as a behavioral disease helps the physician to develop effective interventions; (2) Assuming that patients will be noncompliant; (3) Using the Health Belief Model to assess noncompliance; (4) Instituting reminder programs; (5) Utilizing compliance devices and (6) Maintaining high quality physician-patient relationship.
<i>Conclusions/Recommendations:</i>	Treating noncompliance as a behavioral disease may help the physician develop effective interventions.

Coups, E. J., Gaba, A., & Orleans, C. T. (2004). *Physician screening for multiple behavioral health risk factors*. *American Journal of Preventive Medicine*, 27(2 Suppl), 34-41.

<i>Background</i>	Screening rates in primary care for single behavioral health risk factors are widely documented. However, such risk factors cluster in individuals and populations. This article examines the number and types of behavioral risk factors that U.S. adults reported, and reported having been screened for in their last routine medical checkup.
<i>Methods</i>	The sample consisted of 16,818 adults from the 1998 National Health Interview Survey who reported having a routine checkup in the past year. Respondents completed questions regarding four behavioral risk factors (physical inactivity, overweight, cigarette smoking, risky drinking), and provider screening for behaviors related to these risk factors.
<i>Results</i>	Half of the sample (52.0%) reported having two or more of the four risk factors, and more than half (59.4%) were screened for two or more risk behaviors during their last routine checkup, although 28.6% reported being screened for none of them. Respondents reporting at least one risk factor were screened for an average of 57.7% of their own risk factors. Women, adults with lower levels of income and education, and those aged 65 and older, reported being screened for fewer of their risk factors.
<i>Conclusions</i>	While guidelines for risk factor screening and intervention typically focus on single behavioral risk factors, most primary care patients present with, and are screened for, more than one. Behavioral risk factor screening tools and interventions must be expanded to cover multiple risks. Additionally, efforts are needed to reduce the substantial missed opportunities for screening, and to eliminate demographic disparities in screening practices and accuracy.

Curry, S. J., Ludman, E., Grothaus, L., Donovan, D., Kim, E., & Fishman, P. (2000). *At-risk drinking among patients making routine primary care visits*. *Preventive Medicine*, 31(5), 595-602.

*Description of Context* Addressing non-alcoholic, at-risk patterns of alcohol consumption that are associated with increased morbidity and mortality is an important health care priority.

*Topic/Scope* The objective was to describe the prevalence and characteristics of at-risk drinkers in a population-based sample of adults with routine primary care visits.

*Conclusions/Recommendations* At least 1 in 10 patients making routine primary care visits have drinking practices that place them at risk for negative consequences from drinking.

Dunbar-Jacob, J. (1993). *Contributions to patient adherence: Is it time to share the blame?* Health Psychology : Official Journal of the Division of Health Psychology, American Psychological Association, 12(2), 91-92.

*Description of Context* 1. Review of the literature and discussion of provider characteristics and their influences on patient adherence.

*Topic/Scope* Poor adherence has contributed significantly to treatment failures in medical care. This problem is not solely due to the patient, for physicians also play a part. Studies conducted by DiMatteo et al regarding poor adherence produce the following findings: (1) a positive association between the number of patients seen in the practice each week and patient adherence, (2) practice setting was not a significant predictor of general self-reported adherence; (3) physician satisfaction was positively associated with actual patient behavior, and (4) past behavior may be the best predictor of future behavior. These findings provide great insights into provider influences on adherence.

*Conclusions/Recommendations* Both the patient and provider factors can contribute to patient adherence.

Dunbar-Jacob, J. (1990). Predictors of patient adherence: Patient characteristics. In: Shumaker, S., Schron, E. B., Ockene, J. K., & McBee, W. L., eds. *The Handbook of Health Behavior Change: Second Edition*. New York, Springer Publishing Company.

*Description of Context* Review of the literature and discussion of patient characteristics that are likely to be predictors of adherence.

*Topic/Scope* There are factors under the control of the providers (ie, prescribing regimens, lack of consistency in care providers, providers' behavior and attitudes, adequacy of instructions, and convenience) that are likely to lead to nonadherence in patients. However, this paper discusses not factors of the providers but characteristics of the patients which are likely to influence adherence or nonadherence. Four areas of patient characteristics have been found to predict adherence to medical regimen. These include psychological characteristics, cognitive-motivational factors, behavior, and somatic factors. Numerous studies have defined depression and anxiety as the two most important psychological characteristics of patients that would predict nonadherence to treatment. It was noted that depression and anxiety were related to the element of motivation. Henceforth, cognitive-motivational components were examined and found to be important. Specifically, patients' intention and self-efficacy levels were successful predictors of adherence. Patients' health beliefs showed inconsistency in predicting behavior and vary as a function of the population and setting studied as well as a function of the time of assessment. In the area of patients' health behavior, many studies have shown that the initial behavior predicts adherence to the same behavior in the future but were inconsistent in terms of adherence to a specific behavior being predictors of a set of different behaviors in the future. One study in the area of somatic factors concluded that beliefs about symptoms (i.e., mood or physical discomfort) may be important predictors of nonadherence. However, this area of somatic factors may have some overlap with health beliefs and perception of symptoms.

*Conclusions/Recommendations* With nonadherence rates ranging from 20% to 80% in medical and research settings, it is imperative to understand and identify characteristics of the patients that will aid in predicting nonadherence or adherence. Psychological characteristics, cognitive-motivational factors, behavior, and somatic factors are the four areas of patient characteristics found to best predict adherence.

Fine, L. J., Philogene, G. S., Gramling, R., Coups, E. J., & Sinha, S. (2004). *Prevalence of multiple chronic disease risk factors. 2001 national health interview survey*. American Journal of Preventive Medicine, 27(2 Suppl), 18-24.

*Background* Four common factors--cigarette smoking, risky drinking of alcoholic beverages, physical inactivity, and overweight--contribute substantially to chronic disease prevalence.

*Methods* We used data from the 2001 National Health Interview Survey to provide an up-to-date picture of multiple risk factor prevalence and clustering in the U.S. population. We conducted a multinomial logit analysis to examine the independent association between each covariate and the dependent ordinal risk factor variable with three levels (none or one risk factor, two risk factors, and three or four risk factors).

*Results* Seventeen percent of the sample of 29,183 subjects had three or more risk factors. For the entire sample, the mean number of risk factors was 1.68 (95% confidence interval [CI]=1.66-1.70). Many demographic and health factors were significantly associated with the mean number of risk factors including gender, age, ethnic/racial categories, education, marital status, presence of chronic diseases, level of mental distress, country of birth, and presence and type of health insurance. Using the risk factor score as the ordinal dependent variable, adjusted odds for having a risk score of three or four versus zero or one were as follows: men aged <65, 2.49 (95% CI=2.29-2.72); education attainment of high school graduate or less, 3.24 (95% CI=2.86-3.67); and individuals with high levels of mental distress, 2.06 (95% CI=1.65-2.58).

*Conclusions* Our analyses confirm earlier reports of the high prevalence of multiple, clustered behavioral risk factors and underline the challenge this presents for primary care and public health systems.

Kamimoto, L. A., Easton, A. N., Maurice, E., Husten, C. G., & Macera, C. A. (1999). *Surveillance for five health risks among older adults--United States, 1993-1997*. MMWR CDC Surveill.Summ., 48(8), 89-130.

*Description of Context* Overweight, drinking and driving, inadequate fruit and vegetable consumption, physical inactivity, and smoking are associated with the leading causes of morbidity and mortality among older adults (i.e., persons aged > or =65 years) in the United States.

*Topic/Scope* This report presents data from the Behavioral Risk Factor Surveillance System (BRFSS) for 1994-1997 and from the National Health Interview Survey (NHIS) for 1993-1995.

*Conclusions/Recommendations* Prevalences of overweight, drinking and driving, inadequate fruit and vegetable consumption, and smoking decreased with increasing age among older adults in the United States; physical inactivity was the only health risk that increased with increasing age. Sex and race were differentially associated with all five health risks

Manwell, L. B., Fleming, M. F., Johnson, K., & Barry, K. L. (1998). *Tobacco, alcohol, and drug use in a primary care sample: 90-day prevalence and associated factors*. Journal of Addictive Diseases: The Official Journal of the ASAM, American Society of Addiction Medicine, 17(1), 67-81.

*Description of Context* 21,282 adults ages 18-65 completed a self-administered Health Screening Survey while participating in a trial for early alcohol treatment.

*Topic/Scope* To ascertain the prevalence of tobacco, alcohol, and drug use in the office of 88 primary care clinicians by gender, age and ethnicity.

*Conclusions/Recommendations* The period prevalence of tobacco use was 27%. For alcohol: abstainers 40%, low risk drinkers 38%, at-risk drinkers 9%, problem drinkers 8%, and dependent drinkers 5%. Twenty percent of the sample reported using illicit drugs five or more times in their lifetime and 5% reported current illicit drug use. This report confirms the high prevalence of these problems and suggests that patients will accurately complete a self-administered screening test such as the Health Screening Survey.

McGinnis, J. M., & Foege, W. H. (1993). *Actual causes of death in the United States*. JAMA : The Journal of the American Medical Association, 270(18), 2207-2212.

*Description of Context* Literature search through MEDLINE searches, reference citations, and expert consultation to identify and quantify the major nongenetic factors that contribute to death in the United States.

*Topic/Scope:* The largest contributors to mortality in 1990 were tobacco (an estimated 400,000 deaths), diet and activity patterns (300,000), alcohol (100,000), microbial agents (90,000), toxic agents (60,000), firearms (35,000), sexual behavior (30,000), motor vehicles (25,000), and illicit drug use (20,000). Socioeconomic status and access to medical care are also important contributors, but difficult to quantify independent of other factors cited.

*Conclusions/Recommendations* Approximately half of all deaths in 1990 could be attributed to the factors identified above. The most rapidly increasing causes of death are sexual behavior and illicit use of drugs. A significant implication of the study is the link between the cause of death and behavioral choices associated with high rates of mortality.

Mokdad, A. H., Marks, J. S., Stroup, D. F., & Gerberding, J. L. (2004). *Actual causes of death in the United States, 2000*. JAMA : The Journal of the American Medical Association, 291(10), 1238-1245.

*Description of Context* Comprehensive MEDLINE searches of English-language articles that identified epidemiological, clinical, and laboratory studies linking risk behaviors and mortality. The authors used 2000 mortality data reported to the Centers for Disease Control and Prevention to identify the causes and the number of deaths. The estimates of causes of death were computed by multiplying estimates of the cause-attributable fraction of preventable deaths with the total mortality data.

*Topic/Scope:* The leading causes of death in 2000 were tobacco (435,000 deaths; 18.1% of total US deaths), poor diet and physical inactivity (400,000 deaths; 16.6%), and alcohol consumption (85,000; 3.5%). Other actual causes of death were microbial agents (75,000), toxic agents (55,000), motor vehicle crashes (43,000), incidents involving firearms (29,000), sexual behaviors (20,000), and illicit drug use (17,000).

*Conclusions/Recommendations* Though smoking remains the leading cause of mortality, poor diet and physical inactivity may soon overtake tobacco as the leading cause of death. These findings, along with escalating health care costs and aging population, argue persuasively that the need to establish a more preventive orientation in the US health care and public health systems has become more urgent.

Nelson, D. E., Bland, S., Powell-Griner, E., Klein, R., Wells, H. E., Hogelin, G., & Marks, J. S. (2002). *State trends in health risk factors and receipt of clinical preventive services among US adults during the 1990s*. JAMA : The Journal of the American Medical Association, 287(20), 2659-2667.

*Description of Context* Randomly selected adults aged 18 years or older from 49 US states. Annual state sample sizes ranged from 1188 to 7543.

*Topic/Scope* To estimate state-specific trends for 5 health risk factors and 6 clinical preventive services

*Conclusions/Recommendations* State trends were mixed for binge alcohol use (increasing in 19 of 47 states and declining in 3), physical inactivity (increasing in 3 of 48 states and declining in 11), and cholesterol screening (increasing in 13 of 47 states and decreasing in 5). Obesity increased in all states and smoking increased in 14 of 47 states. Most states experienced increases in safety belt use, mammography, and adult vaccinations. Trends for smoking and binge alcohol use are disturbing, and obesity data support previous findings.

Pronk, N. P., Anderson, L. H., Crain, A. L., Martinson, B. C., O'Connor, P. J., Sherwood, N. E., & Whitebird, R. R. (2004). Meeting recommendations for multiple healthy lifestyle factors. Prevalence, clustering, and predictors among adolescent, adult, and senior health plan members. *American Journal of Preventive Medicine*, 27(2 Suppl), 25-33.

*Background* Whereas much is known about single lifestyle-related health risk factor prevalence and covariates, more research is needed to elucidate the interactions among multiple healthy lifestyle factors and variables that may predict adherence to these factors. Such data may guide both clinical and health policy decision making and person-centered approaches to population health improvement.

*Methods* We document the prevalence and cluster patterns of multiple healthy lifestyle factors among a random sample of adolescents (n =616), adults (n =585), and seniors (n =685) from a large Midwestern health plan. Modifiable, lifestyle-related health factors assessed included physical activity, nonsmoking, high-quality diet, and healthy weight for all subjects; adults and seniors were also asked about their alcohol consumption. Second, we sought to identify characteristics associated with the likelihood of meeting recommendations for healthy lifestyle factors. The healthy lifestyle factors sum score was categorized into three levels, that is, 0 to 2, 3, or 4 to 5 healthy lifestyle factors (4 for adolescents), and we used ordinal logistic regression to estimate the odds of meeting each of these criteria from several demographic characteristics and disease states.

*Results* Overall, only 14.5% of adolescent, adult, and senior health plan members meet recommended guidelines for four common healthy lifestyle factors. Only 10.8% of adults and 12.8% of seniors met all five behavior-related factors. For adolescents, only being nondepressed was associated with an increased likelihood to be in adherence to multiple healthy lifestyle factors (odds ratio [OR]=2.15;  $p < 0.05$ ). For adults, being in the 50- to 64-year-old cohort (OR=1.46,  $p < 0.05$ ), having a college degree (OR=1.65;  $p < 0.05$ ), and having no chronic disease (OR=1.92;  $p < 0.05$ ) were all associated with an increased likelihood to be in adherence to multiple healthy lifestyle factors. For seniors, having a college degree (OR=1.61;  $p < 0.05$ ), was the only variable associated with an increased likelihood to be in adherence to multiple healthy lifestyle factors.

*Conclusions* A small proportion of health plan members meet multiple recommended healthy lifestyle guidelines at once. This analysis identifies population subgroups of specific interest and importance based on adherence to multiple healthy lifestyle factors, and predictors for increased likelihood to be in adherence to multiple healthy lifestyle factors. It presents a potentially useful summary measure based on person-centered measures of healthy lifestyle factors. Clinicians may derive meaningful information from analyses that address adherence to multiple healthy lifestyle factors. Health systems administrators may use this information to influence health policy and resource allocation decisions. Further studies are needed to assess the usefulness of this comprehensive lifestyle-related health measure as a metric of progress toward public health goals, or as a clinical metric that conveys information on future health status and directs interventions at the individual level.

## II. THEORIES OF HEALTH BEHAVIOR CHANGE

### Decision-Making

Janis, I. L., & Mann, L. (1977). *Decision making: A psychological analysis of conflict, choice, and commitment*. New York: The Free Press: A Division of Macmillan Publishing Co., Inc.

*Concept  
of Problem  
Development*

Internal conflicts are likely to arise whenever an important decision (whether it be marriage, business, or health) has to be made. These decisional conflicts usually serve as sources of psychological stress.

*Concept  
of Change:*

There are five stages involved in arriving at a stable decision: (1) appraising the challenge; (2) surveying alternatives; (3) weighing alternatives; (4) deliberating about commitment, and (5) adhering despite negative feedback. The first stage involves confronting the problem. It asks "are the risks serious if I don't change?" The second stage involves being aware that there are alternatives and searching for them. The question to ask in this stage is "Is this (salient) alternative an acceptable means for dealing with the challenge? Have I sufficiently surveyed the available alternatives?" The third stage of decision making involves being cognitive about the pros and cons of the alternatives so that subjective utility can be used to determine decision. "Which alternative is best? Could the best alternative meet the essential requirement?" The fourth stage asks, "shall I implement the best alternative and allow others to know?" Lastly, the fifth stage is concerned with "are the risks serious if I don't change? Are the risks serious if I do change?" A Conflict Model of Decision Making initially describes behaviors and decisions that occur in emergency situations. The model assumes that there are five basic coping patterns that affect the quality of decision-making: (1) unconflicted adherence--when one judges the magnitude of the threat to be negligible, he or she will most likely continue with the behavior; (2) unconflicted change--even when the threat is perceived as minimal, the individual may want to change due to a myriad of reasons; (3) defensive avoidance--when the individual perceived the risks to take a particular action is potentially serious, he/she may feel the need to find a better escape; (4) hypervigilance--feeling of panic when there is the perception that entrapment will follow and time is limited, and (5) vigilance.

*Intervention*

The use of a balance sheet is one technique for facilitating cognitive and motivational aspects of decision-making and planning for future actions. This technique should be used to supplement the Conflict Model of Decision-Making. Unfortunately, there is no dependable way to objectively assess the success of a decision. However, to best determine the quality of decision-making, one should examine the quality of the procedures used by the decision maker in selecting a course of action. Seven criteria are given for the decision maker which will help in directing decision making to the desired outcome: (1) consider a wide range of alternative courses of action; (2) survey the full range of objectives to be fulfilled and the values implicated by the choice; (3) carefully weigh the cost and risks of consequences; (4) search for new information regarding alternatives; (5) consider new information or expert judgment; (6) re-examine the pros and cons of all alternatives, and (7) make detailed provisions for implementing or executing the chosen course of action.

## Fishbein/Ajzen's Theory of Reasoned Action

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.

*Concept of  
Problem  
Development*

A person's intention is a function of his/her attitude toward the behavior and the perception of the social pressures put on him/her to perform or not to perform the behavior (also known as the "subjective norm"). In order to define and measure behavior, one should determine whether the interest is in the behaviors or the outcomes of those behaviors.

*Concept of  
change*

Any behavior is described as having the following four elements: the action, the target at which the action is directed, the context in which it occurs, and the time at which it is performed. Behaviors have been found to be predictable from the intentions of individuals. However, unlike behaviors, outcomes are not completely under a person's volitional control. To be able to predict outcome, intentions should be measured, behaviors should be identified, and other factors that can potentially control the outcome must be addressed. The theory of reasoned action offers a conceptual understanding of attitudes and provides theoretical measures for predicting behaviors and outcomes of those behaviors. It has shown to be applicable to understanding and predicting areas of weight loss, women's occupational orientations, family planning behaviors, consumer behavior, voting in American and British elections, and the behavior of alcoholics.

*Interventions*

Not specifically defined.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior*. Reading, MA: Addison-Welsey.

*Concept of  
Problem  
Development  
Concept of  
Change*

Not provided.

Beliefs about consequences of a particular behavior will influence one's attitude towards that behavior which in turn influences the intention to perform the behavior. With this assumption in mind, behavioral change can be achieved by targeting one's beliefs, attitudes, and intentions. The first principle of change asserts that "the effects of an influence attempt on change in a dependent variable depend on its effects on the primary beliefs underlying that variable." The second principle of change states "the effects of an influence attempt on change in a dependent variable are ultimately the result of changes in proximal beliefs and of impact effects." The third principle posits "the effects of an influence attempt on change in beliefs, attitudes, intentions, and behaviors depend, in that order, on an increasing number of intervening processes." Lastly, the fourth principle of change describes the effect of experimental manipulations. An experimental manipulation can affect the amount of change in a dependent variable only to the extent that it influences amount of change in proximal and external beliefs."

*Intervention*

One strategy of change is that of active participation (as opposed to passive exposure). This strategy includes interpersonal contact, role playing, counter-attitudinal behavior, and choice between alternatives. A second strategy of behavioral change involves the use of persuasive communication to induce changes in beliefs, attitudes, and intentions.

## Health Belief Model

Becker, M. H. (1974). *The Health belief model and personal health behavior*. Thorofare, New Jersey: Charles B. Slack, Inc.

*Concept of Problem Development Concept of Change*

Not provided.

