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Advancing Health Promotion in Dentistry: Articulating an Integrative Approach to Coaching Oral Health Behavior Change in the Dental Setting

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Abstract Oral health is managed based on objective measures such as the presence and severity of dental caries and periodontal disease. In recent years, oral health researchers and practitioners have shown increasing interest in a widened array of physical, psychological, and social factors found to influence patients' oral health. In this article, we introduce a behavior change coaching approach that can be used to enhance psychosocial diagnosis and client-centered delivery of health-promoting interventions. Briefly, this health coaching approach is based on an interactive assessment (both physical and psychological), a non-judgmental exploration of patients' knowledge, attitudes, and beliefs, a mapping of patient behaviors that may contribute to disease progression, gauging patient motivation, and tailoring health communication to encourage health-promoting behavior change. Developed in a clinical setting, this coaching model is supported by interdisciplinary theory, research, and practice on health behavior change. We suggest that, with supervision, this coaching process may be learned.

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Introduction

In 2011, the Institute of Medicine (IOM) stated that oral health promotion (i.e., prevention of disease and its progression) should be a more salient feature of traditionally delivered dentistry [1]. Echoing comments made by the Surgeon General in 2000 [2], the IOM concluded that dentistry should deliver care aimed at the *causes* of oral disease instead of the *consequences* of disease [1]. A clear impediment to this goal is that, currently, dental insurance companies reimburse dentists for completing procedures [1]. Moreover, graduating dental students currently enter the profession with immense financial burden—of indebted dental students in 2014, the average student loan debt was $247,227 [3]. Thus, completing procedures is, on a structural level, strongly incentivized in the dental setting.

Promoting greater oral health prevention in the USA could be achieved via structural approaches such as introducing mid-level providers [4, 5•] or providing universal dental insurance coverage that financially incentivizes prevention-focused care. Alternatively, providers could be trained to effectively deliver prevention-focused oral health care through training that helps providers work with their patients to:

(A) Assess the patient's clinical and psychosocial risk for current and future oral disease;
(B) Explore and confirm specific patient behaviors (and the knowledge, beliefs, and attitudes associated with specific behaviors [6] that contribute risk for disease progression);
(C) Rank these specific behaviors in terms of their contribution to poor oral health outcomes;

(D) Assess a person's motivation to alter their behavior;
(E) Effectively communicate physical oral disease findings and explain to patients how altering specific concrete behaviors could result in better oral health (and possibly systemic health); and
(F) Coach the patient in such a way that they are motivated, actively involved, and working collaboratively with their provider (over time) to act on plans to initiate and maintain behaviors that promote optimal oral health.

While policy-level change is critical, directly addressing the social determinants of health [7, 8••] on a policy level could take decades. Thus, in this article, we will focus on promoting individual-level primary and secondary prevention [9] within the context of the dental provider-patient interaction.

Oral Health Behavior Change

There is an ongoing debate in the dental community as to the evidence base and clinical significance of tooth brushing and flossing to promote oral health outcomes [10••, 11], perhaps due in part to weak study design in much of the supporting literature [12, 13], few studies with long-term follow-up and the use of varying outcome measures across studies [14], as well as the lack of a commonly used, valid, reliable, and relevant objective measure of oral hygiene skills (as opposed to relying on self-reports of oral hygiene) [15•]. Nevertheless, in this article, we will assume that ongoing, regular professional dental visits coupled with properly performed daily plaque control (tooth brushing and flossing and/or use of interproximal cleaning aids [16••]) will enhance the likelihood of an individual's short- and long-term oral health [17, 18].

Although no single theory or conceptual model dominates health behavior research or practice [19], it is well-recognized that interventions to modify health behaviors are enhanced through reliance on health behavior theory [20–24], including foundational behavior change theories such as social cognitive theory [25], the health belief model [25, 26], the theory of reasoned action and the theory of planned behavior [27], the integrated behavioral model [28], the precaution adoption process model [29], health locus of control theory [30], and the transtheoretical model of behavior change [31]. Due to overlap among these and other foundational theories, and because only a limited number of variables are relevant to consider when promoting health behavior change [32], Fishbein proposed the integrative model [33] to unite a volume of theory from years of interdisciplinary work into a coherent model to support health behavior change practices [32].

