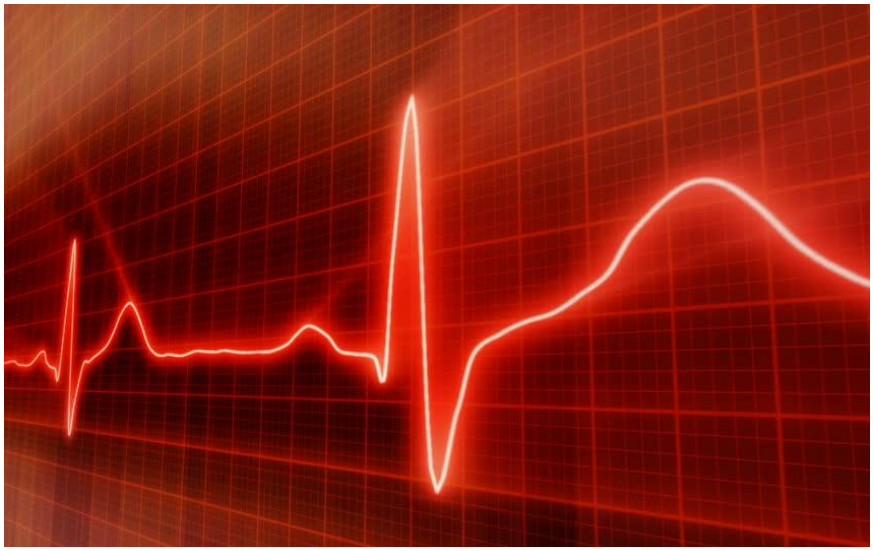
PATIENT MANAGEMENT STRATEGY



Why Mere Technology Cannot Ensure Patient Compliance

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Life without technology is entirely inconceivable. Individuals and societies depend on technology for improving, developing, expanding, and perfecting life. Indeed, the progression of humanity is directly associated with the practical application of knowledge and creativity as well as art and science for enhancing and enriching our lives. Technology brings about the advancements of civilization by means of innovations and discoveries, inventions and new ideas. In fact, technology is all about accomplishment, achieving things in and for life by using advanced processes, innovative methods, resourceful tools, and judicious knowledge to address the needs, wants, and desires of mankind for making life easier, faster, simpler, better, different, more of something, or less of something. If it were not for mere technology, I would not be able to write about technology nor would you be able to read about it.

THE PERVASIVENESS OF TECHNOLOGY

Technology is a means for extending our abilities and human effectiveness in many areas of life; it expands our facility for thinking and feeling, for comprehending and understanding ourselves and our

world, for connecting, communicating, and relating to others. What's more, technology enhances our individual and collective abilities for work, play, rest, and relaxation. It enhances progress, performance, and productivity as well as our competencies, experiences, ingenuity, and resourcefulness. We create and use technology to satisfy our wants and needs for safety and security, shelter and sustenance, services and support. Besides using technology to communicate, create, and relate, we use it to consider, conceive, and convey thoughts and ideas; and we use it to compose, construct, craft, and accomplish things. Practically speaking, technology is involved in virtually every aspect of our being; it influences our personal, social, and spiritual lives as well our professional, educational, occupational, commercial, and recreational existence.

Technological achievement and a scientific understanding of how the mind works are, to some extent, related. While information processing is a function of computation, information processing is *the one indispensable and fundamental activity* of the mind impossible to replicate or replace with technology. How individuals think and feel in their day-to-day existence – how they see and hear, speak and depict, consider and choose, and take actions the way they do – elude our imperfect and limited intellectual capacity. Even so, what we do know is that human feelings and emotions are transient and, to some extent, unpredictable. What's more, we know that feelings and emotions affect choices and actions despite any application or intrusion of technology, artificial intelligence, or information processing with the intention of understanding, managing, or changing human thinking and behavior. True, the ultimate realization of artificial intelligence and its practical applications are yet to be established; still the one, definitive scientific discovery and breakthrough above all others will be the ultimate understanding of how the mind works and how it influences choice, behavior, and action. Without that understanding, technology can neither imitate it nor transcend it.