An individual's perception and beliefs of health will affect his/her decision about the health behaviors. This assumes that cognition is necessary for attitude change and motivation is necessary for action. Central to this model are four beliefs: (1) perceived susceptibility--subjective risks of contracting a condition; (2) perceived seriousness--perception of the severity of a condition; (3) perceived benefits--subjective utility of taking an action, and (4) perceived barriers--impediments that individual beliefs will affect his/her decision to pursue a behavior change. In addition to the four beliefs, there are factors (both internal and external) that serve as cues to action. Some examples of these factors are the environment, family, friends, mood, and feelings.

*Intervention*

Present in the model is the assumption that direct persuasion is one tactic to modify beliefs. Having said this, the model does not imply a strategy for change. Instead the model invites eliciting views of belief change from different aspects of the biopsychosocial realm. For one, people are social beings, always in contact with other people and actively engaging in their environment. Because of this, there are social and structural factors that affect behavior through the mediation of beliefs.

Janz, N. K., & Becker, M. H. (1984). *The health belief model: A decade later*. *Health Education Quarterly*, 11(1), 1-47.

*Description of Context Topic/Scope*

Review of 46 studies that investigated dimensions of the Health Belief Model (HBM) and summary of general findings that resulted from these studies. The dimensions of HBM (perceived susceptibility, severity, benefits, and barriers) were categorized into three types of study designs: preventive health behaviors, sick-role behaviors, and clinic utilization. Twenty-four studies have been conducted to examine preventive health behaviors, specifically those that involve influenza, screening behaviors, and risk factor behaviors. Nineteen studies were conducted to understand sick role behaviors, such as antihypertensive regimens, end-stage renal disease regimen, mother's compliance with regimen for child's condition, and physician visits for symptoms. Three studies have been undertaken to examine clinic utilization. HBM studies prior to 1974 demonstrated that "susceptibility" was the most powerful dimension of the HBM. Studies from 1974-1984 supported HBM as a useful framework for understanding the health-related decision-making of individuals.

*Conclusions/ Recommendations*

Summary results provide substantial empirical support for the HBM with findings from prospective studies at least as favorable as those obtained from retrospective research. "Perceived Barriers" proved to be the most powerful of the HBM dimensions across the various study designs and behaviors. In summary, all of the HBM studies demonstrated a significant association between HBM dimensions and the health-related behaviors under study. They showed that in terms of preventive health behaviors, susceptibility, benefits, and barriers were consistently associated with behavioral outcomes. Perceived severity showed greater significance in study designs that emphasized sick-role behaviors. For clinic utilization, the findings were that each of the HBM dimensions was correlated with the number of visits to clinic. For example, perceived severity was a significant predictor of acute visits.

## **Relapse Prevention**

Brownell, K. D., Marlatt, G. A., Lichtenstein, E., & Wilson, G. T. (1986). *Understanding and preventing relapse*. *The American Psychologist*, 41(7), 765-782.

*Description of Context* Examination of the concept of relapse by integrating knowledge from addictive disorders of alcoholism, smoking, and obesity.

*Topic/Scope* Commonalties are observed across many addictive behaviors. The term, lapse, refers to a single slip or mistake which may or may lead to the state of relapse. This term does not imply loss of control, but merely that corrective action can be taken so that a full blown relapse will not occur. Individual's responses to lapse will vary from person to person. So far, there have been no reliable measure to assess individual responses to lapse. However, findings from research have generated predictors of lapse and relapse. Predictors of lapse and relapse involve an interaction of the following: (1) individual and intrapersonal factors such as negative emotional states, inadequate motivation, response to treatment, and coping skills; (2) physiological factors (ie genetic factors, craving, and urges); and (3) environmental and social factors. From common findings across addictive behaviors, prevention of lapse and relapse were targeted to the stages of change model.

*Conclusions/Recommendations* The concept of lapse (the process of slips or mistakes) and relapse (the outcome that resulted from slips and/or mistakes) has important implications for conceptualizing, preventing, and treating relapse.

Marlatt, G. A., & George, W. H. (1984). *Relapse prevention: Introduction and overview of the model*. *British Journal of Addiction*, 79(3), 261-273.

*Description of Context* Description of the conceptual and clinical features of the Relapse Prevention approach to altering excessive or addictive behaviors.

*Topic/Scope* Relapse Prevention is a psychoeducational program that combines behavioral skills and training procedures with cognitive intervention techniques. The model to facilitate changes can be applied to personal habits and lifestyle to reduce the risk of physical disease or addiction. A relapse in addiction is viewed as a transitional process, not a dead end. Relapse Prevention attempts to provide the individual with the necessary skills and cognitive strategies to prevent a single lapse from generating a total relapse. Change will be maintained if the individual can anticipate obstacles and develop coping skills to utilize in high-risk relapse situations. High-risk relapse situations are: (1) negative emotional states (anxiety, depression); (2) interpersonal conflict; and (3) social pressure.

*Conclusions/Recommendations* There is emerging empirical support of the Relapse Prevention approach in treating addictive behaviors that is encouraging.

Marlatt, G. A., & Gordon, J. R. (1985). *Relapse prevention: Maintenance strategies in the treatment of addictive behaviors*. New York: Guilford Press.

*Concept of Problem Development* Statistics show that approximately 80% of patients who quit smoking eventually relapse at 1 year. The cost-benefit perspective, in which the reward of instant gratification outweighs cost of potential negative effects, justifies why people plan their own relapse.

*Concept of Change* Relapse prevention focuses on the maintenance stage of addictive behavior cessation. Its goal is to help patients to anticipate and cope with problems of relapse. This model has two applications: (1) maintenance strategy to prevent relapse, or (2) facilitate change in personal habits and lifestyle so as to reduce the risk of physical disease or psychological stress. The purpose is to achieve a balanced lifestyle and to prevent the formation of unhealthy habit patterns.

*Intervention* Two intervention strategies have been proposed: specific strategies and global self-control strategies. Specific strategies help patients to anticipate, and identify high-risk situations by self-monitoring and self-assessment procedures. Global strategies emphasize skill training, cognitive reframing, and healthy lifestyle maintenance. If one is able to execute effective coping response, the probability of relapse will decrease. If unable to cope with high risk situations, the probability of relapse will increase. Patients are also trained to become their own therapist and carry on the thrust of the maintenance techniques after termination of the formal therapeutic relationship.

### Self-Determination Theory

Deci, E. L. (1975). *Intrinsic motivation*. New York and London: Plenum Press.

*Concept of Problem Development* Not provided.

*Concept of Change* The operational definition for intrinsic motivation is that activities are performed not so they may lead to an extrinsic reward, but rather, for internal consequences which the individual experiences as rewarding. The concept of competence is a motivational one. Competence is defined as "one's ability or capacity to deal effectively with his or her surroundings." According to this definition, in order to develop competence one is motivated by the intrinsic need to explore, communicate, and deal effectively with the environment. Furthermore, people increase autonomy through acquiring great levels of competency in dealing with the environment. Hence, intrinsically motivated behaviors may be innate behaviors in which a person engages to feel competent and self-determining in relation to the environment. This is usually by choosing behaviors that will lead to desired goals.

*Intervention* No techniques were explicitly given. However, the author discussed a variety of theories, models, and studies from a cognitive perspective that may contribute to developing intrinsic motivation, competence, self-determination, and decision-making. One theory, The Cognitive Evaluation Theory, posits that rewards can affect intrinsic motivation by two processes: (1) change in perceived locus of causality, and (2) change in feeling of competence and self-determination. Cognitive Dissonance Theory explains the effects of insufficient justification on intrinsic motivation. In particular, studies have shown that cognitive dissonance reduction can affect one's inner biological drive (ie, hunger and thirst) as well as motivation for success. Furthermore, external rewards can motivate a person extrinsically but at the same time decrease the person's intrinsic motivation.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.

*Description of Context* Conceptualization of the theories of intrinsic motivation and self-determination in understanding human behaviors.

*Topic/Scope* Central to the psychology of behavior is the concept of motivation. The study of motivation is the exploration of the energization and direction of behavior. Building on the concept of motivation are four theories: (1) drive theories, (2) intrinsic motivation, (3) self-determination, and (4) alternative (nonmotivational) approaches. The drive theory formulates that individual behavior is said to be motivated when it is being pushed by some kind of driving force. According to Freud, there are two important drives (sex and aggression), whereas there are four (hunger, thirst, sex, and avoidance of pain) according to Hull. Complementing the theory of drive is intrinsic motivation, which suggests that there is an energy that comes from within the individual to motivate behavior. Adding on to the theory of intrinsic motivation is the theory of self-determination. This theory posits that behaviors are influenced by elements of volition, autonomy, choice, competence, and perceived locus of causality. Along the same line in the psychology of motivation and behavior is the notion of alternative approaches, or also

known as the nonmotivational approach of operant psychology. Most clearly represented by cognitive-behaviorism and social learning theory, the theory of alternative approaches asserts that behavior is influenced by an individual's self-efficacy, efficacy expectations, and future reinforcements.

*Conclusions/  
Recommendations*

The concept of intrinsic motivation in concomitant with self-determination is useful in explaining human behaviors. Researchers have adopted this concept to understand behaviors in many areas, including learning and education, psychotherapy, employment, organizations and sports.

*Williams, G. C., & Deci, E. L. (1998). The importance of supporting autonomy in medical education. Annals of Internal Medicine, 129(4), 303-308.*

*Description  
of Context*

Many thoughtful leaders in medicine have asserted their belief that when physicians are more humanistic in their interactions with patients, their patients have more positive health outcomes. Consequently, many advocates have called for the practice of teaching students and residents to provide more humanistically oriented care.

*Topic/Scope*

This article reviews research from motivational psychology, guided by self-determination theory that suggests that when medical educators are more humanistic in their training of students, the students become more humanistic in their care of patients. Being humanistic in medical education can be achieved through support of the autonomy of students. Autonomy support means working from the students' perspectives to promote their active engagement and sense of volition with respect to learning.

*Conclusions/  
Recommendations*

Research suggests that when educators are more supportive of student autonomy, students not only display a more humanistic orientation toward patients but also show greater conceptual understanding and better psychological adjustment.

*Williams, G. C., Deci, E. L., & Ryan, R. M. (1998). Building partnerships by supporting autonomy: Promoting maintained behavior change and positive health outcomes. In: A. Suchman et al. (eds), Partnerships in healthcare. Rochester, NY: University of Rochester Press, 68-87.*

*Description  
of Context*

Application of self-determination theory and autonomy support in facilitating behavior change for health reasons.

*Topic/Scope*

Most current theories of motivation focus on the direction of behavior toward desired outcomes and are not concerned with the energization of behavior (why certain outcomes are desired). According to the self-determination theory, there are three psychological needs in human life (needs for competence, relatedness, and autonomy) that facilitate the direction and energization of motivation, behavior, and outcome. The need for autonomy emanates from the self and thus implies choice and self-determination rather than control. Behaviors become autonomous through the process of integration and internalization. Internalization entails the patient transforming external regulatory processes into internal regulatory processes. Through internalization, regulation that initially resides in the urgings of a health professional can be assumed by the patient. Integration involves bringing an internalized regulation or value into harmony with other aspects of one's self. When patients behave for autonomous reasons, (rather than controlled reasons) they will be more successful in long term maintenance of behavior change which, in turn, will have positive health consequences. When patients are genuinely supported for making their own choices, they will be more likely to choose the behaviors that are in their best interest.

*Conclusions  
/Recommendations*

*Williams, G. C., Freedman, Z. R., & Deci, E. L. (1998). Supporting autonomy to motivate patients with diabetes for glucose control. Diabetes Care, 21(10), 1644-1651.*

*Description of Context* Application of the self-determination theory of human motivation to examine whether patient perceptions of autonomy supportiveness (i.e., patient centeredness) from their diabetes care providers related to improved glucose control over a 12-month period.

*Topic/Scope* A prospective cohort study of patients with diabetes from a diabetes treatment center at a university-affiliated community hospital. Participants were 128 patients between 18 and 80 years of age who took medication for diabetes, had no other major medical illnesses, and were responsible for monitoring their glucose and taking their medications. The main outcome measure was a change in HbA1c values over the 12 months of the study

*Conclusions/Recommendations* Patient perception of autonomy support from a health care provider related to a change in HbA1c values at 12 months ( $P < 0.05$ ). Further analyses showed that perceived autonomy support from the staff related to significant increases in patient autonomous motivation at 12 months ( $P < 0.05$ ); that increases in autonomous motivation related to significant increases in perceived competence ( $P < 0.05$ ); and that increases in a patient's perceived competence related to significant reductions in their HbA1c values over 12 months ( $P < 0.001$ ). The findings support the prediction of the self-determination theory that patients with diabetes whose health care providers are autonomy supportive will become more motivated to regulate their glucose levels, feel more able to regulate their glucose, and show improvements in their HbA1c values.

*Williams, G. C., Minicucci, D. S., Kouides, R. W., Levesque, C. S., Chirkov, V. I., Ryan, R. M., & Deci, E. L. (2002). Self-determination, smoking, diet and health. Health Education Research, 17(5), 512-521.*

*Abstract* A Clinical Trial will test (1) a Self-Determination Theory (SDT) model of maintained smoking cessation and diet improvement, and (2) an SDT intervention, relative to usual care, for facilitating maintained behavior change and decreasing depressive symptoms for those who quit smoking. SDT is the only empirically derived theory which emphasizes patient autonomy and has a validated measure for each of its constructs, and this is the first trial to evaluate an SDT intervention. Adult smokers will be stratified for whether they are at National Cholesterol Education Program (1996) recommended goal for low-density lipoprotein cholesterol (LDL-C). Those with elevated LDL-C will be studied for diet improvement as well as smoking cessation. Six-month interventions involve a behavior-change counselor using principles of SDT to facilitate autonomous motivation and perceived competence for healthier behaving. Cotinine-validated smoking cessation and LDL-C-validated dietary recall of reduced fat intake, as well as depressive symptoms, will be assessed at 6 and 18 months. Structural equation modeling will test the model for both behaviors within the intervention and usual-care conditions.

*Williams, G. C., Rodin, G. C., Ryan, R. M., Grolnick, W. S., & Deci, E. L. (1998). Autonomous regulation and long-term medication adherence in adult outpatients. Health Psychology : Official Journal of the Division of Health Psychology, American Psychological Association, 17(3), 269-276.*

*Description of Context* Self-determination theory was applied to explore the motivational basis of adherence to long-term medication prescriptions.

*Topic/Scope* Adult outpatients with various diagnoses who had been on a medication for at least 1 month and expected to continue (a) completed questionnaires that assessed their autonomous regulation, other motivation variables, and perceptions of their physicians' support of their autonomy by hearing their concerns and offering choice; (b) provided subjective ratings of their adherence and a 2-day retrospective pill count during an interview with a clinical psychologist; and (c) provided a 14-day prospective pill count during a subsequent, brief telephone survey.

*Conclusions/Recommendations* LISREL analyses supported the self-determination model for adherence by confirming that patients' autonomous motivation for adherence did mediate the relation between patients' perceptions of their physicians' autonomy support and their own medication adherence.

## **Social Cognitive Theory**

*Bandura, A. (2004). Health promotion by social cognitive means. Health Education & Behavior : The Official Publication of the Society for Public Health Education, 31(2), 143-164.*

*Description of Context* This article examines health promotion and disease prevention from the perspective of social cognitive theory.

*Topic/Scope* This theory posits a multifaceted causal structure in which self-efficacy beliefs operate together with goals, outcome expectations, and perceived environmental impediments and facilitators in the regulation of human motivation, behavior, and well-being. Belief in one's efficacy to exercise control is a common pathway through which psychosocial influences affect health functioning. This core belief affects each of the basic processes of personal change--whether people even consider changing their health habits, whether they mobilize the motivation and perseverance needed to succeed should they do so, their ability to recover from setbacks and relapses, and how well they maintain the habit changes they have achieved.

*Conclusions/Recommendations* Human health is a social matter, not just an individual one. A comprehensive approach to health promotion also requires changing the practices of social systems that have widespread effects on human health.

*Bandura, A. (1995). Moving into forward gear in health promotion and disease prevention. Paper presented at the Annual Meeting of the Society of Behavioral Medicine, San Diego.*

*Core Argument* Social Cognitive Theory, Health-Belief Theory, Theory of Reasoned Action, Theory of Planned Behavior, Protective Motivation Theory, and the Transtheoretical Theory are reviewed and critiqued for their ability to explain behavioral change. The Social Cognitive Theory of behavioral change is proposed as a more comprehensive model that successfully incorporates all aspects of the process of behavioral change. Bandura raises several criticisms of the Transtheoretical Theory and the Stages of Change in particular. He argues that: (1) the stages of the model are arbitrary pseudo-stages rather than genuine stages; (2) people do not recycle through discrete stages; (3) the processes are regressive; (4) the model is atheoretical, and (5) linkage [linking intervention to stage] is rather loose and debatable.

*Primary Evidence* In order to determine a model's ability to predict behavioral change, all psychosocial determinants of health behavior, such as self-efficacy, outcome expectations, goals, and other impediments, should be included. The social cognitive theory of behavioral change, unlike the other models, employs all the psychosocial determinants of health behaviors in explaining successful behavioral change. The transtheoretical model has been extensively researched although it contains many flaws: (1) rather than transforming the characteristics at one stage into qualitatively different ones at the next, differences in degree are arbitrarily subdivided into categories called stages; (2) instead of recycling through stages, people fluctuate in their struggle to exercise control over their health behavior, and successes are a product of a triadic reciprocal interaction of personal factors, behavior, and environmental facilitators and impediments; (3) when integrating many behavioristic, psychodynamic, and existential theories into a single model to facilitate change, the model becomes atheoretical because it offers contradictory prescriptions on how to change human behavior, and (4) effective interventions must target the constellation of determinants governing health habits in given individuals not contrived stages.

*Conclusions* Unlike other theories of behavioral change, Social Cognitive Theory effectively explains the process of change. The author suggests that structural changes in our society are needed to enlist public support for policy changes that promote health. The development of community organizing principles and implementation models will best enable people to work together to change their lives for the better.

Bandura, A. (1986). *Social foundations of thought & action: A social cognitive theory*. Englewood Cliffs: Prentice Hall.

*Concept of Problem Development* High levels of depression and/or low self-esteem have been suggested to be helpful predictors of transition and maintenance of addictive behaviors. One study by Nathan inferred that individuals-at-risk exhibit excessive behaviors reflecting their lack of appropriate self-control and coping skills.

*Concept of Change* Many studies have demonstrated that outcome expectancies and self-efficacy expectancies can produce desirable outcomes. The process of learning goes something like this: “monkey sees but monkey learns when monkey do.” A principal assumption is that psychological procedures, whatever their form, serve as the means of creating and strengthening expectations of personal efficacy. Personal efficacy then determines the initiation and persistence of coping behaviors.

*Intervention* Cognitive events are induced and altered most readily by the experience of mastery arising from effective performances. Individuals can generate current motivators of behaviors through cognitive representation of future outcomes, positive reinforcement, goal setting, and self-evaluation.

Bandura, A. (1977). *Self-efficacy: Toward a unifying theory of behavioral change*. *Psychological Review*, 84(2), 191-215.

*Description of Context* An integrative approach to explaining the divergence of theory and practice in the field of behavioral change. The author suggests that cognitive processes mediate change and cognitive events are induced and altered most readily by the experience of mastery which arises from effective performance.

*Topic/Scope* Through experience of mastery and effective performance, cognitive processes can play a role in the acquisition and cessation of behavior. Partly rooted in cognitive activities lies the state of motivation, which is concerned primarily with activation and persistence of a particular behavior. Motivation comes in two forms: cognitive representation and intervening influences of goal setting and self-evaluation. With this in mind, a conceptual theoretical framework for the analysis of behavioral change is presented. The theory is referred to as Self-efficacy. Self-efficacy is defined as one's perception, attitude, and beliefs about his/her ability to cognitively represent future outcomes, set goals, and to successfully execute a particular task. Expectations of personal efficacy (as opposed to expectations of outcome) can determine the length and amount of coping behavior that will be sustained in the face of obstacles to reach an outcome. Efficacy expectations can vary on three dimensions (magnitude, generality, and strength) and come from four sources (performance accomplishments, vicarious experience, verbal persuasion, and emotional arousal). One source, performance accomplishments, is based on personal experiences of mastering the specific behavior. Another source, vicarious experience, refers to the concept of witnessing someone else perform the threatening activity without adverse consequences. A third source of self-efficacy expectations, verbal persuasion, accounts for the idea that people are led, through suggestion or another form of verbal communication, into believing that they can cope successfully with problems. A fourth source, emotional arousal, provides anxiety or vulnerability to stress as examples that affect self-efficacy expectations.