Similarly, the *Information-Motivation-Behavioral Skills* (IMB) model [34, 35] and Motivational Interviewing (MI) [36••] are key theories that have unified and/or evolved out of previous health behavior theory [35, 37, 38, 39•]. For example, MI was iteratively developed in the setting of substance abuse treatment by clinicians working collaboratively with academics [37, 38]. Empirically evaluated internationally, MI has enjoyed general success, but at varying levels of impact depending on the intervention, context, and aims [37, 38]. For a complete explanation of the working components of MI that could be implemented in the dental setting, see Ramseier and Suvan [40]. Further still, IMB and MI have been used together in the US Options Project [41, 42] and were later adapted for use in a randomized study in South Africa that significantly reduced patients' HIV risk behavior using a counseling intervention delivered during routine medical care [43]. Thus, there has been a growing trend to consolidate and apply health theory to promote effective behavior change in clinical settings. Likewise, this is true in integrative health coaching, a specific brand of health coaching, that builds on prior work in psychology, adult learning theory, personal development, and executive coaching [44••].

It is unlikely that there is any one health theory that works ideally to promote health in *all* contexts, by *all* providers for *all* types of patients or clients [22]; further, all theories are in flux and evolving over time [19]. Regardless, the question remains: how can health theory inform behavior change in the dental setting, and what unique attributes about oral health promotion need to be considered?

In this report, we introduce an oral health behavior change approach, informed by multiple health theories, that was developed within the clinical setting. The lead author (LTV) worked for almost a decade exclusively with HIV+ adults on two clinically oriented, longitudinal NIH-funded studies (K23 DE015746 and R21 DE21376); most research subjects had high levels of periodontal disease (as well as untreated dental caries and other oral health issues) [15•, 45–48]. During these studies, each patient received a personalized prevention plan (for description, see Vernon et al. [15•]) at each of more than 500 visits—of these visits, more than 200 visits involved, in addition, hands-on, intensive health coaching of specific oral hygiene skills (predominantly the R21 study) [49, 50]. In sum, these experiences represent several thousands of hours of one-on-one patient contact in a clinical/research setting in which one investigator (LTV) performed extensive oral examinations, escorted and stayed with patients for most components of the first 5-year (K23) study, and asked extensive questions regarding medical/dental history, diet, exercise, mood, and substance abuse history (primarily in the K23 study), that, in sum, permitted awareness of psychosocial factors influencing these participants. Herein, we offer lessons learned from these hands-on experiences, grounding components of our approach with established health behavior theory.

To be clear, complete understanding of effective behavior change in the dental setting is largely in its infancy [20–24]. Moving forward, it is important to learn *what* behavior change

approaches work best in the dental setting, as well as *for whom*, *how*, and *when* such approaches work [19, 51]. This will require study designs that can measure, isolate, and validate health theory mechanisms of action [22], a challenging undertaking.

To date, it is understood that, in the dental setting and other health care settings, providing information alone appears to have little long-term impact on promoting behavior change [14, 52]. Why is this? Because this kind of approach is based on many assumptions—e.g., that people *want* to know this information (they perceive it as being relevant and important to their lives); that they *understand* this information; that they are ready, able, and motivated to apply this information; and, further, that they can address any challenges that should arise in implementing this information both in the short-and long-term.

What is needed to promote successful oral health behavior change in the dental setting? We propose foremost that providers must *articulate* with "where the patient is at"—i.e., they must understand what is important and relevant to the patient and be able to "meet the patient" at his or her own level of understanding and motivation. This involves tailoring health messages to encourage even small movements forward [15•, 53]. It also requires providers to:

(A) Engage in *active listening* (focus not only on words but also on a patient's affect and non-verbal cues);
(B) Be *conversational* (use language the lay person can understand);
(C) Be *engaged* and *present in the moment* (demonstrate genuine interest and caring for the person); and
(D) Be *flexible* and *agile* (so as to ask the right questions, at the right time, for the right reasons, with the authentic intent to help the "whole person" [39•, 54]).

In sum, providers need to develop trust and rapport while being exquisitely attentive to *how* they ask questions, *how* they convey messages, *how* they explain findings, and *how* they pursue planning to promote health.