In consideration of our limited knowledge and that which affects choice, behavior, and action, the usefulness of present-day technology is understandably limited in achieving patient compliance. While it can absolutely extend our abilities and effectiveness in managing patient care and influencing our processes and methods of delivery, technology cannot change, convert, or transform individual beliefs, desires, choices, behaviors, or anything associated with human nature; moreover, it cannot compel or coerce or guarantee activity. Patients are human beings with human tendencies which technology can neither affect nor transform entirely. As such, human feelings, emotions, and sentient behaviors always prevail over technology.

COMPLIANCE AND TECHNOLOGY

This conversation is concerned with technology and its capacity to have a positive effect on patient compliance. Before we examine the nature of technology and its effectiveness with compliance, let us turn our attention to the challenge of patient compliance and why it is such a considerable healthcare dilemma for achieving optimal clinical, economic, business, and patient satisfaction outcomes. Prior to that, however, let's first take a moment to define compliance.

For our purposes, patient compliance is a state of patient engagement, activation, and persistence so that the patient can efficiently and effectively manage their health, healing, and wellbeing. For patient

compliance to be efficient and effective, the patient must be interested and involved in their life, their care, and their care plan. Stated another way, the patient must be engaged. Besides being engaged, however, the patient must also be moved to take actions consistent with their care plan and the patient must be determined and committed to achieving optimal outcomes. In their engagement, activation, and persistence, the patient follows the care provider's instructions and recommendations according to their care plan and, as such, the patient takes actions consistent with those instructions and recommendations. In view of that, the patient must have the capacity to understand and learn the instructions and recommendations as well the patient must have the capacity to take actions consistent with their plan. Moreover, the patient must have the ability to adapt to change, inconvenience, and potential loss of independence that the care plan may impose as the patient must also have the ability to deal with any difficulties, disruptions, discomfort, or decrease in their quality of life that the patient may encounter during their care.

There are two types of patient compliance: first, therapeutic patient compliance for patients in managing and / or potentially healing their illness and, second, preventative patient compliance for patients in managing their health and wellbeing and potentially preventing disease. In consideration of this, all patient compliance is, to some degree, preventative in nature. For the patient who is healthy, compliance is intended to prevent illness or disease; for the patient who is ill, compliance is intended to further prevent complications and comorbidities that could eventually lead to their demise. Therapeutic and preventative patient compliance, nonetheless, require the patient to adhere to some form of care plan, developed with their care provider, by choosing to follow the instructions and recommendations of the care plan and by taking actions consistent with those instructions and recommendations.

In addition to the virtuous intentions of therapeutic and preventative compliance, there are three principal reasons for pursuing patient compliance in health care as a worthy, well-intentioned practice. First, patient compliance helps advance and achieve optimal clinical outcomes, especially when the patient actively works with their care plan and care team to reach therapeutic goals and objectives; compliance helps the care provider attain evidence-based results. By achieving higher rates of clinical success, patient compliance, in due course, helps generate greater opportunities for increasing market share, revenues, reimbursement, and growth for the care provider. Second, patient compliance works to improve economic outcomes with increased revenues by achieving optimal clinical outcomes. As such, patient compliance can help reduce the risks and costs accompanying complications and comorbidities that arise from patient noncompliance as well it can help reduce expenses and penalties associated with patient relapses and readmissions. Moreover, patient compliance, through value-based purchasing, has been shown to improve economic outcomes with financial incentives, payments, and reimbursements as the care provider meets certain performance measures. Third, patient compliance advances optimal patient satisfaction outcomes. The patient experiences enhanced relations, improved communications, expanded resources, and more importantly the patient achieves better care and outcomes.

Simply stated, patient compliance optimizes income *and* outcomes for physicians, providers, payors, and patients who work to achieve it.