*Conclusions/Recommendations* People process, weigh, and integrate diverse sources of information concerning their capability, while regulating choice behavior and effort expenditure accordingly.

Bandura, A, Adams, N. E., Hardy, A. B., & Howells, G. N. (1980). Tests of the generality of self-efficacy theory. *Cognitive Therapy and Research*, 4(1), 39-66.

<i>Core Argument</i>	Perceived self-efficacy mediates changes in coping behavior and fear arousal.
<i>Primary Evidence</i>	Two studies which tested the explanatory and predictive generality of the self-efficacy theory across additional treatment modalities and behavioral domains. Subjects who were adversely affected by snake phobias comprised one study and participants who were agoraphobics comprised the second study. Both groups were pre- and post-tested for self-efficacy scales on fear arousal. Cognitive modeling and field mastery experiences were administered. The finding in both cases indicated that self-efficacy can be increased by efficacy information being conveyed through several different treatment modalities. Perceived self-efficacy can operate as a cognitive mechanism by which controlability reduces fear arousal.
<i>Recommendations</i>	Further tests of this theory must examine how perceived coping efficacy affects level of arousal as measured physiologically.

DiClemente, C. C. (1986). Self-efficacy and the addictive behaviors. *Journal of Social and Clinical Psychology*, 4(3), 302-315.

<i>Description of Context</i>	Review of the application of self-efficacy theory to a variety of addictive-behavior problems.
<i>Topic/Scope</i>	The construct of self-efficacy has been found to be useful in the process of smoking cessation. The challenges, however, are to define the target behavior for which self-efficacy is to be assessed, and to apply self-efficacy to the abstinence of the addictive behaviors. Currently, many self-efficacy scales exist that can accurately and reliably measure the three levels of self-efficacy expectations (generality, strength, and magnitude). Among them are smoking cessation scales, alcohol abstinence scales, and obesity and bulimic control scales. In addition to its relevance and usefulness for addictive behavioral change, the construct of self-efficacy has also been examined with other demographic, historical, habit, and personality variables. This relationship will further enhance our understanding of self-efficacy and addictive behaviors.
<i>Conclusions/ Recommendations</i>	The function of self-efficacy has been explored in understanding the etiology and treatment of addictive behaviors. It can be applied to smoking cessation, excessive alcohol consumption, and eating disorders. It can also be used to assess demographic and personal predictors of the problem behaviors.

### **Transtheoretical Model**

DiClemente, C. C. (1993). Changing addictive behaviors: A process perspective. *American Psychological Society*, 2(4): 101-106.

<i>Description of Context</i>	Discussion of the process and stages that successfully modify individual addictive behavior through the use of the transtheoretical model.
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*Topic/Scope* The transtheoretical model focuses on intentional change in which multiple processes of change are specifically matched to the particular stage of readiness to change. For individuals in the precontemplation stage practitioners would emphasize to them the processes of consciousness-raising and social liberation. For contemplators, consciousness-raising and social liberation continue to be emphasized in addition to the processes of emotional arousal and self-reevaluation.

Individuals in the preparation stage will successfully progress toward behavior change if they employ the processes of social liberation, emotional arousal, self-reevaluation, and commitment. Reward, countering, environment control, helping relationships, and commitment are all important processes in the action, maintenance, and termination stages. Interventions should be stage-based with feedback that focuses on the specific processes of change.

*Conclusions/Recommendations* The transtheoretical model provides an integrative framework for understanding change in addictive behaviors.

*Prochaska, J. O. (1994). Strong and weak principles for progressing from precontemplation to action on the basis of twelve problem behaviors. Health Psychology : Official Journal of the Division of Health Psychology, American Psychological Association, 13(1), 47-51.*

*Objective* To explore the methods and principles people use to move from the precontemplation to action stage in their cessation of high risk health behaviors.

*Design* Retrospective analysis of data from two previous studies.

*Setting* Subjects were recruited from Texas and Rhode Island.

*Subjects* 3,858 individuals were taken from a previous study to participate as subjects in the first part of this present study and 1,466 smokers participated in the second part of the study. Of this sample, 166 were in the precontemplation stage, 794 smokers were in the contemplation stage and 506 smokers were in the preparation stage. All smokers averaged 29 cigarettes per day. The majority was female.

*Interventions* None.

*Measures* A 5-item scale and a 4-to-5 item algorithm was used for staging subjects and assessing decision-making. In the second study, ie, a 20-item version of the Decisional Balance scale assessed the subjects' pros and cons of smoking at each stage.

*Results* The results supported the hypothesis that in relation to the cons of a healthy behavior change, the pros increased considerably more in groups representing progress from precontemplation to action. Two principles that explain the progression from precontemplation to action were formulated. The strong principle posited that progression from precontemplation to action is a function of about 1 standard deviation increase in the pros of a healthy behavior change. The weak principle posited that progression from precontemplation to action is a function of about 1/2 standard deviation decrease in the cons of a healthy behavior change. Results from the second study showed that the strong principle was able to successfully predict progression from precontemplation to action. The weak principle was also able to predict progression from precontemplation to action, but its predictions were not as great as the strong principle.

*Conclusions* The results of this study provide the ability to predict progress from precontemplation to action as a function of a large difference in the pros of behavior change. These principles can predict the relative magnitude of the difference.

*Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change. applications to addictive behaviors. The American Psychologist, 47(9), 1102-1114.*

<i>Description of Context</i>	Summary of the research on self-initiated and professionally facilitated change of addictive behaviors using the transtheoretical constructs of stages and processes of change.
<i>Topic/Scope</i>	Change occurs in spiral movements through specific stages of change where relapse and recycling often occurs. Progression through the Stages of Change (precontemplation, contemplation, preparation, action and maintenance) is not linear. The second dimension of the transtheoretical model is the process of change which needs to be integrated with the stages of change. The processes of change include: consciousness raising, self-re-evaluation, self-liberation, counter-conditioning, reinforcement management, helping relationships, dramatic relief, environmental reevaluation, and social liberation.
<i>Conclusions/Recommendations</i>	A systematic integration of the stages and processes of change will result in successful self-change and/or psychotherapy. This means doing the right thing (processes) at the right time (stages). The ability of a health professional to ascertain the process and stage of a person will greatly enhance a successful behavior change.

Prochaska, J. O., & Goldstein, M. G. (1991). *Process of smoking cessation. implications for clinicians*. Clinics in Chest Medicine, 12(4), 727-735.

<i>Core Argument</i>	Most smoking cessation programs have been designed for individuals who are ready to take action on their smoking. But, at any point in time, most smokers are in early stages of change and not ready for action. Physicians can potentially help the majority of their patients who smoke by identifying the stage of change (precontemplation, contemplation, preparation, action and maintenance) the patient is in regarding their addiction to smoking. Once the stage is identified, specific physician-generated strategies can be initiated that are designed to move the patient through the stages of change. People do not change chronic behavior such as smoking by following a linear pattern. More often than not, relapse is the rule, not the exception.
<i>Primary Evidence</i>	By studying 1,444 smokers in the first three stages of change, the authors research indicates that helping patients progress one stage doubles the chance that they will not be smoking in six months. Since each smoker has an average of 4.3 visits annually to their physician, the opportunity for intervention during the office visit is high.
<i>Recommendations</i>	By integrating the stages of change model with a patient-centered model of patient education, the physician can move patients from precontemplation through the stages of change and toward action. Identification of the patient's stage of change can be ascertained quickly through a series of three questions. Setting realistic goals at each stage is essential to the patient's progression to the next stage. The physician can facilitate movement to the action phase by clarification, legitimization, expression of support, respect, identification of other supports, assist in self-evaluation, teach self-monitoring of smoking behavior, coping skills, relaxation, goal setting, stimulus controls, reinforcements and rewards. The use of a stage-matched, patient-centered counseling intervention can help physicians to feel less frustrated and more effective in their efforts to help a broad range of their patients.

Prochaska, J. O., Norcross, J. C., & DiClemente, C. C. (1994). *Changing for good*. New York: William Morrow and Company.

<i>Concept of Problem Development</i>	Not provided
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*Concept of Change* Change requires the application of different processes (consciousness-raising, social liberation, emotional arousal, self-reevaluation, commitment, countering, environment control, rewards, helping relationships) at different stages (precontemplation, contemplation, preparation, action, maintenance, termination). The goal of consciousness-raising is to increase information about self and the problem. Social liberation is to increase social alternatives for behaviors that are not problematic. Emotional arousal is to experience and express feelings about one's problems and solutions. Self-reevaluation is to assess feelings and thoughts about self with respect to a problem. Commitment is to choose and commit to act, or belief in one's ability to change. Countering is to substitute alternatives for problem behaviors. Environment control is to avoid stimuli that elicit problem behaviors. Reward is to reward self or being rewarded by others for making changes. Helping relationships is to enlist the help of someone who cares. Experiential processes are processes related to cognition. Behavioral processes are predominantly used during action and post-action stages. The six stages of change describe one's readiness to change. Individuals in the precontemplation stage have no intention of changing their behavior. Contemplators acknowledge that they have a problem, struggle to understand it, and wonder about possible solutions. Individuals in the action stage have overtly modified their behavior and their surroundings. Individuals who have successfully maintained modifications made to their behavior would be in the maintenance stage of change. In the termination stage, the former problem does not present any more temptation or threat. Change works in a spiral pattern in which relapse is a rule not an exception to addictive behaviors.

*Interventions* The key to successful change is to use the right strategy at the right time. Processes, such as consciousness raising and self-reevaluation, are most important for individuals in the contemplation stage. More behavioral processes, such as countering and commitment, are emphasized as individuals progress into the action stage of change. In the maintenance stage, behavioral processes continue to be emphasized.

*Prochaska, J. O., Velicer, W. F., Rossi, J. S., Goldstein, M. G., Marcus, B. H., Rakowski, W., Fiore, C., Harlow, L. L., Redding, C. A., Rosenbloom, D., & Rossi, S. R. (1994). Stages of change and decisional balance for 12 problem behaviors. Health Psychology : Official Journal of the Division of Health Psychology, American Psychological Association, 13(1), 39-46.*

*Objectives* To test the generalizability of transtheoretical model across twelve- problem behaviors. The 12 problem behaviors were smoking cessation, cocaine quitting, weight control, high-fat diet, adolescent delinquency, safe sex, condom-use, sunscreen-use, radon-gas exposure, exercise acquisition, mammography screening, and physicians assisting smokers.

*Design* Survey.

*Setting* Individuals were recruited in Rhode Island, Massachusetts, Texas, and California.

*Subjects* 3,858 subjects were divided into one of the above 12 problem behavior samples.

*Interventions* None.

*Measures* A 5-item algorithm was used for determining the stages of change and the decisional balance (pros and cons of the behavior), ranging from 1=not important to 5=extremely important.

*Results* The pros of changing behavior outweigh the cons before participants take action to modify behavior. For all twelve behaviors, precontemplators reported more cons of changing than pros of changing. In contrast, individuals in the action stage reported more pros than cons of changing their behavior.

*Conclusions* The Stages of Change and the decisional balance were found to be generalizable across the twelve behaviors. The results suggest that progress from precontemplation to contemplation involves an increase in the evaluation of the pros of changing. Progressing from contemplation to action involves a decrease in the cons of changing.

## **Models Compared and Reviewed**

Clark, N. M., & Becker, M. H. (1998). Theoretical Models and Strategies for Improving Adherence and Disease Management. In: Shumaker, S., Schron, E. B., Ockene, J. K., & McBee, W. L., (eds), *The Handbook of Health Behavior Change: Second Edition*. New York, Springer Publishing Company: 5-32.

Elder, J. P., Ayala, G. X., & Harris, S. (1999). *Theories and intervention approaches to health-behavior change in primary care*. *American Journal of Preventive Medicine*, 17(4), 275-284.

*Abstract* Providers typically rely on health information and their professional status to convince patients to change. Health-behavior theories and models suggest more effective methods for accomplishing patient compliance and other behavior change related to treatment regimens. Behavior modification stresses the remediation of skill deficits or using positive and negative reinforcement to modify performance. Like behavior modification, the Health Belief Model stresses a reduction of environmental barriers to behavior. Social Learning Theory suggests that perceptions of skills and reinforcement may more directly determine behavior. Self-management models put the above theories into self-change actions. Social support theories prioritize reinforcement delivered through social networks, whereas the Theory of Reasoned Action emphasizes perceptions of social processes. Finally, the Transtheoretical Model speaks of the necessity to match interventions to cognitive-behavioral stages. Strategies derived from each of these theories are suggested herein.

Goldstein, M. G., DePue, J. DePue, Kazura, A., & Niaura, R. (1998). Models for provider-patient interaction: Applications to health behavior change. In: Shumaker, S. A., Schron, E., Ockene, J., & McBee, W.L., eds. *The Handbook of Health Behavior Change: Second Edition*. New York, Springer Publishing company: 85-113.

*Abstract* In this chapter, we will first describe the barriers to delivery of behavior change interventions in health care settings. Then, we will describe several models which may be used to enhance provider-patient interaction to facilitate patient adherence and behavior change. We will review a Systems Model described by Walsh and McPhee (1992) and a Patient Path Model (Pommerenke & Dietrich, 1992), both of which integrate patient and provider factors with the health care delivery system and organizational factors which impact the delivery of care and patient outcomes. We also discuss three models which focus in more detail on the provider-patient interaction: the Transtheoretical Model (Prochaska & DiClemente, 1986); Motivational Interviewing (Miller & Rolnick, 1991); and a Patient-Centered Patient Education model (Grueninger, Duffy, & Goldstein, 1995). The latter approach integrates features from the first two, and emphasizes the importance of tailoring interventions to the specific needs of patients and utilizing counseling skills to enhance the outcome of the encounter. Examples of interventions are given to illustrate potential applications of these models.

Mullen, P. D., Hersey, J. C., & Iverson, D. C. (1987). *Health behavior models compared*. *Social Science & Medicine* (1982), 24(11), 973-981.

*Objective* To compare three health behavior models (Health Belief, Fishbein/Ajzen, PRECEDE) for predicting changes in smoking, exercise, and consumption of sweet and fried foods.

*Design* Survey.

*Setting* Two hour-long household interviews were conducted in Denver and Phoenix.

*Subjects* Three hundred twenty-six individuals (56% Caucasian, 23% Hispanic, 20% Black, 17-65 years old) participated in this study. In the sample, 54% were female. 50% of the sample had an income between \$10,000 and \$25,000, and 38% had more than a high school education.

*Interventions* None

<i>Measures</i>	Questions assessing smoking and exercising were taken from the National Health Practices and Consequences Survey and the Stanford Three Community Study. Questions assessing dietary habits were taken from the National Health and Nutrition Examination Survey. Measurements for these behaviors relied on self-report. For each behavioral area, a seven-point response scale was used to assess components of the three models. The interval between the interviews was eight months, resulting in effects of seasonality that influenced components of the exercise questionnaire. The first interview, conducted in the spring, reported more swimming and walking. The second interview, held in the fall, reported more bicycling and gardening.
<i>Results</i>	Initial behavior was a good predictor of final behavior, reflecting stability of behavior. Demographic characteristics proved to be important predictors of behavior. Older subjects exercised less and were less likely to attempt to quit smoking. Younger subjects were most frequent consumers of sweet foods. Women exercised less than men. Smoker's concern about susceptibility to serious illness was associated with attempts to quit smoking. Perceived benefits, confidence, and behavioral intention were all important in predicting behavior. PRECEDE was the most effective model in predicting all the behaviors except for attempts to quit smoking. Except for ability to predict smoking cessation attempts, the Fishbein/Ajzen model was the least effective.
<i>Conclusions</i>	Fishbein/Ajzen model was not as effective as PRECEDE and the Health Belief Model in predicting behavior. Self-efficacy was a key predictor of change in health behavior.

*Sutton, S. (1987). Social-psychological approaches to understanding addictive behaviours: Attitude-behaviour and decision-making models. British Journal of Addiction, 82(4), 355-370.*

<i>Description of Context</i>	Three theories of decision-making and attitude-behavior that have been or are potentially applicable to addictive behaviors were reviewed. The three theories are Subjective Expected Utility (SEU), Fishbein & Ajzen's theory of Reasoned Action, and the Health Belief Model.
<i>Topic/Scope</i>	SEU states that action depends on subjective values (utilities) attached to the probability that the action will lead to outcome. Fishbein & Ajzen's theory of reasoned action states that intentional behavior change depends on one's attitude toward the behavior plus subjective norm. According to the Health Belief model, the probability that a given preventive action will be undertaken depends on: (1) perceived severity of the threats; (2) perceived susceptibility to the threats; (3) perceived benefits of the recommended action in reducing the risk or the severity of the threats, and (4) perceived barriers or costs related to adopting the behavior. The strengths and weaknesses of each model were discussed.
<i>Conclusions/Recommendations</i>	The three models of attitude-behavior and decision-making provide a rich source of ideas that serve to further understanding of behaviors, especially addictive behaviors.

### III. INTERVENTIONS FOR CHANGING SPECIFIC BEHAVIORS

#### General and Miscellaneous

Goldstein, M. G., Whitlock, E. P., DePue, J., & Planning Committee of the Addressing Multiple Behavioral Risk Factors in Primary Care Project. (2004). *Multiple behavioral risk factor interventions in primary care. summary of research evidence*. American Journal of Preventive Medicine, 27(2 Suppl), 61-79.

<i>Background</i>	An important barrier to the delivery of health behavior change interventions in primary care settings is the lack of an integrated screening and intervention approach that can cut across multiple risk factors and help clinicians and patients to address these risks in an efficient and productive manner.
<i>Methods</i>	We review the evidence for interventions that separately address lack of physical activity, an unhealthy diet, obesity, cigarette smoking, and risky/harmful alcohol use, and evidence for interventions that address multiple behavioral risks drawn primarily from the cardiovascular and diabetes literature.
<i>Results</i>	There is evidence for the efficacy of interventions to reduce smoking and risky/harmful alcohol use in unselected patients, and evidence for the efficacy of medium- to high-intensity dietary counseling by specially trained clinicians in high-risk patients. There is fair to good evidence for moderate, sustained weight loss in obese patients receiving high-intensity counseling, but insufficient evidence regarding weight loss interventions in nonobese adults. Evidence for the efficacy of physical activity interventions is limited. Large gaps remain in our knowledge about the efficacy of interventions to address multiple behavioral risk factors in primary care.
<i>Conclusions</i>	We derive several principles and strategies for delivering behavioral risk factor interventions in primary care from the research literature. These principles can be linked to the "5A's" construct (assess, advise, agree, assist, and arrange-follow up) to provide a unifying conceptual framework for describing, delivering, and evaluating health behavioral counseling interventions in primary healthcare settings. We also provide recommendations for future research.

Kelly, R. B., Zyzanski, S. J., & Alemagno, S. A. (1991). *Prediction of motivation and behavior change following health promotion: Role of health beliefs, social support, and self-efficacy*. Social Science & Medicine (1982), 32(3), 311-320.

<i>Objective</i>	To examine health beliefs, social support, and self-efficacy theories in predicting motivation and behavior change for six lifestyle areas (smoking, stress, amount of food, exercise, type of food, and seat belts).
<i>Design</i>	Experimental.
<i>Setting</i>	An outpatient clinic of a family practice residency program in suburban Cleveland.
<i>Subjects</i>	Two-hundred fifteen patients were recruited to participate in the study of whom 70% were women, 97% were White, 90% had a high school education or higher, 12% had family incomes below \$10,000 annually, 58% had used the practice for more than 2 years, and 45% had been seen by the physician they saw at study entry more than twice before.
<i>Interventions</i>	Three health promotion interventions were employed: (1) a brief assessment of lifestyle risk factors by questionnaire, (2) physician prescription of lifestyle change, and (3) patient self-help instructional material. Participants were randomly assigned to one of the above three treatment groups and then asked to answer questionnaires. An additional group served as the control group. Individuals in the control group were participants outside of this treatment program.
<i>Measures</i>	No standardized methods were used to measure health beliefs, support for change, or self-efficacy. Visual analog scales were used, and participant's marks were measured by ruler.