Can such skills be taught and learned? It is possible. For example, although training on listening or conversational skills is an understudied topic and much of this work is inconclusive, a number of research findings suggest that such skills can be taught and learned. Active listening skills have been effectively taught to students and professionals in medicine [55], speech pathology [56], and early childhood education [57]. Similarly, instruction in conversational skills, communication skills, asking apt questions, and/or health coaching has succeeded in selected medical and dental school settings [58–60]. Given such preliminary evidence, this begs the question—do we desire to teach these skills? Is it important to us that dentists of the present and future are comfortable working with a wide range of patients to promote health and the prevention of disease? From an ethical perspective, the answer should be yes. From the perspective of doing the right thing for the patient, the answer should be yes. However, as stated earlier, the reality of current insurance funding (i.e., paying for procedures) [1] is a very serious obstacle, especially for persons with high levels of student debt. Nonetheless, assuming that promoting health and a greater focus on prevention (along with arresting progression of disease) is important and desirable, how do we do this?

The following sections present a framework, a context that, if adopted, may help providers foster a mindset that will encourage the development of skills to promote a greater focus on promoting health and preventing disease. In this report, we will pose a series of questions that apply health theory to common clinical presentations seen by providers in the dental setting. These questions are not meant to be asked or answered in a linear, "checklist" fashion. Rather, they are meant to help providers approach oral health promotion with a "fresh set of eyes." Drawing on our clinical experience and citing from health behavior change theory, we propose that concrete questions *such as these* (meaning, that in all situations, the provider's approach is individualized and never rote) [19, 61] can help providers optimally articulate with their patient (in a three-dimensional sense, like an enzyme to a substrate or like maxillary teeth interdigitating with mandibular teeth) and engage in a non-linear, nuanced process of promoting health behavior change.

Overview of a Process-Driven Approach

Component 1: Assessing "Where the Patient Is At"

Foremost, this approach is about building trust and developing rapport, cultivating a positive relationship [62] by connecting with the patient as a whole person and asking open-ended and specific questions. This process encourages greater understanding of the patient, compassionate assessment, and enhanced patient/provider engagement—all critical elements of a client-centered health coaching approach [30, 40, 44••, 52, 54]; such an approach enables the provider to determine "where the patient is at" and thus meet them there and guide or promote incremental progress (i.e., working together to build a "scaffolding") towards greater health and wellness. According to a recent work in integrative health coaching and intentional change coaching, this process may benefit from having a patient be grounded in *positive expectations*—for example, encouraging the patient to express their authentic vision for an ideal outcome and work forwards from this mindset—as this may serve to mobilize active involvement and energize creative engagement in the process [44••, 63••]. Overall, the intent of this approach is to promote a shared understanding, respect, and trust between provider and patient—to create a robust foundation for ongoing conversation,

cooperation, and rapport—the importance of which has been demonstrated in the coaching literature by preliminary evidence from Simmons and Wolover, and Howard [44••, 63••].

Component 1 requires clinical reasoning, a skill that dentists and other oral health care providers have, but one that needs to be used to "work backwards"—from clinical findings to specific patient behaviors that contribute to poor clinical outcomes (i.e., behaviors that must be changed for the patient to learn, practice, and sustain *new* habits that promote positive clinical outcomes). As well, this component requires asking questions to determine the patient's current level of knowledge and personal attitudes or beliefs that are intimately associated with (i.e., "embedded within") such behaviors [6]. In general, the provider should apply an "epidemiological perspective" to the *individual* patient; the provider should be able to determine *where* on the spectrum of oral disease the patient *is* and ask questions to map out past and present risk *behaviors* (i.e., presence or absence of a behavior) that may have contributed to the current clinical presentation and/or may contribute to future disease progression.