COMPONENTS OF COMPLIANCE

As we examine the relationship of technology and patient compliance, there are a number of important distinctions to be made regarding compliance and the care plan. First, we must define the *Components of Compliance*; the elements of the care plan that make the plan comprehensive and complete for the patient, the elements that encourage patient engagement, activation, and persistence for compliance in achieving optimal clinical outcomes.

The first *Component of Compliance* obviously focuses on the instructions and recommendations of the patient's care plan. Since instructions and recommendations are fundamental to the care plan, the patient takes actions based on them and, as such, the other *Components of Compliance* contribute to and support those instructions and recommendations. It follows, then, that the second component focuses on patient medications and healthcare products that are used by the patient in the care plan while the third component focuses on ongoing patient care helping ensure care is continuous with the patient's primary and secondary providers and, as required, specialized, extended, or home care is provided. The fourth component of compliance focuses on patient health with nutrition, exercise, activities, and lifestyle enhancements while the fifth component focuses on patient wellbeing with ongoing communication, education, services, and support.

1. PATIENT INSTRUCTIONS AND RECOMMENDATIONS

Patient Instructions and Recommendations define the care plan; they provide understanding and purpose for medications and healthcare products and ongoing patient care as well they provide guidance and direction for patient health, healing, and wellbeing.

Before further discussion regarding the first component of compliance, we must make a distinction between *Instructions and Recommendations*. On the one hand, instructions are the directions and orders of the care provider which the patient *must follow* while, on the other hand, recommendations are the advice and suggestions the patient *should follow* in anticipation of enhancing outcomes and wellbeing.

Often, *Instructions and Recommendations* are not differentiated and, as such, are collapsed into a single set of directions. Although instructions and recommendations are correspondingly important to patient health and healing, the patient and care provider tend to focus more on instructions rather than recommendations since they provide a greater, more direct, and obvious influence over healing and managing the disease. While the patient is more likely to follow instructions, the patient is typically not overly inclined to obey their care provider's advice to eat sensibly and exercise more. Yet, both instructions and recommendations are important to the overall health, healing, and wellbeing of the patient. If the care provider, in fact, believes their recommendations, suggestions, and advice are important to healing and the patient's ability to manage their disease, the patient not only needs to follow instructions but the patient also needs to adhere to the care provider's recommendations in order to be fully compliant.

As we know, it is important to provide complete and comprehensive *Instructions and Recommendations* to the patient in a manner that is clear, simple, and easy to follow; instructions and recommendations that provide a schedule of patient events and actions replete with patient prompts and reminders and patient appointments as well. Just as important, the care provider needs to thoroughly review the instructions and recommendations with the patient and determine the patient's understanding and willingness to comply. As appropriate, it is important to also provide any special *Instructions and Recommendations* for the patient making changes in their lifestyle, habits, behaviors, activities, relationships, and environment as it is also important to provide special instructions for operating, servicing, storing, and replacing healthcare devices and equipment.

When it comes to patient *Instructions and Recommendations*, technology is very useful and productive in creating, referencing, and archiving this information. Technology often plays a role, first, in generating patient awareness, interest, and understanding for care plan *Instructions and Recommendations* as it also plays a role, second, in reminding and prompting patients when it is time to take medications and actions and what actions the patient needs to take. Technology, however, cannot ensure the patient fully comprehends, understands, and follows their *Instructions and Recommendations* nor can it ensure the patient takes actions consistent with them. Technology can only provide care plan information, provide a means for validating patient understanding, and report patient activity or inactivity as well as overall patient compliance or noncompliance.

2. PATIENT PRODUCTS

The second component of compliance is *Patient Products*. Patient care plans naturally require *Instructions and Recommendations* as they also require products denoted in the plan. *Patient Products* often include drugs and medications, healthcare products, personal products, equipment, devices, instruments, and other patient necessities. They should include any and all products the care provider determines appropriate for the patient in their health, healing, and wellbeing. Accordingly, *Patient Products* may include oxygen therapy, nutritional supplements, wound management products, therapeutic clothing and shoes, special soaps and shampoo, air mattress, body moisturizers and lotions, and more.