*Results* There were two outcomes of interest: predictors of motivation to change and predictors of actual behavioral change. At the time of the initial assessment, 67, 113, 112, 132, 127, 142 individuals were at risk for the above lifestyle areas, respectively, and 75%, 72%, 63%, 50%, 46%, and 12% of the subjects were motivated to change for the above lifestyle areas, respectively. Perceived benefits and risk (Health Belief Model) and efficacy (Self-Efficacy Model) were the strongest predictors of motivation. For at-risk patients, the greater the perceived risk and benefits of change, the lower the self-efficacy (patients believe it more difficult to change the behavior). From this study, motivation (not Health Belief, Social Support, and self-efficacy models) was able to predict behavior change. The variable of social support was not able to predict motivation or change but was related to efficacy of expectations.

*Conclusions* Health beliefs and self-efficacy are good predictors of motivation for change in most lifestyle areas. Motivation for change is clearly related to behavioral responses to the health promotion intervention.

Whitlock, E. P., Orleans, C. T., Pender, N., & Allan, J. (2002). *Evaluating primary care behavioral counseling interventions: An evidence-based approach*. *American Journal of Preventive Medicine*, 22(4), 267-284.

*Description of Context* Risky behaviors are a leading cause of preventable morbidity and mortality, yet behavioral counseling interventions to address them are underutilized in healthcare settings. Research on such interventions has grown steadily, but the systematic review of this research is complicated by wide variations in the organization, content, and delivery of behavioral interventions and the lack of a consistent language and framework to describe these differences. The Counseling and Behavioral Interventions Work Group of the United States Preventive Services Task Force (USPSTF) was convened to address adapting existing USPSTF methods to issues and challenges raised by behavioral counseling intervention topical reviews

*Topic/Scope* The systematic review of behavioral counseling interventions seeks to establish whether such interventions addressing individual behaviors improve health outcomes. Few studies directly address this question, so evidence addressing whether changing individual behavior improves health outcomes and whether behavioral counseling interventions in clinical settings help people change those behaviors must be linked. To illustrate this process, we present two separate analytic frameworks derived from screening topic tools that we developed to guide USPSTF behavioral topic reviews.

*Conclusions/Recommendations:* No simple empirically validated model captures the broad range of intervention components across risk behaviors, but the Five A's construct—assess, advise, agree, assist, and arrange—adapted from tobacco cessation interventions in clinical care provides a workable framework to report behavioral counseling intervention review findings. We illustrate the use of this framework with general findings from recent behavioral counseling intervention studies. Readers are referred to the USPSTF ([www.ahrq.gov/clinic/prevenix.htm](http://www.ahrq.gov/clinic/prevenix.htm) or 1-800-358-9295) for systematic evidence reviews and USPSTF recommendations based on these reviews for specific behaviors

## **Adherence**

Meichenbaum, D., & Turk, D. (1987). *Facilitating treatment adherence: A practitioner's guidebook*. New York: Plenum Press.

*Description of Context* A textbook that provides practical clinical guidelines and describes techniques for enhancing patient adherence to treatment regimens

*Topic/Scope* The text is divided into three sections. The first part deals with the nature of adherence. The current research on incidence of non-adherence and its causes is summarized. Part two outlines clinical procedures to enhance adherence such as relationship building, patient education, and behavioral and cognitive techniques. Part three further explores the procedures and discusses possible impediments to their incorporation into clinical practice

*Conclusions/ Recommendations:* Facilitating treatment adherence is an ongoing process and not something that can be satisfactorily addressed by a brief discussion or simple techniques. It is essential to consider a patient perspective and to take this into account

### **Alcohol Abuse and Risky Drinking**

Babor, T. F., & Higgins-Biddle, J. C. (2001). *Brief Intervention for Hazardous and Harmful Drinking: A Manual for Primary Care*. Geneva, World Health Organization: Department of Mental Health and Substance Dependence.

Babor, T. F., Korner, P., Wilber, C., & Good, S. P. (1987). Screening and early intervention strategies for harmful drinkers: Initial lessons from the amethyst project. *Australian Drug and Alcohol Review*, 6: 325-339.

*Description of Context* Review of recent advances in the secondary prevention of alcohol-related problems. A special emphasis was put on theoretical assumptions, intervention strategies, and barriers to implementation in primary care setting.

*Topic/Scope* A review of research in the controlled drinking, abstinence goals, and behavioral self-control training indicates that while the concept of secondary prevention is attracting widespread interest (perhaps due to reasons of low cost, the modest investment of time and resources required), the development of effective early interventions is still in its early stages. The problem in designing and evaluating early intervention programs may be due to (1) participation of patients (not all heavy drinkers who are interested in controlling their drinking are willing to follow the advice of a well-designed manual, or at least participate in a brief follow-up evaluation of their drinking); and (2) not all general practitioners will use this procedure when it is made available. Early interventions should incorporate behavior change strategies into their goal. The behavioral change strategies are decision-making, action, and maintenance, where each strategy is based on a psychological principle. The World Health Organization's Alcohol Misuse Early Treatment Intervention Study (Amethyst) project is a multinational field trial of low cost strategies suitable for use with problem drinkers in the primary health care setting. The project illustrates an early intervention of counseling, coupled with a problem solving self-help manual that is administered to patients with early drinking problems. The project concluded that due to this type of intervention, early drinkers decreased their alcohol consumption.

*Conclusions/ Recommendations* Secondary interventions in primary care settings can be effective in initiating behavior change.

*U.S. Preventive Services Task Force. (2004). Screening and behavioral counseling interventions in primary care to reduce alcohol misuse: Recommendation statement. Annals of Internal Medicine, 140(7), 554-556.*

*Abstract*

This statement summarizes the U.S. Preventive Services Task Force (USPSTF) recommendations on behavioral counseling interventions to reduce alcohol misuse in primary care patients and updates the 1996 recommendations on this topic. The complete information on which this statement is based, including evidence tables and references, is available in the accompanying article in this issue and in the systematic evidence review on this topic. The complete USPSTF recommendation statement (which includes a brief review of the supporting evidence), the accompanying journal article, and the complete systematic evidence review are available through the USPSTF Web site (<http://www.preventiveservices.ahrq.gov>). The journal article and the USPSTF recommendation statement are available in print through the Agency for Healthcare Research and Quality Publications Clearinghouse (telephone, 800-358-9295; e-mail, [ahrqpubs@ahrq.gov](mailto:ahrqpubs@ahrq.gov)).

*Whitlock, E. P., Polen, M. R., Green, C. A., Orleans, T., Klein, J., & U.S. Preventive Services Task Force. (2004). Behavioral counseling interventions in primary care to reduce risky/harmful alcohol use by adults: A summary of the evidence for the U.S. preventive services task force. Annals of Internal Medicine, 140(7), 557-568.*

<i>Background</i>	Primary health care visits offer opportunities to identify and intervene with risky or harmful drinkers to reduce alcohol consumption.
<i>Purpose</i>	To systematically review evidence for the efficacy of brief behavioral counseling interventions in primary care settings to reduce risky and harmful alcohol consumption.
<i>Data Sources</i>	Cochrane Database of Systematic Reviews, Database of Research Effectiveness (DARE), MEDLINE, Cochrane Controlled Clinical Trials, PsycINFO, HealthSTAR, CINAHL databases, bibliographies of reviews and included trials from 1994 through April 2002; update search through February 2003.
<i>Study Selection</i>	An inclusive search strategy (alcohol* or drink*) identified English-language systematic reviews or trials of primary care interventions to reduce risky/harmful alcohol use. Twelve controlled trials with general adult patients met our quality and relevance inclusion criteria.
<i>Data Extraction</i>	Investigators abstracted study design and setting, participant characteristics, screening and assessment procedures, intervention components, alcohol consumption and other outcomes, and quality-related study details.
<i>Data Synthesis</i>	Six to 12 months after good-quality, brief, multicontact behavioral counseling interventions (those with up to 15 minutes of initial contact and at least 1 follow-up), participants reduced the average number of drinks per week by 13% to 34% more than controls did, and the proportion of participants drinking at moderate or safe levels was 10% to 19% greater compared with controls. One study reported maintenance of improved drinking patterns for 48 months.
<i>Conclusions</i>	Behavioral counseling interventions for risky/harmful alcohol use among adult primary care patients could provide an effective component of a public health approach to reducing risky/harmful alcohol use. Future research should focus on implementation strategies to facilitate adoption of these practices into routine health care.

## **Diet and Weight Management**

*McTigue, K. M., Harris, R., Hemphill, B., Lux, L., Sutton, S., Bunton, A. J., & Lohr, K. N. (2003). Screening and interventions for obesity in adults: Summary of the evidence for the U.S. preventive services task force. Annals of Internal Medicine, 139(11), 933-949.*

<i>Background</i>	Obesity poses a considerable and growing health burden. This review examines evidence for screening and treating obesity in adults.
<i>Data Sources</i>	MEDLINE and Cochrane Library (January 1994 through February 2003).
<i>Study Selection</i>	Systematic reviews; randomized, controlled trials; and observational studies of obesity's health outcomes or efficacy of obesity treatment.

*Data Extraction* Two reviewers independently abstracted data on study design, sample, sample size, treatment, outcomes, and quality.

*Data Synthesis* No trials evaluated mass screening for obesity, so the authors evaluated indirect evidence for efficacy. Pharmacotherapy or counseling interventions produced modest (generally 3 to 5 kg) weight loss over at least 6 or 12 months, respectively. Counseling was most effective when intensive and combined with behavioral therapy. Maintenance strategies helped retain weight loss. Selected surgical patients lost substantial weight (10 to 159 kg over 1 to 5 years). Weight reduction improved blood pressure, lipid levels, and glucose metabolism and decreased diabetes incidence. The internal validity of the treatment trials was fair to good, and external validity was limited by the minimal ethnic or gender diversity of volunteer participants. No data evaluated counseling harms. Primary adverse drug effects included hypertension with sibutramine (mean increase, 0 mm Hg to 3.5 mm Hg) and gastrointestinal distress with orlistat (1% to 37% of patients). Fewer than 1% (pooled samples) of surgical patients died; up to 25% needed surgery again over 5 years.

*Conclusions* Counseling and pharmacotherapy can promote modest sustained weight loss, improving clinical outcomes. Pharmacotherapy appears safe in the short term; long-term safety has not been as strongly established. In selected patients, surgery promotes large amounts of weight loss with rare but sometimes severe complications.

*Pignone, M. P., Ammerman, A., Fernandez, L., Orleans, C. T., Pender, N., Woolf, S., Lohr, K. N., & Sutton, S. (2003). Counseling to promote a healthy diet in adults: A summary of the evidence for the U.S. preventive services task force. American Journal of Preventive Medicine, 24(1), 75-92.*

*Description of Context* The purpose of this study was to examine the effectiveness of counseling to promote a healthy diet among patients in primary care settings. Design and data sources. We conducted a MEDLINE search from 1966 to December 2001. Study selection. We included randomized controlled trials of at least 3 months' duration with measures of dietary behavior that were conducted in patient populations similar to those found in primary care practices. We excluded studies that reported only biochemical or anthropomorphic endpoints, had dropout rates greater than 50%, or enrolled patients based on the presence of a chronic disease.

*Topic/Scope* One author extracted relevant data from each included article into evidence tables. Using definitions developed by the research team, two authors independently rated each study in terms of its effect size, the intensity of its intervention, the patient risk level, and the use of well-proven counseling techniques. We identified 21 trials for use in this review. Dietary counseling produces modest changes in self-reported consumption of saturated fat, fruits and vegetables, and possibly dietary fiber. More-intensive interventions were more likely to produce important changes than brief interventions, but they may be more difficult to apply to typical primary care patients. Interventions using interactive health communications, including computer-generated telephone or mail messages, can also produce moderate dietary changes.

*Conclusions/Recommendations:* Moderate- or high-intensity counseling interventions, including use of interactive health communication tools, can reduce consumption of saturated fat and increase intake of fruit and vegetable. Brief counseling of unselected patients by primary care providers appears to produce small changes in dietary behavior, but its effect on health outcomes is unclear

*U.S. Preventive Services Task Force. (2003). Behavioral counseling in primary care to promote a healthy diet: Recommendations and rationale. American Journal of Preventive Medicine, 24(1), 93-100.*

*Abstract* This statement summarizes the U.S. Preventive Services Task Force (USPSTF) recommendations on counseling to promote a healthy diet in primary care patients and the supporting evidence, and it updates the 1996 recommendations contained in the second edition of *Guide to Clinical Preventive Services*. Explanations of the ratings and of the strength of overall evidence are given in and , respectively. The complete information on which this statement is based, including evidence tables and references, is available in the Systematic Evidence Review on this topic, which can be obtained through the USPSTF website (<http://www.preventiveservices.ahrq.gov>) and in print through the Agency for Healthcare Research and Quality (AHRQ) Publications Clearinghouse (call 1-800-358-9295 or e-mail <mailto:ahrqpubs@ahrq.gov>).

U.S. Preventive Services Task Force (2003). Screening for obesity in adults: Recommendations from the U.S. Preventive Services Task Force. *Annals of Internal Medicine*, 139(11): 930-2.

*Abstract* This statement summarizes the U.S. Preventive Services Task Force (USPSTF) recommendations on screening for obesity in adults based on the USPSTF's examination of evidence specific to obesity and overweight in adults and updates the 1996 recommendations on this topic. The complete USPSTF recommendation and rationale statement on this topic, which includes a brief review of the supporting evidence, is available through the USPSTF Web site (<http://www.preventiveservices.ahrq.gov>), the National Guideline Clearinghouse (<http://www.guideline.gov>), and in print through the Agency for Healthcare Research and Quality Publications Clearinghouse (telephone, 800-358-9295; e-mail, [ahrqpubs@ahrq.gov](mailto:ahrqpubs@ahrq.gov)). The complete information on which this statement is based, including evidence tables and references, is available in the accompanying article in this issue and in the summary of the evidence and systematic evidence review on the Web sites already mentioned. The summary of the evidence is also available in print through the Agency for Healthcare Research and Quality Publications Clearinghouse.

## Physical Activity

*Eden, K. B., Orleans, C. T., Mulrow, C. D., Pender, N. J., & Teutsch, S. M. (2002). Does counseling by clinicians improve physical activity? A summary of the evidence for the U.S. preventive services task force. Annals of Internal Medicine, 137(3), 208-215.*

*Purpose* To determine whether counseling adults in primary care settings improves and maintains physical activity levels.

*Data Sources* The Cochrane Database of Systematic Reviews and Registry of Controlled Trials and the MEDLINE, HealthStar, and Best Evidence databases were searched for papers published from 1994 to March 2002.

*Study Selection* Controlled trials, case-control studies, and observational studies that examined counseling interventions aimed at increasing physical activity in general primary care populations were reviewed. The researchers included trials in which 1) a patient's primary care clinician performed some of the counseling intervention; 2) behavioral outcomes (physical activity) were reported; and 3) the study was of "good" or "fair" quality, according to criteria developed by the U.S. Preventive Services Task Force.

*Data Extraction* Data were abstracted on design and execution, quality, providers, patients, setting, counseling intervention, and self-reported physical activity at follow-up.

*Data Synthesis* Eight trials involving 9054 adults met the inclusion criteria. Among six controlled trials with a usual care control group, the effects of counseling on physical activity were mixed. Because most studies had at least one methodologic limitation, it was difficult to rigorously assess the efficacy of the interventions. More research is needed to clarify the effect, benefits, and potential harms of counseling patients in primary care settings to increase physical activity.

*Conclusions* Evidence is inconclusive that counseling adults in the primary care setting to increase physical activity is effective.

Pinto, B. M., Goldstein, M. G., & Marcus, B. H. (1998). *Activity counseling by primary care physicians*. *Preventive Medicine*, 27(4), 506-513.

<i>Description of Context</i>	Modifying patients' sedentary lifestyle, a risk factor for many chronic diseases, is a challenge to health professionals. Although physicians can play a vital role in promoting physical activity among sedentary patients, the prevalence of physician-based exercise counseling is low.
<i>Topic/Scope</i>	This paper presents a review of studies that have targeted physicians as agents of behavior change. Changing sedentary behavior is more likely to be effective when the intervention is grounded in theory.
<i>Conclusions/Recommendations:</i>	This paper outlines an integration of two theoretical models that have potential for enhancing behavior change, and it describes specific techniques for physicians interested in promoting a more active lifestyle among their patients.

U.S. Preventive Services Task Force. (2002). *Behavioral counseling in primary care to promote physical activity: Recommendation and rationale*. *Annals of Internal Medicine*, 137(3), 205-207.

*Abstract* This statement summarizes the U.S. Preventive Services Task Force (USPSTF) recommendations on counseling by primary care physicians to promote physical activity and the supporting scientific evidence, and it updates the 1996 recommendations contained in the Guide to Clinical Preventive Services, second edition. The complete USPSTF recommendations and rationale statement on this topic, which includes a brief review of the supporting evidence, is available through the USPSTF Web site ([www.preventiveservices.ahrq.gov](http://www.preventiveservices.ahrq.gov)), the National Guideline Clearinghouse ([www.guideline.gov](http://www.guideline.gov)), and in print through the Agency for Healthcare Research and Quality Publications Clearinghouse (telephone, 800-358-9294; e-mail, [ahrqpubs@ahrq.gov](mailto:ahrqpubs@ahrq.gov)). The complete information on which this is based, including tables and references, is available in the accompanying article in this issue and in the summary of the evidence and systematic evidence review on the Web sites already mentioned.

## **Tobacco Use**

Fiore, M. C., Bailey, W. C., & Cohen, S. J. (2000). *Treating Tobacco Use and Dependence. A Clinical Practice Guideline*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service.

<i>Description of Context</i>	Clinical Practice Guideline, published by the Agency for Health Care Research and Policy
<i>Topic/Scope</i>	Systematic and comprehensive review of tobacco treatment intervention research. Meta-analyses were conducted to determine the efficacy of a wide range of clinical tobacco interventions, including brief advice and counseling, pharmacotherapy and behavioral and psychosocial treatments.
<i>Conclusions/Recommendations:</i>	The Guideline documents the impact of brief clinician advice and counseling on smoking cessation outcome. A significant effect was noted for brief advice and a dose-response relationship was found for the intensity of clinician intervention (i.e., number of minutes of counseling) and smoking cessation outcome. The guideline strongly recommends that clinicians to provide a 5A-based counseling intervention to every smoker at every visit. Nicotine replacement or other effective pharmacotherapy should be offered to all patients, if not contraindicated. Clinician training in brief counseling and use of reminder and other organizational systems are also recommended.

#### IV. MOTIVATIONAL INTERVIEWING AND RELATED INTERVENTIONS

Botelho, R. J., & Skinner, H. (1995). *Motivating change in health behavior. implications for health promotion and disease prevention*. *Primary Care, 22*(4), 565-589.

*Core Argument* Practitioners can motivate patients to reduce the risks and harms associated with unhealthy behaviors by utilizing effective motivational agents and a motivational approach to behavior change. Examples relate to smoking and excessive alcohol use but can be applied to a broad range of behavior modifications.

*Primary Evidence* Practitioner approaches to health behavior change include Traditional Advice Giving ("Don't Drink!"), Patient-Centered Advice-Giving ("What really concerns me is that you don't seem to be bothered by your drinking.") and the Cognitive Behavioral Approach which assumes the patient lacks the skills to initiate and maintain change. The Motivational Approach to change assumes that most patients know how to change and have the skills to change but may lack the motivation to change. Practitioners are encouraged to utilize Motivational Interviewing techniques and apply the principles of Self-Determination Theory as patients move through the stages of change which consist of precontemplation, contemplation, preparation, action, and maintenance. These stages of change within the Transtheoretical Model give the practitioner a clear picture of the patient's progression toward behavior change. Practitioners are encouraged to assist patients in initiating change from within rather than being imposed from external or internal sources. Effective motivational agents to ensure that practitioners encourage movement through the stages of change include an empathic relationship, support of the patient's autonomy, provide information in a nonthreatening manner, work with rather than against patient resistance, and an understanding of personal assumptions about behavior that will affect the practitioner-patient relationship. The Motivational Approach is extensively outlined with numerous narrative examples that apply to the medical interview. Direct and indirect interventions initiated by the practitioner that help patients enhance their priorities for change and diminish their priorities against change are clearly outlined.