Important questions for component 1 may include:

1. What does the patient know (e.g., about oral health, about the causes of dental caries and periodontal disease, about diet, about oral hygiene practices, and, importantly, about their own current state of oral health)?
2. What does the patient's current presentation (based on clinical exam, X-rays, gingival health, full-mouth periodontal probing, level and stage of dental caries, presence of calculus and dental plaque) suggest about their likely future oral health and trajectory of disease?
3. Is the patient primarily at risk for dental caries, periodontal disease, or both?
4. Assuming some level of oral disease, is the patient aware of how serious their current oral condition is? Does the patient care whether, in the next 5 years, they might need to have several teeth extracted? Are they aware of this possibility?
5. Can the oral health care provider ask questions to explore the most proximal risk *behaviors* (or likely candidate behaviors) that may have contributed to the patient's oral disease? For example, does the provider know:

    (a) How often the patient brushes or flosses their teeth?
    (b) Whether, how well, and how long the patient brushes or flosses their teeth?
    (c) What specific teeth or areas of periodontal tissue need the most urgent attention from the provider (as well as the patient) and what specific skills, knowledge, or techniques might help the patient to achieve more optimal home care? For example, are there isolated areas of gingival inflammation, areas with periodontal probing depths ≥5 mm, areas with vertical defects, gingival recession, or loss of interdental papillae with or without cratering between teeth? Note that all of these conditions may require special attention and are also "warning signs" for future disease progression that may lead to tooth loss. Thus, how can the patient be made aware of the need to exert additional, focused attention to these specific areas?
    (d) Specifically, would a powered tooth brush, an interdental cleaning aid [16••], and/or adjunctive antiplaque chemical agents [10••] be appropriate and helpful for this patient?
    (e) Also (as it can influence oral disease severity), when did the patient last see a dentist?
    (f) Does the patient avoid visiting the dentist because they have dental fears? If yes, to what extent, and is there a specific trigger? How can the provider help make the patient feel more at ease, in control, and reassured that they will be treated in a compassionate manner?
    (g) Does the patient smoke? If yes, how many cigarettes per day and for how many years have they smoked? Does the patient want to quit?
    (h) What smoking cessation resources or options can the provider suggest [64]?
    (i) If a patient has an existing medical condition, is the condition controlled? Is the patient compliant with, for example, antihypertensive medication or medicines to treat diabetes mellitus or HIV/AIDS? Can medication compliance be encouraged by framing health improvements in the oral cavity to improvements in the patient's systemic health?
    (j) Does the provider know the patient's diet, what they consume, the time spent eating or drinking, and at what time of day this happens? Does the patient consume any food or beverage with refined sugar? If yes, how much added sugar do they consume, how often, and when?

Based on clinical reasoning, Featherstone's 2004 concept of the Caries Balance [65], the Stephan Curve [66], and the knowledge of risk factors for dental caries [67, 68] as well as risk assessment methods for periodontal disease [69•], many other questions could be asked—but, we assert, this is the level of detailed questioning and follow-up questioning that providers need to ask. *Why?* Because this will help the provider create a larger and more comprehensive picture of the person they are caring for, their habits, their attitudes, and how they live. Can providers ask *all* of these questions? Yes, they could—but this would be time consuming. Instead, the oral findings should drive the questions, so that only the most pertinent questions are asked at a given point in time. And over time, the depth and breadth of this process can continue to unfold.

Component 2: Identifying Putative Risk Behaviors

The next level of inquiry may overlap with or blend "back and forth" with component 1; it involves:

1. Identifying the major risk *behaviors* (activities being done or not being done) for the patient's current oral condition, i.e., what patient behaviors likely contribute to the clinical presentation?
2. Assessing and determining which specific factors—and thus which behaviors—most likely contribute to the patient's current oral condition? Can the provider verify their assumptions—by "back-tracing" the risk factor to one or several specific behaviors? For example, with patients who have poor plaque control, providers may need "more data:"
   (a) Has the patient not seen the dentist in the past 5 years?
   (b) Do they only brush in the morning and not at night before going to bed?
   (c) How effective is their tooth brushing technique?
   (d) Has the provider actually *seen* the patient brush their teeth *in real time*?
   (e) Does the patient floss or use inter-dental cleaning aids? How effective are the patient's oral hygiene techniques? Can the identified behaviors that contribute risk for oral disease be prioritized (in terms of immediate risk for developing disease or furthering disease progression)—keeping in mind the larger picture of the patient's overall health?
   (f) What is the most important behavior that, if altered, would have the most significant impact on, for example, reducing the risk for dental caries or periodontal disease?
   (g) Can the provider link together and communicate the oral health-risk behavior to the patient's future risk for developing an adverse systemic health outcome?
   (h) What part of an identified (putative) risk behavior (Someting being done or not done) can be altered to most help the patient improve his or her oral health over time?
3. Does the patient have (as an example) dry mouth?
   (a) If yes, how severe is it?
   (b) What does the patient do to presently address it?
   (c) Does the patient know how dry mouth (coupled with refined sugar intake) can contribute to tooth decay [65]?
   (d) How does the provider explain this risk to the patient in a way that is meaningful to the patient?
   (e) Can the provider encourage and/or empower the patient to be actively involved in this coaching process [70••]? Can the provider help motivate the patient to take care of their dry mouth in order to reduce the risk for dental caries [67, 68], gingivitis [16••], and/or periodontal disease [69•]?
4. What restorative or treatment dental care issues need to be addressed first (i.e., address pain, infection, or loss of function, while also focusing on prevention)? Obviously, emergency cases need to be triaged appropriately, but even such an encounter holds the opportunity to deliver important prevention-focused messages, i.e., scheduling a follow-up appointment—a future opportunity to engage the patient to pursue comprehensive care.

Additionally, theory and research on integrative health coaching and intentional change coaching suggest that it is critical for the provider to communicate *hope* and *genuine optimism* to the patient (both verbally and non-verbally) in order to ground the provider-patient exchange in the patient's intrinsic hope, motivation, and vision of health and well-being [44••, 63••]. Even in an emergency care condition, the provider can "plant the seeds" to raise the patient's oral health self-awareness in the future. Indeed, establishing a connection based on shared hope, trust, and respect may enhance the likelihood that the patient will return for follow-up (and ideally ongoing routine) dental care.

Component 3: Communicating Risk Behaviors

Again, this dynamic competency is fluid and often integrates (works back and forth with) components 1 and 2. Component 3 involves asking and answering questions such as:

(A) Do the patients realize how the risk *behavior* (e.g., smoking, untreated dry mouth, suboptimal oral hygiene) contributes to their clinical presentation?
(B) Can the provider explain how the risk behavior contributes to their oral disease state (now or in the future)?
(C) Does the patient "want to hear this"—are they "ready" to hear this (i.e., is the patient in denial or defensive)?
(D) Can the provider adjust their approach to explaining information by cuing into verbal and non-verbal signals from the patient?
(E) Can the provider detect the patient's attitude and motivation based upon the patient's actions (or lack of actions), their verbal and non-verbal responses, and gently work around these factors in a non-judgmental fashion to examine the underpinnings of the risk behavior? Certainly, when a provider encounters a patient who is ambivalent or defensive, the use of MI-consistent techniques [71] is indicated and may enhance the likelihood of moving forward towards health promotion with the patient [37, 38].

Component 4: Coaching Patients to Develop Health Promotion Plans

This competency is likewise dynamic and may integrate (work back and forth with) the other components. In Component 4, by drawing on oral health coaching techniques, the provider should offer suggestions but also ask helpful questions that support and allow the patient to share his or her needs and perspective on the oral health care process (e.g., including personal hopes for the clinical experience and the patient/provider relationship as well as possible concerns) [44••, 63••]. However, with defensive or ambivalent patients, using an MI-consistent approach may be most beneficial—such as asking permission to proceed and/or encouraging the patient to come up with a manageable plan [40] to address the risk behaviors(s) identified in component 3. When offering suggestions, the provider may need to tread lightly, and once again, using more non-directive, patient-centered techniques (i.e., again, an MI-consistent approach) may be helpful [40] [72]. For example, the provider needs to know:

1. Is the patient receptive to hearing about suggestions right now? If the patient does not want to talk about tips on smoking cessation [64] on a given day, would they be willing to consider talking about this at a later date?
2. Does a suggestion need to be broken down into smaller, easier to understand steps? For example,
    (a) Do the suggestions require some hands-on training (e.g., hands-on tooth brushing, flossing, or proxy brush use instructions)?
    (b) Will the training require several sessions?
    (c) Are there video resources or printed materials that may help reinforce the process?
    (d) Are the resources tailored enough to be effective for this patient?
3. Does the patient need to be encouraged, empowered, or motivated [73]? What would be most helpful (i.e., does the patient prefer that the provider frames the health message as "going toward a positive"— i.e., greater oral health, or "avoiding a negative"—i.e., the progression or worsening of oral disease) [74, 75]?
4. Does the patient have any physical or cognitive barriers?
    (a) Are there intra-psychic barriers—i.e., does the patient not believe they are able to complete the suggestion or the plan they have helped to develop, and thus, does the provider need to first address the patient's self-efficacy?
    (b) If so, how can the provider best build off of existing patient strengths and use positive reinforcement [44••, 63••, 76]?
    (c) Are there any other internal or external barriers (competing interests, time constraints, lack of access, or lack of motivation) that the provider can address or begin to address?
5. Would writing out a step-by-step process be helpful?
6. Would assistance or reminders from a friend or family member be helpful to the patient?
7. Can the provider answer any further questions or be of any further help?

In sum, there are many nuances to "articulating" with the patient to assess behaviors that increase risk for oral disease *as well as* deliver health messages that are more likely to be well received by the patient. We encourage the provider to take a "longer view": any forward momentum is helpful and should be acknowledged by the provider—even if the patient's initial behavior change is just a small step forward. Our assessment and oral health coaching approach is thus an *iterative process* that should be applied over time to an individual patient in an individualized manner. Sniehotta has stated that, for the most part, (individual-level) health behavior change is intentional change that "involves adopting a new pattern of behavioral response while extinguishing a previous or undesired behavior" (p. 269) [77]. Also, intentional change is dynamic and unfolding, it takes time and practice, and it can move in unpredictable "fits and starts" [78, 79]. Providers and patients alike need to appreciate the step-wise nature of intentional change and the importance of co-creating robust yet flexible processes/partnerships for desired health change.

Another important consideration is: how can the provider communicate with the patient or phrase their messages in such a way as to promote the patient's "enlightened self-interest"? Can the provider direct the patient towards having their own reasons (i.e., internal motivation) to pursue a course of action? Further, when interacting with the patient, how the message is delivered and received may have much to do with the *internal attitudes* of the provider. For example, if the provider is, on any level, judgmental, this attribute will likely be communicated, verbally or non-verbally, to the patient and it will undermine rapport and trust and corrode the provider-patient relationship [80]. As well, a provider's attitude towards prevention (be it positive, neutral, or negative) will likely be communicated to the patient on some level and may influence the outcome of the current interaction and/or subsequent work on health learning and behavior change. Using an MI-consistent stance (first described by Carl Rogers) of "unconditional positive regard" is important [39•, 54]. We have found that a non-hierarchical coaching stance (in which the provider and the patient are more like equal members of a team, working alongside each other on a common goal) [15•] can be effective in promoting trust, openness, and rapport [49, 50]. The mindset of being a patient advocate is likewise important [81]—be that to promote the patient's overall health, making the dental visit more comfortable, or helping the patient navigate the health care system. At best, all of these activities are