Mentioned earlier, the patient will require instructions for products they are to use in their care plan. Patient instructions, therefore, must address the purchase, storage, care, use, disposal, and the refill or replenishment of those *Patient Products*. While the patient and their care provider usually concentrate on patient instructions for prescribing and taking medications, the patient will also require thorough knowledge, instructions, and training for the application of healthcare and personal products, the use of devices and equipment, wound care and dressing changes, and, as appropriate, other directions.

Time and again, technology plays a critical role in helping the patient manage the products associated with their care plan as well as providing the requisite patient instructions for taking medications; using devices; applying or wearing products; operating, maintaining, and servicing equipment; and so forth. One of the more essential uses of technology, then, is in providing self-care and post-operative

instructions and other patient therapies and guidelines; for instance, wound management, applying medications, and changing dressings.

Another important use of technology, relative to product usage, is to help remind patients to refill medications and to replace devices or products that are depleted, expired, single-use, disposable, or worn out, as appropriate. In addition, technology is important in helping provide patient prompts and information exactly for product refills and replenishments, equipment and device care instructions and storage, disposal and repair of certain products, and other clinical and technical information the patient might require in their self-care. What's more, technology is also important in helping patients create a connection with their pharmacy and other product resources by offering a fast, direct, and easy way to obtain medications and other products.

Technology, however, cannot absolutely ensure the patient takes medications and uses products correctly and on time as outlined in their care plan. As such, technology cannot ensure the patient accurately applies devices, properly uses equipment, or handles products appropriately and accurately unless the product itself has built-in monitoring and technology fail-safes. Nonetheless, technology is an excellent source of providing patient information as well as a means of monitoring and tracking patient activity, dosage, and time, within limits of innovation, for reporting patient compliance.

3. PATIENT CARE

As a complement to patient *Instructions and Recommendations* and *Patient Products*, the third distinction is *Patient Care*. Care plans for the patient with a chronic illness always involve ongoing patient care which, based on the plan, includes monitoring and measuring the effectiveness of care as well as evaluating and managing outcomes with, one, the patient accurately following their instructions and recommendations and, two, the patient properly taking their medications and using their products, devices, and equipment as prescribed. Accordingly, *Patient Care* involves ongoing check-ups and follow-up examinations as well as further diagnostics, tests, and screenings to determine patient performance and progress. Moreover, *Patient Care* often involves the need for the patient to procure additional care, as required, with other care providers and clinicians as well as specialists, therapists, dieticians, trainers, counselors, coaches, or companions. In view of that, *Patient Care* involves continuing primary and secondary care as outlined in the instructions and recommendations as it may well involve other specialized therapies and care, alternate care, extended care, and home care.

In managing *Patient Care* as a component of compliance, technology plays an important role with the patient and care provider in scheduling appointments for check-ups and follow-up visits, diagnostics, tests, examinations, and other required activities. Besides the usual planning, organizing, and scheduling of patient appointments, technology also plays an equally important role in reminding and prompting patients to keep their appointments and another role as a means of patient communication to schedule and reschedule appointments as required. Correspondingly, technology is the patient's connection to additional clinical and medical resources including specialists, therapists, clinicians, pharmacists, and other care providers. In making connections, technology creates a valuable network of care providers for the patient as it also creates a means of monitoring, measuring, and reporting patient

activities, appointments, and results from patient tests and examinations. Technology cannot ensure the patient schedules and keeps appointments nor can it ensure the patient participates in any of their additional or extended care. It can, however, remind the patient of important events and report patient activity or inactivity, patient compliance and noncompliance.

4. PATIENT HEALTH

The fourth component of compliance is *Patient Health* which focuses on providing the patient a comprehensive approach to their health and healing as part of a more complete care plan. As we know, care plans not only address instructions and recommendations, medications, healthcare products, and continuing care, they also need to address the general, physical health of the patient; that is, patient condition, strength, fitness, energy, and overall healthiness.