*Conclusions/ Recommendations* Practitioners are more likely to help patients initiate and maintain behavior change for health promotion and disease prevention if they use a Motivational Approach to behavior change rather than a controlling approach.

Miller, W. R., & Rollnick, S. (2002). *Motivational interviewing: Preparing people to change addictive behavior, 2<sup>nd</sup> ed.* New York: Guilford Publications.

*Description of Context* An intervention for facilitating behavior change in the area of addiction.

*Topic/Scope* In preparing people to change addictive behaviors, there are two phases with specific tasks which individual progress through. Phase I focuses on building the patient's motivation to change. This can be accomplished by: (1) asking open-ended questions; (2) listening reflectively; (3) directly affirming and supporting the patient; (4) summarizing statements, and (5) eliciting self-motivational statements from the patient who presents the argument for change. Phase II focuses on strengthening patients' commitment to change. This can be accomplished by: (1) summarizing the patient's current situation; (2) asking open-ended questions; (3) offering a cluster of the best information/advice upon request, but being careful not to fall into the "yes, but...." trap and (4) negotiating a plan and arriving at the plan. When helping patients go through Phase I and Phase II, five principles of motivational interviewing must be considered: (1) express empathy; (2) develop discrepancy; (3) avoid argumentation; (4) roll with resistance, and, (5) support self-efficacy.

*Conclusions/ Recommendations* Motivational interviewing has been empirically tested and shown to be an effective intervention in preparing people to change addictive behaviors.

Miller, W. R. (2000). *Rediscovering fire: Small interventions, large effects*. *Psychology of Addictive Behaviors : Journal of the Society of Psychologists in Addictive Behaviors*, 14(1), 6-18.

<i>Description of Context</i>	Unexpected findings are often the spark for new discoveries and theories. A puzzle emerged from a series of unanticipated findings over 3 decades, indicating that for problem drinkers (a) relatively brief interventions can trigger significant change, (b) increasing the intensity of treatment does not consistently improve outcome, (c) therapist empathy can be a potent predictor of client change, and (d) a single empathic counseling session can substantially enhance the outcome of subsequent treatment.
<i>Topic/Scope</i>	These phenomena are considered in light of other findings in the addictions-treatment-outcome literature.
<i>Conclusions/Recommendations:</i>	There is, at present, no cogent explanation for the efficacy of brief interventions. An ancient construct is explored as one possible factor in how some brief encounters may exert large effects in human change. That construct is <i>agape</i> , or unconditional love.

Miller, W. R., Benefield, R. G., & Tonigan, J. S. (1993). *Enhancing motivation for change in problem drinking: A controlled comparison of two therapist styles*. *Journal of Consulting and Clinical Psychology*, 61(3), 455-461.

<i>Objective</i>	To compare two therapist styles of motivational interviewing for change in problem drinking. The two styles were direct-confrontational counseling and client-centered counseling.
<i>Design</i>	Quasi-experimental.
<i>Setting</i>	Subjects were recruited through the news media in the Albuquerque, New Mexico metropolitan area.
<i>Subjects</i>	Forty-two (18 women) individuals served as subjects for the study. Nineteen were married and 30 were employed. Mean age was 40 years. They had mean of 15 years of education, and have been experiencing alcohol-related problems for 7.2 years. For 62% of the sample, this was the first time they had sought help or consultation of any kind with regard to their drinking.
<i>Interventions:</i>	Subjects were randomly assigned to 3 groups: (a) immediate checkup with directive-confrontational counseling; (b) immediate checkup with client-centered counseling; (c) delayed checkup (wait-list control).
<i>Measures</i>	Pre- and post-alcohol consumption were measured by the Drinker Profile structured interview.
<i>Results:</i>	Subjects receiving immediate checkup showed significant reduction in drinking relative to the delayed controls. In terms of the counseling style, the directive-confrontational style yielded significantly more resistance from subjects and predicted poorer outcomes at 1 year for problem drinkers when compared to the client-centered counseling.
<i>Conclusions:</i>	The client-centered counseling was more effective than the direct-confrontational counseling in enhancing motivation for change in problem drinking.

Rogers, C. R. (1959). A theory of therapy, personality, and interpersonal relationships, as developed in the client-centered framework in *Psychology: The Study of a Science*. New York: McGraw-Hill, Inc., Vol. 3, 184-256.

<i>Description of Context</i>	Description of three psychological theories: the theory of therapy, the theory of personality, and the theory of interpersonal relationships.
<i>Topic/Scope</i>	In order for therapy to occur, it is necessary that the following conditions exist: (1) two persons are in contact; (2) the client is in a state of incongruence, vulnerable, or anxious; (3) the therapist is congruent in the relationship; (4) the therapist is experiencing unconditional positive regard toward the client; (5) the therapist is experiencing an empathic understanding of the client's internal frame of reference, and (6) the client perceives conditions (4) and (5), the unconditional positive regard of the therapist for him, and the empathic understanding of the therapist. When the preceding conditions exist and continue, a process of therapy is set in motion which flows with the following characteristics: (1) the client is free in expressing

feelings; (2) the expressed feelings are about him/herself; (3) client increasingly differentiates and discriminates the objects of his/her feelings, perceptions, environment, others, his/her experience, and the interrelationships of these; (4) client's expressed feelings have reference to the incongruity between certain of his/her experiences and concept of self; (5) client comes to experience in awareness the threat of such incongruence; (6) client experiences feelings that once were denied or distorted; (7) client's concept of self becomes reorganized to assimilate and include the previously distorted or denied experiences; (8) the self now includes experiences which previously would have been too threatening to be in awareness; (9) client becomes able to experience the therapist's unconditional positive regard; (10) client feels an unconditional positive self-regard; (11) client experience himself/herself as the locus of evaluation, and (12) client reacts to experience less in terms of his conditions of worth and more in terms of an organismic valuing process. There are ten postulated dimensions that explain the theory of personality. They include: (1) characteristics of the human infant; (2) development of self; (3) the need for positive regard; (4) the development of the need for self-regard; (5) the development of conditions of worth; (6) development of incongruence between self and experience; (7) development of discrepancies in behavior; (8) experience of threat and the process of defense; (9) process of breakdown and disorganization, and (10) process of reintegration. There are many conditions and processes that together contribute to explaining the theory of interpersonal relationship. For communication to be reduced and a relationship to deteriorate, the following conditions are necessary: (1) two persons agree to be in contact and communicate with each other, but (2) marked incongruence exists in one of the person. When these conditions exist and continue, a process is initiated which tends to have the following characteristics: (1) communication is contradictory and/or ambiguous; (2) one person experiences the contradictions and ambiguities; (3) one person is vulnerable and perceives the other person's responses as potentially threatening; (4) one person, who experiences a selection of positive regard but a lack of empathy, becomes less free to express his/her feelings; (5) this causes inaccuracy/distortion of perception in the other person; and (6) defensive behaviors are exhibited. For communication to increase and relationship to improve, the following conditions are necessary: (1) two persons agree to communicate and come in contact with each other; and (2) there is a high degree of congruence. The process of an improving relationship is that: (1) two persons are in congruence; (2) the communication between them is clear; (3) one person perceives the other person's response with empathy for his/her internal frame of reference, and (4) both are satisfied and feel that they made a positive difference in the experience of the other.

*Conclusions/  
Recommendations*

A theoretical framework that provides a basis for successful interpersonal relationships can be essential to the understanding of a successful clinician-patient interaction.

Rollnick, S., Heath, N., & Bell, A. (1992). Negotiating behaviour change in medical settings: The development of brief motivational interviewing. *Journal of Mental Health*, 1, 25-37.

*Description of  
Context*

A brief intervention for medical settings using a form of motivational interviewing. The intervention is patient-centered and developed for patients with varying degrees of readiness to change.

*Topic/Scope*

The interviewer (or clinician) selects a strategy from a menu of the following to match the patient's degree of readiness to change: (1) address issues of lifestyle, stresses, and substance use; (2) address health and substance use; (3) discuss a typical day; (4) discuss the pros and cons of engaging in the behavior; (5) provide information; (6) discuss the future and the present; (7) explore concerns, or (8) help with decision-making. Implications and criticism of the approach are provided as well as suggestions for further research.

*Conclusions/  
Recommendations*

Motivational interviewing can be an effective strategy to help patients articulate their reasons and arguments for and against a behavior change. The goal of motivational interviewing is to work with the patient's need for autonomy through the encouragement of an exploration of his/her ambivalence towards behavior change.

Rollnick, S., Kinnersley, P., & Stott, N. (1993). *Methods of helping patients with behaviour change*. *BMJ (Clinical Research Ed.)*, 307(6897), 188-190.

<i>Description of Context Topic/Scope</i>	Interventions to motivate patients to change addictive behaviors were suggested.  A commonly used, but ineffective strategy to change behavior in the medical interview is direct advice-giving. Research showed that this method is not very convincing to patients. Recommended effective strategies were: (1) tailor interventions to the readiness to change of the patients by categorizing patients into groups (not ready, unsure, ready to change), and (2) train practitioners to respond in a more flexible way about the patient's readiness to change.
<i>Conclusions/ Recommendation</i>	Negotiating behavior change through Motivational Interviewing can be a particularly effective strategy. A patient's motivation to change can be enhanced by using a negotiation method in which the patient, not the practitioner, articulates the concerns and arguments for change.

Rollnick, S., Mason, P., & Butler, C. (1999). *Health Behavior Change: A Guide for Practitioners*. Edinburgh: Churchill Livingstone.

<i>Description of Context Topic/Scope</i>	A wonderful book that provides the key principles of motivational interviewing as applied to general medical settings.  The authors have developed a model remarkably similar to the conviction and confidence model (called instead the importance and confidence model, but also depicted as interacting in a 2 x 2 table).
<i>Conclusions/ Recommendations:</i>	

## V. CLINICIAN TRAINING IN PATIENT-CENTERED COUNSELING

Clark, N. M., Gong, M., Schork, M. A., Evans, D., Roloff, D., Hurwitz, M., Maiman, L. A., & Mellins, R. B. (1998). *Impact of education for physicians on patient outcomes*. *Pediatrics*, 101(5), 831-836.

<i>Description of Context</i>	This study was conducted to assess the impact of an interactive seminar based on self-regulation theory on 1) the treatment practices and communications and education behavior of physicians, 2) the health status and medical care utilization of their pediatric patients with asthma, and 3) the satisfaction with care of the subjects' parents
<i>Topic/Scope</i>	A total of 74 general practice pediatricians were assigned to either a program or a control group in a randomized controlled study. Data were collected from physicians at baseline, and 69 (93%) provided follow-up data 5 months after the program. Data were also collected from 637 of their patients at baseline, and in a 22-month window after the intervention, 472 (74%) of this number provided follow-up data.
<i>Conclusions/Recommendations:</i>	<b>Results:</b> After the seminar, physicians in the program group were more likely than were control group physicians to address patients' fears about medicines, review written instructions, provide a sequence of educational messages, write down how to adjust the medicines at home when symptoms change, and report that they spent less time with their patients. Parents of the children treated by program physicians were significantly more likely than were control group parents to report that the physician had been reassuring, described as a goal that the child be fully active, and gave information to relieve specific worries. After a visit with the physician, these parents were also more likely to report that they knew how to make management decisions at home. After the intervention compared to controls, patients of physicians in the program group were more likely to have received a prescription for inhaled anti-inflammatory medicine and to have been asked by the physician to demonstrate how to use a metered-dose inhaler. After the intervention, children seen by program physicians made significantly fewer nonemergency office visits and visits for follow-up of an episode of symptoms; however, there were no differences in emergency department visits and hospitalizations. Among children who were placed on inhaled corticosteroids during this study, however, children treated by physicians who had received education had significantly fewer symptoms and fewer follow-up office visits, nonemergency physician office visits, emergency department visits, and hospitalizations. <b>Conclusions:</b> The interactive seminar based on theories of self-regulation led to patient-physician encounters that were of shorter duration, had significant impact on the prescribing and communications behavior of physicians, led to more favorable patient responses to physicians' actions, and led to reductions in health care utilization.

Lewin, S. A., Skea, Z. C., Entwistle, V., Zwarenstein, M., & Dick, J. (2001). Interventions for providers to promote a patient-centered approach to clinical consultations. *The Cochrane Database of Systematic Reviews*, Issue 4. Art. No.: CD003267.

<i>Description of Context</i>	A review of 17 studies (RCTs, CCTs, CBA's) examining the effects of interventions directed at health care providers that are intended to promote patient-centered care within clinical consultations, and the extent to which these interventions succeed in making consultations patient centered. It also examines the effects of the interventions on health care behaviors, health status and well-being and patient satisfaction with care.
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*Topic/Scope* A broad definition of Patient-Centered care was adopted for the purposes of the review as follows: 1) health care providers share control of consultations, decisions about interventions or the management of the health problems with patients, and/or 2) health care providers focus on the patient as a person, rather than solely on the disease, in consultations. A number of processes and outcomes might be affected by interventions that aim to promote patient-centered care in the clinical consultation. These outcomes were grouped in the following categories: 1) consultation processes, including the extent to which patient-centered care was judged to be achieved in practice; 2) other health care behaviors, including types of care plans agreed; providers' provision of interventions; patients' adoption of lifestyle behaviors; and patients' use of interventions and services; 3) health status and well-being, including physiological measures (i.e., blood pressure); clinical assessments (i.e., wound healing); patient self-reports of symptom resolution or quality of life; and patient self-esteem; 4) patient and/or families' satisfaction with care.

*Conclusions/Recommendations:* There is fairly strong evidence to suggest that some interventions to promote patient-centered care in clinical consultations may lead to significant increases in the patient centeredness of consultation processes. 12 of the 14 studies that assessed consultation processes showed improvements in some of these outcomes. There is also some evidence that training health care providers in patient-centered approaches may impact positively on patient satisfaction with care. Of the eleven studies that assessed patient satisfaction, six demonstrated significant differences in favor of the intervention group on one or more measures. It is important to note that none of the included studies used measures explicitly designed to assess the patient-centeredness of the consultation. There is currently no gold standard for measure of patient centeredness, and this area needs further work if the effects on consultation processes or interventions to promote patient-centered care are to be appropriately assessed

*Ockene, I. S., Hebert, J. R., Ockene, J. K., Saperia, G. M., Stanek, E., Nicolosi, R., Merriam, P. A., & Hurley, T. G. (1999). Effect of physician-delivered nutrition counseling training and an office-support program on saturated fat intake, weight, and serum lipid measurements in a hyperlipidemic population: Worcester area trial for counseling in hyperlipidemia (WATCH). Archives of Internal Medicine, 159(7), 725-731.*

*Description of Context* Objective: To evaluate the effectiveness of a training program for physician-delivered nutrition counseling, alone and in combination with an office-support program, on dietary fat intake, weight, and blood low-density lipoprotein cholesterol levels in patients with hyperlipidemia.

*Topic/Scope* Participants And Methods: Forty-five primary care internists at the Fallon Community Health Plan, a central Massachusetts health maintenance organization, were randomized by site into 3 groups: (1) usual care; (2) physician nutrition counseling training; and (3) physician nutrition counseling training plus an office-support program. Eleven hundred sixty-two of their patients with blood total cholesterol levels in the highest 25th percentile, having previously scheduled physician visits, were recruited. Physicians in groups 2 and 3 attended a 3-hour training program on the use of brief patient-centered interactive counseling and the use of an office-support program that included in-office prompts, algorithms, and simple dietary assessment tools. Primary outcome measures included change at 1-year of follow-up in percentage of energy intake from saturated fat; weight; and blood low-density lipoprotein cholesterol levels.

*Conclusions/Recommendations:* Results: Improvement was seen in all 3 primary outcome measures, but was limited to patients in group 3. Compared with group 1, patients in group 3 had average reductions of 1.1 percentage points in percent of energy from saturated fat (a 10.3% decrease) ( $P = .01$ ); a reduction in weight of 2.3 kg ( $P < .001$ ); and a decrease of 0.10 mmol/L (3.8 mg/dL) in low-density lipoprotein cholesterol level ( $P = .10$ ). Average time for the initial counseling intervention in group 3 was 8.2 minutes, 5.5 minutes more than in the control group. Conclusion: Brief supported physician nutrition counseling can produce beneficial changes in diet, weight, and blood lipids.

Ockene, J. K., Ockene, I. S., Quirk, M. E., Hebert, J. R., Saperia, G. M., Luippold, R. S., Merriam, P. A., & Ellis, S. (1995). Physician training for patient-centered nutrition counseling in a lipid intervention trial. *Preventive Medicine, 24*(6), 563-570.

<i>Background</i>	<i>We examined the effect of a 3-hr training program on physicians' lipid intervention knowledge, attitudes, and skills. The program teaches physicians skills to conduct a brief dietary risk assessment and provide patient-centered counseling to enable patients with elevated lipids to change their dietary patterns.</i>
<i>Methods</i>	<i>The training is part of a randomized trial of lipid-lowering interventions, the Worcester Area Trial for Counseling in Hyperlipidemia. Primary care internists practicing in a health maintenance organization (HMO) were assessed, before and after training using questionnaires and audiotapes to document changes in knowledge about diet, attitudes about intervention, reported nutrition intervention practices, and counseling and assessment skills. Physicians also rated the value that they thought the training program had to them.</i>
<i>Results</i>	<i>After completion of the program the physicians' use of dietary counseling steps, as assessed by blinded evaluation of audiotaped physician-patient interactions, significantly increased (mean pre = 5.4, mean post = 9.2; <math>t = 9.9</math>; <math>P &lt; 0.001</math>). In this regard, there were instances in the use of 7 of the 14 specific counseling steps. Physicians also demonstrated increases in self-perceived preparedness as measured by a 5-point scale (mean pre = 3.2, mean post = 4.0; <math>t = 4.25</math>; <math>P &lt; 0.001</math>), confidence in having an effect (mean pre = 3.3, mean post = 3.9; <math>t = 3.16</math>; <math>P &lt; 0.01</math>), perception that materials were available to aid intervention (mean pre = 2.7, mean post = 4.0; <math>t = 5.29</math>; <math>P &lt; 0.001</math>), and perception that they have access to a nutritionist (mean pre = 3.5, mean post = 4.0; <math>t = 2.63</math>; <math>P &lt; 0.01</math>). They rated the value of the program between very good and excellent.</i>
<i>Conclusions</i>	<i>Results of this 3-hr educational program indicate that physicians in an HMO are responsive to the teaching of specialized skills deemed important for promoting health behavior change in their patients.</i>

Patrick, K., Sallis, J. F., Long, B. J., Calfas, J. J., Wooten, W. J., & Heath, G. (1994). A new tool for encouraging activity: Project Pace. *The Physician and Sportsmedicine, 22*(11), 45-55.

<i>Description of Context</i>	<i>Project Pace (Physician Based Assessment and Counseling for Exercise) is a program that matches physician counseling with patient readiness to change.</i>
<i>Topic/Scope</i>	<i>The entire PACE process requires 2 to 5 minutes of interaction between physician and patient. Before seeing the physician the patient completes a brief PACE assessment form that determines the stage of change the patient is in regarding his/her current level of interest in physical activity. The form also contains the physical readiness questionnaire (PAR-Q) when combined with the stages of change information produces a PACE score that generates one of three counseling protocols which the patient completes in 2-to-3 minutes before seeing the physician. Based on the information, the physician counsels the patient with the appropriate protocol. The physician and patient retain a copy of the protocol and the discussion.</i>
<i>Conclusions/ Recommendations</i>	<i>The PACE instrument can be a valuable tool to assist the physician in effective counseling as determined by the patient's stage of change.</i>

## VI. CLINICIAN CHARACTERISTICS AND COUNSELING STYLE AND IMPACT ON BEHAVIOR CHANGE

Barzilai, D. A., Goodwin, M. A., Zyzanski, S. J., & Stange, K. C. (2001). Does health habit counseling affect patient satisfaction? *Preventive Medicine, 33*(6), 595-599.