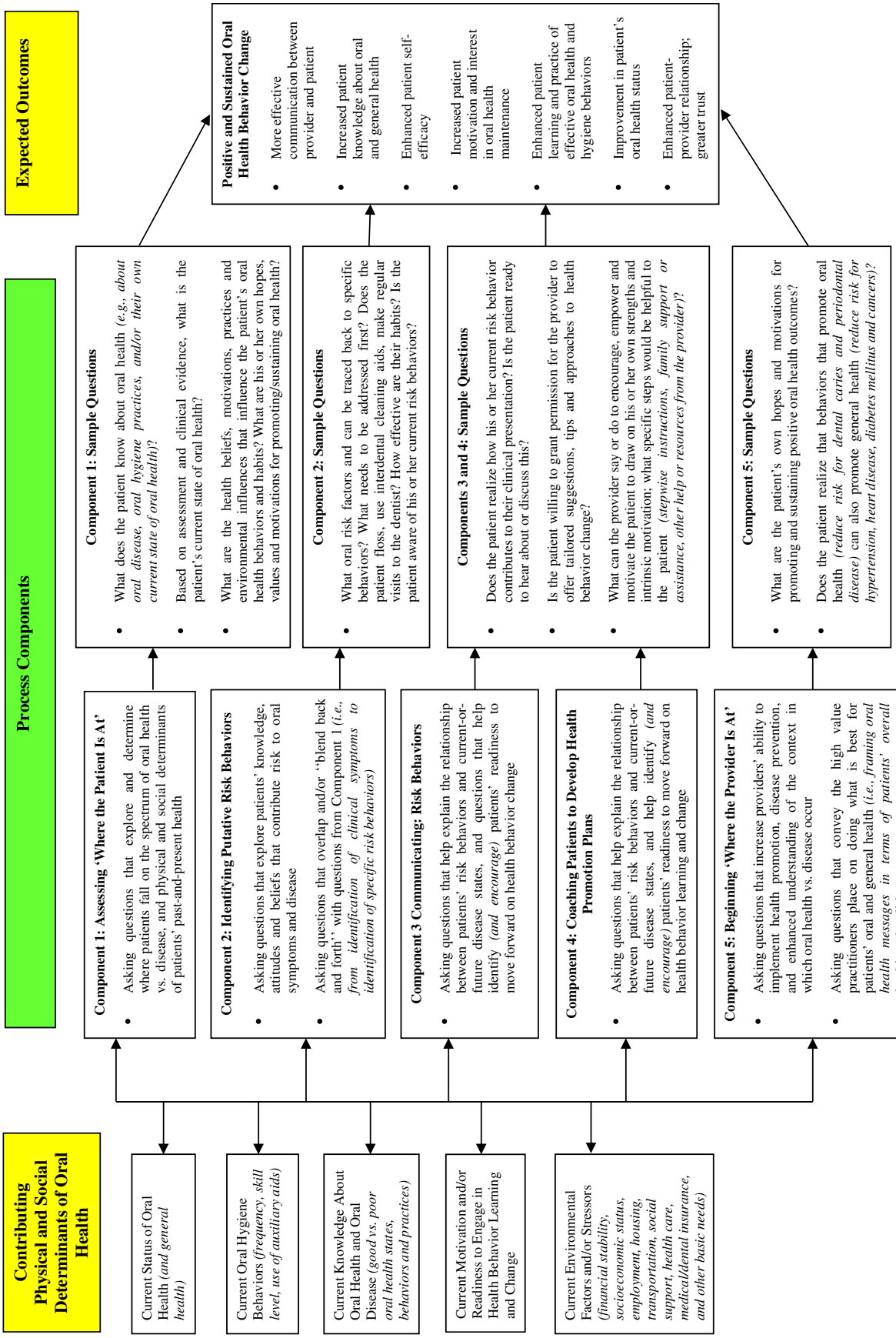

Fig. 1 Components of a process-driven approach to coaching oral health behavior change

Table 1 Provider characteristics during prevention-focused oral health coaching

- Be conversational, relaxed
- Be genuine and honest
- Use lay-person language (not medical/dental jargon or technical terms)
- Be curious, not judgmental or blaming
- Ask questions to verify assumptions
- Be a patient advocate; do what is best for the patient
- Work "alongside" the patient, be non-hierarchical; minimize power differential
- "Read" both verbal and non-verbal messages from patient
- Listen actively; use "deep listening"
- Assume that lack of knowledge/skill may explain poor oral hygiene (this may help shift blame off of patient)
- Project hope; believe that patient can make forward progress
- Encourage patient autonomy, engagement, and empowerment
- Use an MI-consistent approach when encountering ambivalence or resistance
- "Check in" with patient to verify she/he understands
- Shape behavior in small steps that patient can manage
- Make iterative adjustments over time
- Reinforce positive gains over time

patient centered and the literature has demonstrated the importance of this orientation [39•, 54, 82, 83, 84•, 85].