Patient Health may involve suggestions and recommendations regarding diet, nutrition, and hydration. It may also suggest the use of food additives or supplements like vitamins, minerals, amino acids, and other nutraceuticals as well as personal care products like lotions, cleansers, sprays, washes, creams, gels, ointments, and other products for skin, hair, eye, ear, sinus, dental, and other applications. *Patient Health* may also involve recommendations for other care including eye and dental as well as certain articles of clothing, shoes, personal and household items, eyewear, or items related to patient activity, rest, sleep, work, play, and travel. And it may also involve other advice related to the patient's home setting, location, and environment.

As the fourth component of compliance, *Patient Health* involves patient rest and inactivity, patient activities of daily living (ADLs), patient restrictions, and patient therapeutic exercise, as appropriate, plus relaxation exercises, stress and time management, meditation, cognitive behavioral practices, and more. This component of compliance, *Patient Health*, often requires interpersonal connections and relationships with pharmacists, coaches, counselors, therapists, dieticians, and other specialty providers. Technology can play an important role in advancing *Patient Health* by providing information and education for nutrition, exercise, and activities as well as providing digital tools to assist the patient in planning and preparing meals, determining food values, providing healthy menus and recipes, tracking meals and activities, participating in therapeutic exercise programs, and more. It can also play an important role in providing the patient with information and education for changing patient behaviors and improving personal habits. What's more, technology can also play a role in scheduling patient activities, providing prompts and reminders, and making connections to patient services and support. Technology, however, cannot ensure the patient is actively involved with their health by eating and exercising sensibly, making healthy lifestyle choices, and taking healthy actions; it can only provide the education, information, and tools to support the patient and report their activity and compliance.

5. PATIENT WELLBING

Providing an inclusive approach to *Patient Wellbeing*, the fifth component of compliance focuses on the emotional, intellectual, and spiritual wellbeing of the patient. It offers ongoing information, education, and motivation as well as other services and support to help ensure patient comfort, compliance, and ease. In addition, *Patient Wellbeing* offers ongoing communication, connectivity, and a network of

supportive relationships; *Patient Wellbeing* invites the patient to be part of a care community comprised of other patients experiencing similar conditions and disease states as it also invites the patient to create a more personal care circle comprised of loved ones, family members, friends, and other care givers.

Like *Patient Health*, *Patient Wellbeing* often requires interpersonal connections and relationships with coaches, counselors, therapists, dieticians, clergy, and other specialty providers. Technology can, to some extent, play a role in advancing communication although encouraging and supportive conversations are best had in person, especially in dealing with *Patient Wellbeing*. Technology can also play a role in creating care communities and care circles by creating networks and connecting their members with each other. In providing specific patient services and support, technology may or may not have a role depending on the services and support the patient requires. In providing ongoing information, education, and motivation, technology may or may not also have a role although encouragement, inspiration, and motivation are always best experienced and shared in person and do not necessarily require technology although it could be very beneficial in some instances.

In summary, patient compliance involves a number of important considerations regarding the patient's care plan which go well beyond patient *Instructions and Recommendations* and the use of medications, products, and devices to managing ongoing patient care and appointments, providing recommendations for nutrition and hydration, addressing patient exercise and activities, and more. These five *components of compliance – Patient Instructions and Recommendations*, *Patient Products*, *Patient Care*, *Patient Health*, and *Patient Wellbeing* – are designed to help the patient manage their overall health and wellbeing while under their physician's care. Although its application is limited within the components of compliance, technology is important to patient care; it offers care providers and patients a valuable role in helping to advance patient compliance, to ensure patient engagement, activation, and persistence, and to achieve optimal clinical, economic, and patient satisfaction outcomes.

CONTINUUM OF COMPLIANCE

In connection with the components of compliance, there is the *Continuum of Compliance* that also requires our attention and a brief discussion relative to the use of technology. First, let us distinguish the continuum of care from the continuum of compliance.