<i>Description of Context</i>	Health behavior advice can potentially prevent a large burden of illness, but the acceptability of this advice to patients is not well understood. This study assessed whether physician discussion of behavioral risk factors decreases patient satisfaction with the outpatient visit.
<i>Topic/Scope</i>	In a cross-sectional study of 2,459 consecutive adult outpatient visits to 138 community family physicians in Northeast Ohio, the association of health habit counseling, measured by direct observation, with patient satisfaction, assessed by a modified subscale of the MOS 9-item visit rating scale, was calculated by logistic regression.
<i>Conclusions/Recommendations:</i>	In analyses controlling for patient mix, discussion of diet, exercise, alcohol and other substance use, sexually transmitted disease, and HIV prevention was not associated with patient satisfaction. Patients who were asked about their tobacco use or counseled about quitting were more likely to be very satisfied with the physician. Conclusions. Discussion of health behavior change, as practiced by community family physicians, is not associated with diminished. Copyright 2001 American Health Foundation and Elsevier Science.

DiMatteo, M. R. (1994). Enhancing patient adherence to medical recommendations. *JAMA : The Journal of the American Medical Association, 271*(1), 79, 83.

DiMatteo, M. R., Reiter, R. C., & Gambone, J. C. (1994). Enhancing medication adherence through communication and informed collaborative choice. *Health Communication, 6*(4): 253-265.

<i>Description of Context</i>	Review of the literature on factors affecting patient adherence. Suggests use of the PREPARED system to enhance communication and informed collaborative choice in the physician-patient relationship.
<i>Topic/Scope</i>	Failure of patients to adhere to a medical regimen is a significant problem in clinical medicine (the medical prescription is ignored or followed incorrectly more than 40% of the time). Recent research on adherence points to the critical role played by a patient's knowledge and beliefs about the benefits (vs. costs and risks) and efficacy of adhering, as well as his/her ability to overcome practical social barriers. The PREPARED system is a vehicle for patient-physician communication designed to standardize and categorize information about benefits versus costs and risks of treatment. It includes the following seven elements: 1) the recommended procedure or prescription; 2) the reason for the recommendation in terms of observed or potential harm that is or could be threatening the patient's health; 3) the patient's and provider's outcome expectations; 4) the probability of achieving those expectations; 5) reasonable alternatives to what has been recommended, including watchful waiting; 6) all significant risks associated with what has been recommended; 7) expenses, including direct and indirect costs. These 7 points are fully discussed by patient and provider before making a decision. The appendix to the paper presents a sample of a PREPARED interaction
<i>Conclusions/Recommendations:</i>	Use of a structured guideline for communication, such as PREPARED, should help patients and providers do the following: clarify information; understand opinions and expectations; analyze gradations of risk; weigh benefit versus expense; establish an effective collaboration in which the patient is an active participant in his/her own care. In order for patients to adhere to medical advice, collaboration between patient and provider is essential

DiMatteo, M. R., Sherbourne, C. D., Hays, R. D., Ordway, L., Kravitz, R. L., McGlynn, E. A., Kaplan, S., & Rogers, W. H. (1993). Physicians' characteristics influence patients' adherence to medical treatment: Results from the

*medical outcomes study*. *Health Psychology* : Official Journal of the Division of Health Psychology, American Psychological Association, 12(2), 93-102.

<i>Objective</i>	To examine the role of physicians' personal and practice characteristics as predictors of their patients' adherence
<i>Design Setting</i>	Cross-sectional two-year longitudinal study Data is from the Medical Outcomes Study in three systems of care (HMOs, large multispecialty groups and solo practices) in three cities (Boston, Chicago, and Los Angeles)
<i>Subjects</i>	Patients visiting providers in 5 medical specialties internal medicine, family practice, endocrinology, diabetology and cardiology. The study involved 186 nonpsychiatric physicians and 2,546 patients
<i>Interventions:</i>	None
<i>Measures</i>	Patients in the longitudinal panel completed several self-report questionnaires and a telephone interview. Adherence items included baseline and 24-month patient assessment surveys. Three specific adherence subscales were derived to measure the frequency with which patients took all recommended medication, exercised regularly, and followed special diets--or all three. Provider demographics, style of practice, practice characteristics, and professional job satisfaction were assessed.
<i>Results:</i>	Patients' average general adherence improved slightly over the two years of the study. Exercise adherence did not change, and medication and diet adherence declined significantly over the two years. The only practice characteristic that was significant was the number of patients a physician saw in office practice per week. Patients of physicians who made definite future appointments for follow-up achieved better medication adherence. Physicians on average felt that responsibility for decision making lay somewhat more with the patient than the physician. They also tended to answer many rather than few of their patients' questions. Physicians who spent more hours per week seeing patients noted less job satisfaction than those who spent fewer hours in outpatient practice. Physicians who were likely to place responsibility for decision making on the physician were more likely to make follow-up appointments or arrange phone consultations. Physician specialty also affected patient adherence
<i>Conclusions:</i>	Practice characteristics and practice style affected patient adherence. Medication adherence was better among patients of physicians who saw more patients per week (they may have tended to meet more often with patients to follow-up). Patient medication adherence was higher among physicians who made definite follow-up appointments. Physicians' self-reported willingness to answer all patients' questions had a positive effect on patient exercise adherence. Physician global job satisfaction has a positive effect on patients' general adherence.

Hall, J. A., Roter, D. L., & Katz, N. R. (1988). *Meta-analysis of correlates of provider behavior in medical encounters*. *Medical Care*, 26(7), 657-675.

<i>Description of Context</i>	This article summarizes the results of 41 independent studies containing correlates of objectively measured provider behaviors in medical encounters and six variables external to the encounters, these being the patient outcomes of satisfaction, compliance, and recall, and the patient attributes of social class, gender, and age.
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*Topic/Scope* The results of this review include the following: Greater satisfaction, as measured by post visit questionnaires or interviews, was highly significantly associated with more information given; greater compliance is associated with more information given; giving more information was significantly predictive of greater recall; providers gave more information to female than to male patients; question asking had a nonsignificant relationship to satisfaction; asking more questions was associated with poorer compliance; asking about compliance was positively associated with compliance; more questions are associated with poorer recall; greater technical competence was positively associated with satisfaction; there was a clear positive association between partnership building and satisfaction; presenting a less authoritarian profile appears to have a detrimental effect on compliance, while enlisting patients' involvement seems to enhance it; greater satisfaction is preceded by more nonverbal immediacy and attention; more recall/understanding is associated with more immediacy, as is better patient appearance, while patient gender, age, and ethnicity appear to be unrelated to providers' nonverbal behavior; more social conversation was associated with greater satisfaction. Of all the patient variables considered, satisfaction had the most consistent relation to provider behavior. Patients of higher social class receive more information as well as more communications overall. Higher social class patients received higher quality care, both technical and interpersonal, and more positive talk. Whites received higher-quality care than blacks or Hispanics, both technical and interpersonal, as well as more positive talk

*Conclusions/ Recommendations:* Many provider and patient characteristics, as well as several patient outcomes, are related to provider behavior within the medical encounter. The extent to which these may reflect valid cause-effect relations has yet to be determined

Roter, D., & Kinmonth, A. L. (2002). What is the evidence that increasing participation of individuals in self-management improves the processes and outcomes of care? In: Williams, R., Herman, W., Kinmonth, A. L., Wareham N. J., eds. *The Evidence Base for Diabetes Care*. Chichester: John Wiley and Sons.

*Description of Context* This chapter reviews the evidence linking levels of patient engagement in medical visit communication and self management to diabetes-related outcomes.

*Topic/Scope* It defines the principles emerging from this evidence, to inform better clinical practice

*Conclusions/ Recommendations:* The authors conclude that "the balance of evidence from the studies reviewed suggests that when the physician is patient-centered (and non controlling), when patients are verbally active overall, and especially in information-seeking, and when the patient is empowered to make treatment decisions, self reported health and functional status, and metabolic control are improved." The authors offer 5 principles for improving self-management through improved clinician-patient communication: 1) hear the patient's perspective; 2) provide information that is useful and relevant; 3) negotiate a plan and anticipate problems; 4) offer ongoing monitoring of compliance and compliance difficulties; 5) find problems and re-negotiating solutions; and 6) provide emotional support to the patient.

Safran, D. G., Taira, D. A., Rogers, W. H., Kosinski, M., Ware, J. E., & Tarlov, A. R. (1998). *Linking primary care performance to outcomes of care*. The Journal of Family Practice, 47(3), 213-220.

*Objective* Substantial research links many of the defining characteristics of primary care to important outcomes yet little is known about the relative importance of each characteristic, and several characteristics have not been examined. In this study, the authors measured the defining elements of primary care specified in the Institute of Medicine's (IOM) revised definition and examined the association between each element and three outcomes of care: patients' adherence to their primary physician's advice, patient satisfaction, and improved health outcomes.

*Design* Cross-sectional observational study. The Primary Care Assessment Survey (PCAS) was administered to participants using a standard three-step mail survey protocol with telephone follow-up of randomly selected non-respondents was used.

<i>Setting</i>	Commonwealth of Massachusetts Employees during a period between January 1996-April 1996.
<i>Subjects</i>	Adults employed by the Commonwealth of Massachusetts who subscribed to any of the 12 health plans offered to state workers, where mean age was 48.6 years (range 19-88), 55.8% female, 87.9% Caucasian, and 69.3% with at least 12 years of education. N=6094.
<i>Interventions:</i>	None
<i>Measures</i>	The PCAS is a validated, patient-completed questionnaire designed to measure the essential elements of primary care named in formal definitions of the term, including the recent IOM definition. The PCAS measures seven characteristics of primary care through 11 summary scales: accessibility (organizational, financial), continuity (longitudinal, visit-based), comprehensiveness (knowledge of patient, preventive counseling), integration of care, clinical interaction (clinician-patient communication, thoroughness of physical examinations), interpersonal treatment, and trust. Three outcomes of care were assessed through additional questions, as follows: adherence, satisfaction and health outcomes.
<i>Results:</i>	Two variables (physician's knowledge of the patient, and patient's trust in the physician) were the strongest correlates of adherence. These two variables accounted for 14% of the variance in adherence scores. In both bivariate and multivariable regressions, trust was the dominant correlate of satisfaction. Trust accounted for 35% of the variance in satisfaction in the adjusted bivariate regression model. In the adjusted bivariate models, five dominant correlates of health outcomes emerged: trust, communication, thoroughness of physical examinations, physician's knowledge of the patient, and integration of care. In the multivariable model, only the thoroughness of physical examinations remained statistically significantly related to health outcomes.
<i>Conclusions:</i>	In this study, sustained physician-patient partnerships with bonds of trust, and knowledge of patients were leading correlates of three outcomes of care: adherence, satisfaction and improved health status. The results are noteworthy in the context of changes in health care delivery that many patients, clinicians, medical educators, and policy makers speculate may threaten the therapeutic alliance between doctor and patient. Opportunities for sustained clinician-patient partnerships and knowledge of the person, patients are often compromised in the current competitive environment, where health care organizations press for ever-higher levels of clinician productivity and adopt urgent care coverage systems that assure access but often disregard continuity. Future research must identify specific features of organizations and delivery systems that foster or impede primary care performance, and establish whether the observed relationships between primary care performance and outcomes are causal.

Squire, R. W. (1990). A model of empathic understanding and adherence to treatment regimens in practitioner-patient relationships. *Social Science and Medicine*, 30(3), 325-339.

<i>Description of Context</i>	A review of theoretical literature and research in a variety of health care disciplines on the efficacy of empathy to impact adherence to a treatment regimen.
<i>Topic/Scope</i>	In order to facilitate adherence an empathic understanding is necessary between clinician and patient. Empathy is defined as consisting of two constructs: the ability to take another person's point of view and the capacity to become aroused by the emotions of another person. The relationship between empathy and healing is explored. Specifically, studies strongly support that empathy in the clinician-patient relationship facilitates the sharing of emotional concerns about the illness and this is associated with increases in adherence. A model of empathic understanding is described. Empathy is communicated through tone of voice, facial expression, and body posture.
<i>Conclusions/Recommendations:</i>	Qualities related to the expression of empathy are associated with better outcomes such as satisfaction, feeling less tension, and greater adherence. The goals should be to combine good objective, descriptive scientific medicine with subjective, empathic qualities.

Valle, S. K. (1981). *Interpersonal functioning of alcoholism counselors and treatment outcome*. Journal of Studies on Alcohol, 42(9), 783-790.

<i>Objective</i>	To determine whether the quality of counseling affects the treatment of alcoholism.
<i>Design</i>	Correlational.
<i>Setting</i>	An inpatient hospital-based alcoholism treatment facility.
<i>Subjects</i>	Two hundred forty-seven patients admitted for the first time to an inpatient hospital-based alcoholism treatment facility were randomly assigned to eight alcoholism counselors (6 male, and 2 female). Most of the patients were male and all were Caucasian. Mean age was 44 years. Mean education level was 12 years. One half reported a family history of alcoholism. Of the counselors, 3 had no formal educational credentials beyond high school, 2 had associate degrees, 2 had bachelor's degree, and 1 had a master's degree. Age of counselors ranged from 37-58 years. All had been in counseling for at least two years.
<i>Interventions</i>	None.
<i>Measures</i>	A 9-point Likert scale was used to assess counselor's interpersonal dimensions of empathy, genuineness, concreteness and respect. Ratings were then categorized into three levels: (1) Level 1 indicated low functioning (counselors did not respond to the content or affect of the patient); (2) level 2 indicated medium functioning, and (3) level 3 indicated high functioning (counselor picked up the content and affect of the patient's expression and responded to it accurately). Hospital records and patient survey were used to determine whether counselor level of functioning was related to treatment outcome.
<i>Results</i>	Two counselors were rated as functioning below level 3, four at level 3, and two above level 3. The higher the level of interpersonal functioning of the counselor, the less likely was relapse and the fewer times a patient did relapse 6, 12, 18, or 24 months after treatment. The higher the level of interpersonal functioning of the counselor, the less likely a patient was to use alcohol during the 2 years following initial treatment. The higher the level of interpersonal functioning of the counselor during treatment, the fewer relapse days a patient had at 6, 12, 18, and 24 months after treatment.
<i>Conclusions</i>	The level of interpersonal functioning that counselors have with their clients has an important and significant impact on various indices of alcoholism treatment outcome.

Williams, G. C., Rodin, G. C., Ryan, R. M., Grolnick, W. S., & Deci, E. L. (1998). *Autonomous regulation and long-term medication adherence in adult outpatients*. Health Psychology : Official Journal of the Division of Health Psychology, American Psychological Association, 17(3), 269-276.

*Abstract*      *Self-determination theory was applied to explore the motivational basis of adherence to long-term medication prescriptions. Adult outpatients with various diagnoses who had been on a medication for at least 1 month and expected to continue (a) completed questionnaires that assessed their autonomous regulation, other motivation variables, and perceptions of their physicians' support of their autonomy by hearing their concerns and offering choice; (b) provided subjective ratings of their adherence and a 2-day retrospective pill count during an interview with a clinical psychologist; and (c) provided a 14-day prospective pill count during a subsequent, brief telephone survey. LISREL analyses supported the self-determination model for adherence by confirming that patients' autonomous motivation for adherence did mediate the relation between patients' perceptions of their physicians' autonomy support and their own medication adherence.*

## VII. DIABETES-SPECIFIC REFERENCES

### General

Glasgow, R. E., Fisher, E. B., Anderson, B. J., LaGreca, A., Marrero, D., Johnson, S. B., Rubin, R., R., & Cox, D. J. (1999). *Behavioral science in diabetes. contributions and opportunities*. *Diabetes Care*, 22(5), 832-843.

<i>Description of Context</i>	The authors objective was to summarize the current status of behavioral research and practice in diabetes and to identify promising future directions
<i>Topic/Scope</i>	The authors review behavioral science contributions to diabetes in self-management and patient empowerment, interventions with children and adolescents, and special problems including blood glucose awareness training and complications such as depression. They also identify emerging areas in which behavioral science stands to make significant contributions, including quality of life, worksite and community programs, interventions using new information technologies, and translation research evaluating practical programs in representative settings. They then discuss the gap between the generally encouraging research on behavioral contributions to diabetes and the infrequent incorporation of such contributions in practice. Suggestions are made for how to close this gap, including ways to increase understanding of behavioral issues, opportunities for funding of key research and implementation questions, and how behavioral science principles can become more integrated into diabetes organizations and care.
<i>Conclusions/Recommendations:</i>	Changes are required on the part of behavioral scientists in how they organize and present their research and on the part of potential users of this knowledge, including other health professions, organizations, and funding agencies. Integrating behavioral science advances with other promising genetic, medical, nutritional, technology, health care, and policy opportunities promises not only to broaden our understanding of diabetes but also to improve patient care, quality of life, and public health for persons with diabetes.

Nagasawa, M., Smith, M. C., Barnes, J. H., Jr, & Fincham, J. E. (1990). *Meta-analysis of correlates of diabetes patients' compliance with prescribed medications*. *The Diabetes Educator*, 16(3), 192-200.

<i>Objective</i>	To quantitatively integrate the results of independent studies to obtain a numerical estimate of the overall correlations of a particular variable with diabetic patients' compliance to prescribed medication.
<i>Design</i>	Meta-analysis
<i>Setting</i>	Pertinent papers on medication compliance and diabetes published between January 1968 and June 1988 on Medline and International Pharmaceutical Abstract. In addition, the Medication Use Studies Bibliography was used as a resource
<i>Subjects</i>	To be included studies had to be in English, include measures of compliance with medication, and contain data of relationships between compliance and other variables of interest. Twenty-six studies were included from which 183 correlations were taken
<i>Interventions:</i>	None
<i>Measures</i>	Conversion into common statistics and aggregating study findings
<i>Results:</i>	The overall undercompliance to medication regimens ranges from 40 to 50%. Eight sociobehavioral categories were identified as correlates to adherence: 1) emotional stability; 2) internal motivation; 3) external motivation; 4) perceived barrier; 5) perceived benefit; 6) negative social environment; 7) supportive structure; and 8) knowledge and skills. Factors positively associated with compliance include emotional stability, internal and external motivation, perceived benefit, and supportive structure. Perceived barriers and negative social environment were correlated with poor compliance. The direction and relationship of knowledge and age with compliance varied depending on the study characteristics.

*Conclusions:* Two mediating variables of patient age and compliance measurement were identified across studies. Future research needs to recognize the importance of these mediating variables.

## **Chronic Care Model**

*Bodenheimer, T., Wagner, E. H., & Grumbach, K. (2002). Improving primary care for patients with chronic illness. JAMA : The Journal of the American Medical Association, 288(14), 1775-1779.*

*Description of Context* The chronic care model is a guide to higher-quality chronic illness management within primary care.

*Topic/Scope* The model predicts that improvement in its 6 interrelated components-self-management support, clinical information systems, delivery system redesign, decision support, health care organization, and community resources-can produce system reform in which informed, activated patients interact with prepared, proactive practice teams

*Conclusions/Recommendations:* Case studies are provided describing how components of the chronic care model have been implemented in the primary care practices of 4 health care organizations

*Bodenheimer, T., Wagner, E. H., & Grumbach, K. (2002). Improving primary care for patients with chronic illness: The chronic care model, part 2. JAMA : The Journal of the American Medical Association, 288(15), 1909-1914.*

*Description of Context* This article reviews research evidence showing to what extent the chronic care model can improve the management of chronic conditions (using diabetes as an example) and reduce health care costs.

*Topic/Scope* Thirty-two of 39 studies found that interventions based on chronic care model components improved at least 1 process or outcome measure for diabetic patients.

*Conclusions/Recommendations:* Regarding whether chronic care model interventions can reduce costs, 18 of 27 studies concerned with 3 examples of chronic conditions (congestive heart failure, asthma, and diabetes) demonstrated reduced health care costs or lower use of health care services. Even though the chronic care model has the potential to improve care and reduce costs, several obstacles hinder its widespread adoption.