Component 5: Beginning "Where the Provider (Dentist, Hygienist, Dental student) Is At"

Learning and implementing the above process is contingent on valuing health promotion and disease prevention, as well as on trusting one's clinical reasoning and intuition—as informed by the use of empathy, deep listening, and appreciation of the patient's intrinsic motivation and unique psychosocial history. Practicing this process requires the provider to integrate the art of social interaction with the cognitive elements of psychology and the science of dental medicine. Like any educational goal, this process takes time, and as in other areas of coaching, we propose that this process can be learned, cultivated, and mastered over time [85–90]. But, to do so, requires that the learner has the will to begin and the tenacity to keep working at it, ideally under the supervision of an instructor. For an overview of our coaching process, see Fig. 1. For a list of essential provider characteristics during our coaching process, see Table 1.

A critical point is that this approach is embedded within doing what is best for the patient, and that the provider should not focus *only* on oral health. On the one hand, we find it helpful to view the oral cavity as a "harbinger for future disease" [91, 92] (an "early warning sign," a "canary in the coal mine") for the entire body. As an example, excessive intake of processed foods and refined sugar is linked not just to tooth decay but also to obesity, diabetes, metabolic syndrome, cardiovascular disease, and poor health outcomes [93–95]. When a provider frames his or her oral health messages in terms of the patient's overall health, this may lend more trust, credibility, urgency for the patient to take such messages seriously, and thus take action [44••, 63••, 70••, 92]. On the other hand, we also find it helpful to view proactive care and maintenance of the oral cavity as a "harbinger for future oral health wellness", and a contributing element in the promotion of general health and well-being.

Integrative Oral Health Coaching Approach: Strengths and Limitattions

The development of this approach has several strengths. A central strength of this approach is that it was developed for HIV+ adults at high risk for oral disease [45]; commonly, such patients had concomitant illnesses (i.e., were medically complex), and had some level of economic and/or psychosocial strain as well as concerns about stigma, confidentiality, and whether they would be treated with respect by their health care providers [96]. In many ways, such a population represents an ideal prototype—as individuals in this population can present with a concentration of health issues (that might otherwise be seen across several *different* people). Our health coaching approach, while not yet empirically demonstrated, may generalize to individuals in the general population. Further, the lead author, a dentist and researcher (LTV), had involvement in psychological and psychiatric clinical research [97–100] prior to attending dental school and has also worked closely since 2006 with the co-author (ARH), a PhD in Organizational Behavior, to model this coaching approach. Finally, reports similar to ours from the UK by Watt et al. and Chapple and Hill suggest that efforts to reorient the profession towards greater health promotion and disease prevention are already underway [30, 101••].

Our approach also has limitations. A potential limitation of this approach is that it was developed within a specific population—i.e., HIV+ adults at high risk for poor oral health due to many factors (both on an individual and systemic level)—and although we propose that our approach should generalize with minimal adaptation to other populations, such a claim has not yet been explored using rigorous, evidence-based methodology. At present, there is only preliminary evidence of its effectiveness [15•]. More definitive proof is contingent upon studies that do not rely on self-report—thus, our group has developed a provider-observed measure of oral hygiene skill mastery—and we will begin in 2015 to establish the validity and reliability of this instrument (R21-DE023740) for use in clinical studies. Further, the ease with which this approach can be

taught and learned is currently unknown; however, based on supporting research on health coaching and intentional change coaching [85–90], it is reasonable to suggest that this is possible, especially with provider training and supervision. Finally, at present, oral health care providers may be minimally reimbursed by most insurance plans for carrying out this coaching approach; thus, the economic viability may require creative adaptations and/or time-limited implementation in some settings. It may, however, be well suited for some training institutions such as dental schools, dental hygiene schools, or mid-level provider training programs.

Conclusion

Encouraging oral health behavior change is a non-linear, multi-layered, dynamic process. We present here a host of physical and psychological considerations, outlining a process that involves a curious, open-minded, and benevolent provider conducting a multi-level assessment, identifying specific health-risk behaviors, and coaching patients to encourage health promotion using a nuanced and tailored style of communication. We support this approach using a rich history of social and psychological science, citing major health behavior theories and recent evidence-based reports across a host of disciplines. Importantly, we outline the working components of paradigm shift in the delivery of oral health care. This integrative health coaching process can be used as a template to advance a greater focus on prevention and health promotion in dentistry.

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Compliance with Ethics Guidelines

Conflict of Interest Lance T. Vernon, DMD, MPH, and Anita R. Howard, Ph.D., declare that they have no conflict of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by either of the authors.

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