*Von Korff, M., Gruman, J., Schaefer, J., Curry, S. J., & Wagner, E. H. (1997). Collaborative management of chronic illness. Annals of Internal Medicine, 127(12), 1097-1102.*

*Description of Context* In chronic illness, day-to-day care responsibilities fall most heavily on patients and their families. Effective collaborative relationships with health care providers can help patients and families better handle self-care tasks. Collaborative management is care that strengthens and supports self-care in chronic illness while assuring that effective medical, preventive, and health maintenance interventions take place.

*Topic/Scope* In this paper, the following essential elements of collaborative management developed in light of behavioral principles and empirical evidence about effective care in chronic illness are discussed: 1) collaborative definition of problems, in which patient-defined problems are identified along with medical problems diagnosed by physicians; 2) targeting, goal setting, and planning, in which patients and providers focus on a specific problem, set realistic objectives, and develop an action plan for attaining those objectives in the context of patient preferences and readiness; 3) creation of a continuum of self-management training and support services, in which patients have access to services that teach skills needed to carry out medical regimens, guide health behavior changes, and provide emotional support; and 4) active and sustained follow-up, in which patients are contacted at specified intervals to monitor health status, identify potential complications, and check and reinforce progress in implementing the care plan.

*Conclusions/Recommendations:* These elements make up a common core of services for chronic illness care that need not be reinvented for each disease

Wagner, E. H., Austin, B. T., & Von Korff, M. (1996). *Improving outcomes in chronic illness*. *Managed Care Quarterly*, 4(2), 12-25.

*Description of Context* Usual medical care often fails to meet the needs of chronically ill patients, even in managed, integrated delivery systems. The medical literature suggests strategies to improve outcomes in these patients.

*Topic/Scope* Effective interventions tend to fall into one of five areas: the use of a protocol, reorganization of practice systems and provider roles, improved patient education, increased access to expertise, and greater availability of clinical information.

*Conclusions/Recommendations:* The challenge is to organize these components into an integrated system of chronic illness care.

Wagner, E. H., Glasgow, R. E., Davis, C., Bonomi, A. E., Provost, L., McCulloch, D., Carver, P., & Sixta, C. (2001). *Quality improvement in chronic illness care: A collaborative approach*. *The Joint Commission Journal on Quality Improvement*, 27(2), 63-80.

*Description of Context* Despite rapid advances in the clinical and psycho-educational management of diabetes, the quality of care received by the average patient with diabetes remains lackluster. The "collaborative" approach--the Breakthrough Series (BTS; Institute for Healthcare Improvement [IHI]; Boston)--coupled with a Chronic Care Model was used in an effort to improve clinical care of diabetes in 26 health care organizations.

*Topic/Scope* Descriptive and pre-post data are presented from 23 health care organizations participating in the 13-month (August 1998-September 1999) BTS to improve diabetes care. The BTS combined the system changes suggested by the chronic care model, rapid cycle improvement, and evidence-based clinical content to assist teams with change efforts. The characteristics of organizations participating in the diabetes BTS, the collaborative process and content, and results of system-level changes are described.

*Conclusions/Recommendations:* Twenty-three of 26 teams completed participation. Both chart review and self-report data on care processes and clinical outcomes suggested improvement based on changes teams made in the collaborative. Many of the organizations evidencing the largest improvements were community health centers, which had the fewest resources and the most challenged populations.

DISCUSSION: The initial Chronic Illness BTS was sufficiently encouraging that replication and evaluation of the BTS collaborative model is being conducted in more than 50 health care systems for diabetes, congestive heart failure, depression, and asthma. This model represents a feasible method of improving the quality of care across different health care organizations and across multiple chronic illnesses

### **Clinician-patient relationship and diabetes care**

Anderson, L. A., & Zimmerman, M. A. (1993). *Patient and physician perceptions of their relationship and patient satisfaction: A study of chronic disease management*. *Patient Education and Counseling*, 20(1), 27-36.

*Objective* To investigate patient and physician perceptions of their relationship and examine how those perceptions relate to patient satisfaction when patients have a chronic disease. There were two major questions: Do demographic and treatment factors, patient and or physician perceptions of the relationship relate to patient satisfaction? And to what extent do physician perceptions agree with patient perceptions of the relationship?

*Design* Correlational.

*Setting* There were 2 settings: Ambulatory Care Clinics of the Ann Arbor Veterans Affairs Medical Center and General Medicine Clinic of the Durham Veterans Affairs Medical Center.

<i>Subjects</i>	Patients in these clinics saw the same physician on all visits. All had a confirmed diagnosis of diabetes mellitus and were being treated with oral agents or insulin therapy. All patients had been seen at least once previously. A total of 134 male patients participated and 13 physicians participated.
<i>Interventions:</i>	None
<i>Measures</i>	After each visit, the physician was asked to complete an individual patient questionnaire gathering information on the physician's perceptions of the relationship with that individual patient and assess patient's functional status and the status of diabetes metabolic control. All patients were asked to participate in a follow-up telephone interview, conducted within 3 days of the visit. This discussion collected demographic information and data on treatment variables, assessed the patient's perception of the physician/patient relationship and determined his or her satisfaction with care. Perception of the relationship by physician and patient was put in two categories: physician controlled and patient-physician partnership. Functional and metabolic control status were given rating ranges, as was patient satisfaction
<i>Results:</i>	The only significant variable from either the physician or the patient viewpoints was level of patient education. Patients with lower levels of education were most satisfied. Physician gender and number of years in practice were not related to patient satisfaction. Physicians who viewed the relationship as a partnership had more satisfied patients than those who viewed the relationship as physician controlled. Physicians who saw the relationship as a partnership were more apt to spend longer periods of time in the encounter. However, length of time spend in the clinic visit was not significantly related to patient satisfaction. Physicians who agreed with their patients about their relationship tended to have been in practice longer.
<i>Conclusions:</i>	This study included both physician and patient perceptions of the interaction. Physician training programs may want to aim at helping new physicians view their relationships with patients as partnerships.

*Benett, I. J. (1993). What do people with diabetes want to talk about with their doctors? Diabetic Medicine : A Journal of the British Diabetic Association, 10(10), 968-971.*

<i>Objective</i>	To establish the concerns of people with diabetes when they consult their doctors.
<i>Design</i>	Survey; questionnaire asking, "What subjects or topics would you like to cover with the specialist?"
<i>Setting</i>	Central Manchester Diabetes Centre, Manchester, UK
<i>Subjects</i>	220 adults attending consecutively at the clinic, equal numbers of men and women. Main ethnic groups were white (n = 152), Caribbean (n = 36) and Pakistani (n = 21).
<i>Interventions:</i>	None.
<i>Measures</i>	Responses were placed into one of the following categories; general disease, metabolic control medication, organ involvement, illness, social, unrelated to diabetes, no agenda
<i>Results:</i>	54% of respondents had concerns about metabolic control; 32% had concerns which suggested cognitive or emotional problems in coming to terms with their diabetes; 21% and 23% had concerns related to organ involvement and medication, respectively; 12% expressed no concerns. Women who were concerned about metabolic control and organ involvement were younger than women who were not. Women diagnosed for 10 years or less were more likely to be concerned about metabolic control than those diagnosed for longer. Men who were concerned about medication were younger than men who were not. Men diagnosed for 10 years or less were more likely to suggest difficulty in adjusting to the disease than those who were diagnosed for longer. Both men and women diagnosed for >10 years were more likely to be concerned about medication than those diagnosed for a shorter time.
<i>Conclusions:</i>	The concerns of people with diabetes seem to vary with age, age at diagnosis, duration of diagnosis, and gender. Further study of these issues is indicated.

Glasgow, R. E., La Chance, P. A., Toobert, D. J., Brown, J., Hampson, S. E., & Riddle, M. C. (1997). Long-term effects and costs of brief behavioural dietary intervention for patients with diabetes delivered from the medical office. *Patient Education and Counseling*, 32(3), 175-184.

*Objective* To examine the efficacy of a brief behavioral dietary intervention on various outcomes.  
*Design* Randomized controlled trial  
*Setting* Internal medicine outpatient clinic  
*Subjects* 206 adult (over 40) type I or type II diabetic patients  
*Interventions:* Usual Care and Brief Intervention. The brief intervention involved using a touch screen computer-assisted assessment that lasted 5 -10 minutes giving immediate feedback on key barriers to dietary self-management, goal setting and problem solving. Physicians were asked to emphasize the importance of dietary management. Post interview visit with interventionist for 20 minutes focusing on patient centered goal setting and problem solving and received self-help dietary materials. Based on patient self-efficacy, patients were given a videotaped intervention. Telephone follow-up at one and three weeks. Mail and video written maintenance information was also sent to patients.  
*Measures* Kristal Food Habits Questionnaire and a four day food record form. Three biological measures included height and body mass index, blood samples to measure serum cholesterol level and HbA<sub>1c</sub>. Patient satisfaction with the medical visit. Costs were calculated.  
*Results:* The brief intervention produced greater improvement in dietary control on all four measures: food habits questionnaire, calories consumed per day, percent of calories from fat, and percent of calories for saturated fat. The brief intervention group experienced significantly large reductions in serum cholesterol levels but had insignificant change in HbA<sub>1c</sub> or body mass index. Brief intervention participants also reported significantly higher overall satisfaction with their office visit. Economic cost and benefit analyses were calculated.  
*Conclusions:* The brief intervention appears practical and feasible to implement and reached 605 of patients scheduled. It was also successful in producing long-term impact on both diet and serum levels at one year follow-up.

Greenfield, S., Kaplan, S. H., Ware, J. E., Jr, Yano, E. M., & Frank, H. J. (1988). Patients' participation in medical care: Effects on blood sugar control and quality of life in diabetes. *Journal of General Internal Medicine : Official Journal of the Society for Research and Education in Primary Care Internal Medicine*, 3(5), 448-457.

*Objective* To increase the involvement of patients in medical decision making.  
*Design* Randomized controlled trial.  
*Setting* Two university hospital outpatient clinics. One clinic was administered by the Endocrinology Division in the Department of Medicine and the other clinic was a general medical ambulatory care clinic.  
*Subjects* 98 diabetic patients, under 75 years of age who were not on an insulin pump or had cancer or any other disease of sufficient magnitude to reduce the importance of diabetes in their overall management.  
*Interventions:* During the waiting period prior to seeing a physician, a research assistant reviewed with the patient the last recorded visit, following an algorithm that was developed by diabetologists practicing in the diabetes treatment clinic. During this review the patient was helped to identify relevant medical decisions likely to arise in the upcoming visit, encouraged to focus on treatment issues that could be affected by his/her lifestyle, negotiation skills were rehearsed, obstacles such as embarrassment and intimidation were reviewed. In the control group research assistants reviewed standard educational materials with the patient  
*Measures* Glycosylated hemoglobin, disease severity, health-related quality of life measures, change in treatment regime, audiotapes of physician-patient interaction and patient satisfaction and knowledge of diabetes were assessed.

*Results:* The experimental group significantly decreased their glycosylated hemoglobin levels after the intervention whereas the control group did not change significantly. There were substantial differences favoring the experimental group on three of the four functional limitation indices after the intervention. The experimental group assessed their health more favorably than did controls and improved after the intervention whereas controls rated their health as worse. There was no difference in satisfaction or knowledge of disease between groups. After intervention, patients in the experimental group were significantly more active during the visit than were controls. Experimental patients were roughly twice as effective as controls during post-intervention visits in obtaining information. There was a significant correlation between patient controlling behaviors, greater number of conversational acts by the patients, more effective information seeking and glycosylated hemoglobin levels.

*Conclusions:* An intervention increasing patient participation in medical decisions can improve clinical measures of disease activity and health-related quality of life.

*Kaplan, S. H., Greenfield, S., & Ware, J. E., Jr. (1989). Assessing the effects of physician-patient interactions on the outcomes of chronic disease. Medical Care, 27(3 Suppl), S110-27.*

*Objective* To present evidence that specific aspects of physician-patient communication can affect health outcomes and to report on the results of studies where attempts were made to change physician and patient behavior by training patients to take a more active role in their own care.

*Design:* Three randomized controlled trials among patients with chronic diseases (ulcer disease, hypertension and diabetes) and a fourth nonequivalent controlled trial of breast cancer patients in which physician-patient conversations were taped.

*Design  
Setting*

Patients in these studies were from four very different settings and had considerable variation in sociodemographic characteristics. The settings range from a free clinic to private office practices; from VA Hospital to a University teaching hospital.

*Subjects*

The participants are as varied as their locations.

*Interventions:*

*Intervention:* In the first three studies, patients were given individualized medical care information in the form of their medical records, formulas describing disease management and how to interpret the information, and coaching in strategies to increase participation in their own care during office visits. This involved learning techniques to improve question asking, negotiating skills, and methods to decrease barriers to communication with their physicians. In control interventions patients were provided with more general information on their conditions and the importance of self monitoring and self care.

*Measures*

Audiotapes of patient office visits before and after the interventions were analyzed. Codes were grouped into 3 categories: control, communication, or emotion. Then several indicators of the style of communication that combined these codes within the speaker were devised. The researchers then compared data from the analyzed tapes with patient functional status and with self-reported evaluations of health obtained from questionnaires. Eight to 12 weeks after the second visit, patients were mailed a questionnaire.

*Results:*

Patients who were more controlling (asked more questions, made more attempts to direct the conversation) during the baseline visit reported fewer functional limitations and health problems. Patients whose physicians had more control in the baseline visits had poorer reported health. Patients in the experimental group exerted more control during the visit. They were more effective in obtaining information from their physicians after the intervention than the controls. The results of the breast cancer patients were similar. There was a relationship between the number of health problems reported and indicators of physician patient communication. More patient and less physician control, more affect (particularly negative affect expressed by both patient and physician) and more information provided by the physician in response to effective questioning and information seeking were related to better patient clinical health status.

*Conclusions:* The studies emphasize the importance of the physician patient relationship for patient health outcomes. Physicians may influence outcomes for patients through the medical care process and by shaping how patients feel about the disease and the patients' ability to contain its impact on their lives. This study parallels other studies that show that an increase in emotion, especially negative emotion, is related to improvement in health status. This bond may be a form of social support as well as clinical support.

*Kravitz, R. L., Hays, R. D., Sherbourne, C. D., DiMatteo, M. R., Rogers, W. H., Ordway, L., & Greenfield, S. (1993). Recall of recommendations and adherence to advice among patients with chronic medical conditions. Archives of Internal Medicine, 153(16), 1869-1878.*

*Objective* To determine recall of and adherence to physicians' recommendations among patients with chronic medical conditions and to measure the correspondence between self-reported adherence and disease activity.

*Design* Observational

*Setting* Data from the Medical Outcomes Study

*Subjects* 1751 patient with diabetes mellitus, hypertension, and heart disease

*Interventions:* None

*Measures* Recall of 15 disease-specific recommendations, self-reported general and specific adherence, and correlations between adherence and clinical measures of disease activity and control.

*Results:* Among patients with diabetes, 96% recalled being told to take prescription medication; 75% remembered instructions to consume a low-fat/ weight-loss diet, monitor blood sugar, and engage in exercise; 50% recalled instructions in self-care. Rates of adherence are 91% for taking medication, 78% for carrying medical supplies and sugar, 52% for following a low-fat diet, and 19% for participating in exercise. Adherence was greater among those who recalled specific recommendations, but up to 41% reported following practices while not recalling recommendations to do so. There were similar rates of recall and adherence with hypertensive patients. Patient with heart disease were most compliant although their rates of adherence to exercise, cardiac rehabilitation, and stress reduction were low.

*Conclusions:* Patients frequently do not recall receiving medical advice that conventional wisdom considers important. Even when patients do recall information, they do not incorporate it into their daily lives. Self-report adherence measures are weakly associated with clinical measures and are in the direction expected.

## **Self-Management Support**

2<sup>nd</sup> International DAWN Summit. (2004). A call-to-action to improve psychosocial care for patients with diabetes. *Practical Diabetes International*, 21(5), 201-208.

*Description of Context* At this 2-day meeting held in London on November 5-7, 2003, over 150 diabetes experts from 32 countries discussed ways in which to translate the findings of the DAWN Study into improved diabetes care.

*Topic/Scope* They agreed on a call to action to address how to improve psychosocial aspects of diabetes management.

*Conclusions/ Recommendations:* Conclusions: 1) Adopt a diabetes care model that promotes dialogue between patients and clinicians to reach shared goals leading to informed choices about self-management that improve health and quality of life. Create tools to facilitate patient-clinician efforts to improve communication. 2) Develop and maximize team member roles through implementation of core competencies to ensure flexible, seamless and consistent care. 3) Promote active self-management as an essential requirement to obtain optimal control of diabetes and quality of life. 4) Progressively improve and optimize diabetes care through actions that reduce clinicians' cognitive, emotional and educational barriers to using effective therapies. 5) Identify and overcome significant barriers to insulin and other effective diabetes therapies. 6) Clinicians and patients give equal value to psychological,

social and physical factors in diabetes management. 7) Enable better psychological care for people with diabetes and address the need for psychological treatment.

Worldwide call-to-action: 1) To create partnerships with patient/professional organizations and industry to increase staff and financial resources for the psychosocial aspects of diabetes care. 2) To recognize the need for user-friendly information and training to be developed and made available to patients (through local and district self-help diabetes groups), to diabetes support organizations and to health care professionals.

American Association of Diabetes Educators. (2003). Position Statement: standards for outcomes measurement of diabetes self-management education. *The Diabetes Educator*, 29(5), 804, 808-810.

*Abstract*                    *The primary purposes (goals) of diabetes education are to provide knowledge and skill training, help individuals identify barriers, and facilitate problem solving and coping skills to achieve effective self-care behavior and behavior change. It is the position of the American Association of Diabetes Educators (AADE) that all educators should measure both individual and aggregate patient self-care behaviors at a minimum of preintervention and postintervention. Additional follow-up measurements are ideal and should be applied as appropriate to the practice setting. Through adoption of a core measurement set, educators will be able to determine their effectiveness with individuals and populations, compare their performance with the established benchmarks, and establish the unique contribution that diabetes self-management education (DSME) plays in the overall context of diabetes care. The AADE "Standards for Outcomes Measurement of Diabetes Self-Management Education" are intended to complement the 2000 "National Standards for Diabetes Self-Management Education" and build on the foundation of structure and process that has already been well established. In particular, the AADE outcomes standards will support Standards 7 and 10 of the 2000 "National Standards for DSME.*

*Anderson, R. M., Funnell, M. M., Butler, P. M., Arnold, M. S., Fitzgerald, J. T., & Feste, C. C. (1995). Patient empowerment. results of a randomized controlled trial. Diabetes Care, 18(7), 943-949.*

*Objective*                    The purpose of the study was to determine if participation in a patient empowerment program would result in improved psychosocial self-efficacy and attitudes toward diabetes, as well as a reduction in blood glucose levels.

*Design*                      This study was conducted as a randomized, wait-listed control group trial.

*Setting*

*Subjects*

*Interventions:*            The intervention group received a six-session (one session per week) patient empowerment education program; the control group was assigned to a wait-list. At the end of 6 weeks, the control group completed the six-session empowerment program. Six weeks after the program, both groups provided follow-up data

*Measures*

*Results:*                    The intervention group showed gains over the control group on four of the eight self-efficacy subscales and two of the five diabetes attitude subscales. Also, the intervention group showed a significant reduction in glycosylated hemoglobin levels. Within groups, analysis of data from all program participants showed sustained improvements in all of the self-efficacy areas and two of the five diabetes attitude subscales and a modelst improvement in blood glucose levels.

*Conclusions:*            This study indicated that patient empowerment is an effective approach to developing educational interventions for addressing the psychosocial aspects of living with diabetes. Furthermore, patient empowerment is conducive to improving blood glucose control. In an ideal setting, patient education would address equally blood glucose management and the psychosocial challenges of living with diabetes

Bodenheimer, T., Lorig, K., Holman, H., & Grumbach, K. (2002). *Patient self-management of chronic disease in primary care*. JAMA : The Journal of the American Medical Association, 288(19), 2469-2475.

<i>Description of Context</i>	Patients with chronic conditions make day-to-day decisions about--self-manage--their illnesses. This reality introduces a new chronic disease paradigm: the patient-professional partnership, involving collaborative care and self-management education.
<i>Topic/Scope</i>	Self-management education complements traditional patient education in supporting patients to live the best possible quality of life with their chronic condition. Whereas traditional patient education offers information and technical skills, self-management education teaches problem-solving skills. A central concept in self-management is self-efficacy--confidence to carry out a behavior necessary to reach a desired goal. Self-efficacy is enhanced when patients succeed in solving patient-identified problems.
<i>Conclusions/Recommendations:</i>	Evidence from controlled clinical trials suggests that (1) programs teaching self-management skills are more effective than information-only patient education in improving clinical outcomes; (2) in some circumstances, self-management education improves outcomes and can reduce costs for arthritis and probably for adult asthma patients; and (3) in initial studies, a self-management education program bringing together patients with a variety of chronic conditions may improve outcomes and reduce costs. Self-management education for chronic illness may soon become an integral part of high-quality primary care.

Corabian, P., & Harstall, C. (2001). *Patient diabetes education in the management of adult type 2 diabetes*. HTA 23: Series 23, Health Technology Assessment, Alberta Heritage Foundation for Medical Research.

<i>Description of Context</i>	The Alberta Heritage Foundation for Medical Research conducted a review of reviews of diabetes education intervention.
<i>Topic/Scope</i>	Included in this review were 17 studies with at least one-year follow-up and more than one patient contact, including 3 meta-analyses, 7 systematic reviews and 7 additional trials.
<i>Conclusions/Recommendations:</i>	The authors concluded that, although patient education is associated with short-term diabetes control, long-term outcomes have yet to be established. This report also concluded that providing patients with knowledge about diabetes is necessary, but insufficient to improve diabetes care. Goal setting, assessment of patient-specific barriers and a focus on behavioral strategies and problem-solving to address barriers appear to be important to produce an impact on diabetes outcomes.

Funnell, M. M., & Anderson, R. M. (2003). Patient empowerment: A look back, a look ahead. *The Diabetes Educator*, 29(3), 454-8, 460, 462

Funnell, M. M., Anderson, R. M., Arnold, M. S., Barr, P. A., Donnelly, M., Johnson, P. D., Taylor-Moon, D., & White, N. H. (1991). *Empowerment: An idea whose time has come in diabetes education*. *The Diabetes Educator*, 17(1), 37-41.

<i>Abstract</i>	<i>We have learned much in the past 10 years about how to help patients to acquire diabetes-related knowledge and skills and how to use strategies to help patients change behaviors. However, the application of knowledge and techniques should be guided by a relevant, coherent, educational philosophy. Empowerment offers a practical conceptual framework for diabetes patient education. Empowering patients provides them with the knowledge, skills, and responsibility to effect change and has the potential to promote overall health and maximize the use of available resources. It is an idea whose time has come for diabetes education.</i>
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Gary, T. L., Genkinger, J. M., Guallar, E., Peyrot, M., & Brancati, F. L. (2003). *Meta-analysis of randomized educational and behavioral interventions in type 2 diabetes*. *The Diabetes Educator*, 29(3), 488-501.

**Objective** This meta-analysis was conducted to assess the effect of educational and behavioral interventions on body weight and glycemic control in type 2 diabetes

**Design** Studies selected for analysis were published randomized controlled trials that evaluated educational and behavioral interventions (no drug interventions) in type 2 diabetes (sample size > or = 10). These criteria were applied to searches of electronic databases and relevant bibliographies. Data were independently abstracted by 2 reviewers and adjudicated by consensus.

**Results:** Of the 63 articles that met the inclusion criteria, 18 provided enough information for pooled estimates of glycohemoglobin (total Ghb, HbA1, or HbA1C). These 18 studies yielded 2720 participants (sample sizes of 18 to 749). Interventions ranged from 1 to 19 months; follow-up ranged from 1 to 26 months. Glycohemoglobin was reduced by a mean of 0.43%. When results were stratified by quality score, glycohemoglobin was -0.50% and -0.38% for studies with high and low quality scores, respectively. When weighting studies by sample size, fasting blood glucose was reduced by 24 mg/dL and weight by 3 lbs

**Conclusions:** Previous educational and behavioral interventions in type 2 diabetes have produced modest improvements in glycemic control. Future research should refine such interventions and improve methodology.

Glasgow, R. E., Funnell, M. M., Bonomi, A. E., Davis, C., Beckham, V., & Wagner, E. H. (2002). *Self-management aspects of the improving chronic illness care breakthrough series: Implementation with diabetes and heart failure teams*. *Annals of Behavioral Medicine : A Publication of the Society of Behavioral Medicine*, 24(2), 80-87.

**Description of Context** Self-management is an essential but frequently neglected component of chronic illness management that is challenging to implement. Available effectiveness data regarding self-management interventions tend to be from stand-alone programs rather than from efforts to integrate self-management into routine medical care.

**Topic/Scope** This article describes efforts to integrate self-management support into broader health care systems change to improve the quality of patient care in the Chronic Illness Care Breakthrough Series. We describe the general approach to system change (the Chronic Care Model) and the more specific self-management training model used. The process used in training organizations in self-management is discussed, and data are presented on teams from 21 health care systems participating in a 13-month-long Breakthrough Series to address diabetes and heart failure care.

**Conclusions/Recommendations:** Available system-level data suggest that teams from a variety of health care organizations made improvements in support provided for self-management. Improvements were found for both diabetes and heart failure teams, suggesting that this improvement process may be broadly applicable. Lessons learned, keys to success, and directions for future research and practice are discussed.

Glasgow, R. E., Hiss, R. G., Anderson, R. M., Friedman, N. M., Hayward, R. A., Marrero, D. G., Taylor, C. B., & Vinicor, F. (2001). *Report of the health care delivery work group: Behavioral research related to the establishment of a chronic disease model for diabetes care*. *Diabetes Care*, 24(1), 124-130.

**Abstract** *As one of four work groups for the November 1999 conference on Behavioral Science Research in Diabetes, sponsored by the National Institute on Diabetes and Digestive and Kidney Diseases, the health care delivery work group evaluated the status of research on quality of care, patient-provider interactions, and health care systems' innovations related to improved diabetes outcomes. In addition, we made recommendations for future research. In this article, which was developed and modified at the November conference by experts in health care delivery, diabetes and behavioral science, we summarize the*

*literature on patient-provider interactions, diabetes care and self-management support among underserved and minority populations, and implementation of chronic care management systems for diabetes. We conclude that, although the quality of care provided to the vast majority of diabetic patients is problematic, this is principally not the fault of either individual patients or health care professionals. Rather, it is a systems issue emanating from the acute illness model of care, which still predominates. Examples of proactive population-based chronic care management programs incorporating behavioral principles are discussed. The article concludes by identifying barriers to the establishment of a chronic care model (e.g., lack of supportive policies, understanding of population-based management, and information systems) and priorities for future research in this area needed to overcome these barriers.*

Goldstein, M. G. (2002). Promoting Self-Management in Primary Care Settings: Limitations and Opportunities: A Commentary. In: Williams, R., Herman, W., Kinmonth, A. L., & Wareham, N. J., eds., *The Evidence Base for Diabetes Care*. West Sussex, England: John Wiley and Sons, LTD, 701-710.

*Kinmonth, A. L., Woodcock, A., Griffin, S., Spiegel, N., & Campbell, M. J. (1998). Randomised controlled trial of patient centred care of diabetes in general practice: Impact on current wellbeing and future disease risk. the diabetes care from diagnosis research team. BMJ (Clinical Research Ed.), 317(7167), 1202-1208.*

<i>Objective</i>	To assess the effect of additional training of practice nurses and general practitioners in patient-centered care on the lifestyle and psychological and physiological status of patients with newly diagnosed type 2 diabetes.
<i>Design</i>	Pragmatic parallel group design, with randomisation between practice teams to routine care (comparison group) or routine care plus additional training (intervention group); analysis at one year, allowing for practice effects and stratifiers; self reporting by patients on communication with practitioners, satisfaction with treatment, style of care, and lifestyle.
<i>Setting</i>	41 practices (21 in intervention group, 20 in comparison group) in a health region in southern England.
<i>Subjects</i>	250/360 patients (aged 30-70 years) diagnosed with type 2 diabetes and completing follow up at one year (142 in intervention group, 108 in comparison group)
<i>Interventions:</i>	1.5 days' group training for the doctors and nurses-introducing evidence for and skills of patient-centered care and a patient held booklet encouraging questions.
<i>Measures</i>	Quality of life, wellbeing, haemoglobin A1c and lipid concentrations, blood pressure, body mass index (kg/m <sup>2</sup> ).
<i>Results:</i>	Compared with patients in the C group, those in the intervention group reported better communication with the doctors (odds ratio 2.8; 95% confidence interval 1.8 to 4.3) and greater treatment satisfaction (1.6; 1.1 to 2.5) and wellbeing (difference in means (d) 2.8; 0.4 to 5.2). However, their body mass index was significantly higher (d=2.0; 0.3 to 3.8), as were triglyceride concentrations (d=0.4 mmol/l; 0.07 to 0.73 mmol/l), whereas knowledge scores were lower (d=-2.74; -0.23 to -5.25). Differences in lifestyle and glycaemic control were not significant.
<i>Conclusions:</i>	The findings suggest greater attention to the consultation process than to preventive care among trained practitioners; those committed to achieving the benefits of patient centred consulting should not lose the focus on disease management.

*Krichbaum, K., Aarestad, V., & Bueth, M. (2003). Exploring the connection between self-efficacy and effective diabetes self-management. The Diabetes Educator, 29(4), 653-662.*

<i>Purpose</i>	<i>The purpose of this study was to review the existing empirical evidence about factors that contribute to effective diabetes self-management as indicated by healthy outcomes in persons with the disease, with a specific focus on self-efficacy, to determine the link between learned self-efficacy and effective diabetes self-management in adults.</i>
<i>Methods</i>	<i>A systematic review was conducted of the extant literature from 1985-2001 that described factors related to effective self-management of diabetes. The review included theoretical and empirical articles. The search engines included CINAHL, MEDLINE, PUBMED, and COCHRANE.</i>
<i>Results</i>	<i>Empirical evidence supports the following factors to improve the education outcomes for adults with diabetes: involve people with diabetes in their own care, guide them in actively learning about the disease, explore their feelings about having the disease, and teach them the skills necessary to adjust their behavior to control their own health outcomes. Thus, the goal for educating people with diabetes is to improve their individual self-efficacy and, accordingly, their self-management ability.</i>
<i>Conclusions</i>	<i>Education sessions need to involve fewer lectures and more practical, interactive exercises that focus on developing specific skills. Follow-up contact is a valuable method for helping people make a healthy adjustment to living with diabetes.</i>

*Lorig, K. R., & Holman, H. (2003). Self-management education: History, definition, outcomes, and mechanisms. Annals of Behavioral Medicine : A Publication of the Society of Behavioral Medicine, 26(1), 1-7.*

<i>Description of Context</i>	Self-management has become a popular term for behavioral interventions as well as for healthful behaviors. This is especially true for the management of chronic conditions. In conclusion the article discusses problems and solutions for integrating self-management education into the mainstream health care systems.
<i>Topic/Scope</i>	This article offers a short history of self-management. It presents three self-management tasks--medical management, role management, and emotional management--and six self-management skills--problem solving, decision making, resource utilization, the formation of a patient-provider partnership, action planning, and self-tailoring.
<i>Conclusions/Recommendations:</i>	The article presents evidence of the effectiveness of self-management interventions and posits a possible mechanism, self-efficacy, through which these interventions work.

*Mulcahy, K., Maryniuk, M., Peeples, M., Peyrot, M., Tomky, D., Weaver, T., & Yarborough, P. (2003). Diabetes self-management education core outcomes measures. The Diabetes Educator, 29(5), 768-70, 773-84, 787-8, passim.*

<i>Abstract</i>	<i>The American Association of Diabetes Educators (AADE) recently adopted behavior change as the outcome of diabetes self-management education (DSME). Seven diabetes self-care behaviors were identified as key behaviors to diabetes self-management (Table 1). These self-care behaviors and their measurements have been defined as the AADE 7 core measures of outcome performance. In response to the recent adoption of these core outcomes measures, the need emerged for an extensive review of the literature regarding these behaviors. This technical review provides the published evidence to support the application in practice of the 7 core measures of outcomes performance. Diabetes educators can use the core measures to determine their effectiveness with individuals and populations, compare their performance with established benchmarks, and establish the unique contribution of DSME in the overall context of diabetes care. In addition, the new AADE position statement, "Standards for Outcome Measures for Diabetes Self-Management Education," provides a framework for educators and DSME stakeholders to use as a guide in supporting the value of DSME.</i>
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Norris, S. L., Nichols, P. J., Caspersen, C. J., Glasgow, R. E., Engelgau, M. M., & Jack, L., Isham, G., Snyder, S. R., Carande-Kulis, V. G., Garfield, S., Briss, P., & McCulloch, D. (2002). *The effectiveness of disease and case management for people with diabetes. A systematic review.* American Journal of Preventive Medicine, 22(4 Suppl), 15-38.

*Description of Context* This report presents the results of a systematic review of the effectiveness and economic efficiency of disease management and case management for people with diabetes and forms the basis for recommendations by the Task Force on Community Preventive Services on the use of these two interventions.

*Topic/Scope* Evidence supports the effectiveness of disease management on glycemic control; on screening for diabetic retinopathy, foot lesions and peripheral neuropathy, and proteinuria; and on the monitoring of lipid concentrations. This evidence is applicable to adults with diabetes in managed care organizations and community clinics in the United States and Europe.

*Conclusions/Recommendations:* Case management is effective in improving both glycemic control and provider monitoring of glycemic control. This evidence is applicable primarily in the U.S. managed care setting for adults with type 2 diabetes. Case management is effective both when delivered in conjunction with disease management and when delivered with one or more additional educational, reminder, or support interventions.

Norris, S. L., Nichols, P. J., Caspersen, C. J., Glasgow, R. E., Engelgau, M. M., Jack, L., Snyder, S. R., Carande-Kulis, V. G., Isham, G., Garfield, S., Briss, P., & McCulloch, D. (2002). *Increasing diabetes self-management education in community settings. A systematic review.* American Journal of Preventive Medicine, 22(4 Suppl), 39-66.

*Description of Context* The Task Force on Community Preventive Services is a 15-member, nonfederal, independent panel of experts brought together by the CDC to create a Guide to Community Preventive Services. The Guide will make recommendations regarding public health interventions to reduce illness, disability, premature death, and environmental hazards that impair community health and quality of life.

*Topic/Scope* This report presents the results of a systematic review of the effectiveness and economic efficiency of self-management education interventions for people with diabetes and forms the basis for recommendations by the Task Force on Community Preventive Services.

*Conclusions/Recommendations:* Data on glycemic control provide sufficient evidence that self-management education is effective in community gathering places for adults with type 2 diabetes and in the home for adolescents with type 1 diabetes. Evidence is insufficient to assess the effectiveness of self-management education interventions at the worksite or in summer camps for either type 1 or type 2 diabetes or in the home for type 2 diabetes. Evidence is also insufficient to assess the effectiveness of educating coworkers and school personnel about diabetes.

Parchman, M. L., Arambula-Solomon, T. G., Noel, P. H., Larme, A. C., & Pugh, J. A. (2003). *Stage of change advancement for diabetes self-management behaviors and glucose control.* The Diabetes Educator, 29(1), 128-134.

*Purpose* This study was conducted to evaluate whether patients with type 2 diabetes who participated in diabetes education advanced through stages of change for self-management behaviors and to determine if movement was related to glucose control.

<i>Methods</i>	<i>A cohort of 428 patients with type 2 diabetes participated in a traditional diabetes education program in a large urban center in the Southwest. The sample was predominantly female with less than a high school education, a mean age of 52 years, and a mean duration of diabetes of 7 years. Two interviews were conducted approximately 9 months apart, at 1 to 4 weeks before the educational program and at 6 months after completing it. Blood specimens were collected at each interview to measure hemoglobin A1C (A1C) levels.</i>
<i>Results</i>	<i>Most of the patients advanced 1 or more stages of change for at least 1 self-management behavior. Those with diabetes for less than 2 years were significantly more likely to advance at least 1 stage of change for diet and exercise than those with diabetes for more than 2 years. Such advancement was significantly associated with a decline in A1C.</i>
<i>Conclusions</i>	<i>Patients with type 2 diabetes who participated in diabetes education advanced through stages of change for self-care behaviors. The intervention was more effective for those with a shorter duration of diabetes.</i>

*Rost, K. M., Flavin, K. S., Cole, K., & McGill, J. B. (1991). Change in metabolic control and functional status after hospitalization. impact of patient activation intervention in diabetic patients. Diabetes Care, 14(10), 881-889.*

<i>Objective</i>	To determine whether a short intervention to enhance patient information seeking and decision making during hospitalization results in improved metabolic control and functional status in patients with diabetes.
<i>Design</i>	Randomized clinical trial.
<i>Setting</i>	Conducted in the Clinical research Center of Washington University during an evaluation and treatment program for adult insulin-dependent diabetic and non-insulin dependent diabetic patients
<i>Subjects</i>	61 patients and 22 physicians
<i>Interventions:</i>	Patients in the experimental group received a 45 minute individual session with a nurse the day before discharge to discuss two dimensions of patient participation in medical care: information seeking and decision making. The patient was also given a 1 hour instructional package that is independently completed at home before his/her next outpatient visit which addresses the skills, introduced in the earlier intervention session.
<i>Measures</i>	
<i>Results:</i>	During their discharge discussions, experimental patients asked significantly more questions than control patients and 4 months later reported significantly fewer physical limitations in activities of daily living than the control group.
<i>Conclusions:</i>	The addition of a patient activation intervention to a comprehensive diabetes management program may substantially enhance physical functioning among adults with diabetes mellitus.

*Wagner, E. H., Grothaus, L. C., Sandhu, N., Galvin, M. S., McGregor, M., Artz, K., & Coleman, E. A. (2001). Chronic care clinics for diabetes in primary care: A system-wide randomized trial. Diabetes Care, 24(4), 695-700.*

<i>Objective</i>	To evaluate the impact of primary care group visits (chronic care clinics) on the process and outcome of care for diabetic patients.
<i>Design</i>	Primary care practices were randomized within clinics to either a chronic care clinic (intervention) group or a usual care (control) group.
<i>Setting</i>	Primary care practices in a large-staff model health maintenance organization (HMO).
<i>Subjects</i>	Diabetic patients > or = 30 years of age in each participating primary care practice, selected at random from an automated diabetes registry.

*Interventions:* The intervention group conducted periodic one-half day chronic care clinics for groups of approximately 8 diabetic patients in their respective doctor's practice. Chronic care clinics consisted of standardized assessments; visits with the primary care physician, nurse, and clinical pharmacist; and a group education/peer support meeting.

*Measures* We collected self-report questionnaires from patients and data from administrative systems. The questionnaires were mailed, and telephoned interviews were conducted for nonrespondents, at baseline and at 12 and 24 months; we queried the process of care received, the satisfaction with care, and the health status of each patient. Serum cholesterol and HbA1c levels and health care use and cost data was collected from HMO administrative systems

*Results:* In an intention-to-treat analysis at 24 months, the intervention group had received significantly more recommended preventive procedures and helpful patient education. Of five primary health status indicators examined, two (SF-36 general health and bed disability days) were significantly better in the intervention group. Compared with control patients, intervention patients had slightly more primary care visits, but significantly fewer specialty and emergency room visits. Among intervention participants, we found consistently positive associations between the number of chronic care clinics attended and a number of outcomes, including patient satisfaction and HbA1c levels.

*Conclusions:* Periodic primary care sessions organized to meet the complex needs of diabetic patients improved the process of diabetes care and were associated with better outcomes.

*Whittemore, R., Sullivan, A., & Bak, P. S. (2003). Working within boundaries: A patient-centered approach to lifestyle change. The Diabetes Educator. 29(1), 69-74.*

*Abstract* *Patient-centered approaches have received increasing attention in medical and nursing education programs over the past several decades. Rogers (1951) proposed the technique that has developed into an egalitarian clinical approach used in professional-patient interactions. An individual's lifestyle and meaning of the health experience is explored to collaboratively determine treatment decisions.*

## F. CHOICES & CHANGES ONLINE RESOURCES

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