Beginning with an onset of symptoms and a first visit to their care provider, the patient enters a continuum of care that will integrate health services and products with a course of therapy, established in a care plan, managed by the care provider and a care team, over a period of time. The patient, participating in this course of treatment, is expected to follow instructions and recommendations, is expected to comply with the care plan. The *Continuum of Compliance*, as an extension of the care continuum, addresses the roles and responsibilities of the patient for following the instructions and recommendations of their care plan and taking actions consistent them. Accordingly, the *Continuum of Compliance* is a progression of activities and events that help ensure the patient will make healthy choices and take healthy actions for their compliance in the care continuum.

In the *Continuum of Compliance*, there are three principal stages of compliance: *Patient Engagement*, *Patient Activation*, and *Patient Persistence*. We surely understand the value of *Patient Engagement*, as the first stage of compliance, especially for helping the patient to be aware, involved, and immersed in their health and healing. And since there is a clear distinction between being engaged and taking action, the second stage of compliance emphasizes *Patient Activation*; that is, helping the patient take actions consistent with their care provider's instructions and recommendations. The third stage of compliance concentrates on patient sustainability, continuance, and performance by helping the patient take responsibility for their care and make a commitment to their health and healing through their ongoing engagement and activation.

PATIENT ENGAGEMENT

The first stage of compliance, *Patient Engagement*, works to create patient introduction, interest, and involvement relative to the patient's disease state. Accordingly, *Patient Engagement* requires the patient to work through these three phases or conditions of engagement to ensure successful patient activation, persistence, compliance, and outcomes.

1. PATIENT INTRODUCTION

All *Patient Engagement* begins with some form of *Patient Introduction* and awareness for the conditions and circumstances of the patient's disease. While the patient is, to some extent, present to the signs, sensations, and symptoms of their disease, the care provider, in this first phase of *Patient Engagement*, generates a diagnosis, defines the disease, and determines a prognosis from having ordered and performed patient tests, examinations, and screenings. In putting a name to the disease, the care provider creates a connection in the patient for their condition.

The care provider initiates some awareness and understanding for the disease and further establishes the relationship of the physician, patient, and patient's condition with the potential complications and comorbidities of the disease, the risks and rewards of treatment, the need for patient compliance, and the consequences of noncompliance as well as any prospective changes, challenges, or adjustments in the patient's lifestyle and quality of life as a corollary of the disease and its treatment. In establishing this new relationship in their life, the patient may experience anxiety, fear, discomfort, and pain as well as a multitude of other emotional and physical concerns related to their condition and that these feelings may affect *Patient Engagement*. The patient becomes aware of the effect and meaning of their disease; the patient gets present to their life.

The role of technology is to help ensure patient compliance in all three stages of compliance. The use of technology, relative to *Patient Introduction*, this first phase in the stage of *Patient Engagement*, is limited in that it can give the care provider a means of diagnosis and possibly help in establishing a care plan. To be sure, technology is valuable to the care provider in documenting the patient's visit, interview, examination, diagnosis, and other observations and concerns that may arise. Technology is also valuable when it is used to deliver patient information and education relative to their diagnosis and condition. Besides that, technology does not have a role with the patient in ensuring compliance

especially in managing their anxiety, fear, and discomfort or in having the patient get present to the meaning and value of their life.

2. PATIENT INTEREST

The second *Patient Engagement* phase, *Patient Interest*, is a condition generated by the care provider and patient established in their mutual intention to completely and authentically manage the patient's disease and to potentially achieve patient health, healing, and wellbeing. To that point, the care provider creates inquisitiveness and interest with the patient with the purpose to help the patient learn more about their disease, condition, therapy, and care by providing or creating access to patient information and education relative to their diagnosis, disease, and prognosis and by reliably addressing patient questions and concerns. By mutually establishing open communication and fostering a trusted relationship, the patient develops a greater interest for their care and care plan. Besides being more attentive to their condition and its effect on their life, the patient can also take into account how their condition may potentially affect their connections and relations with friends, family members, loved ones, and others involved in providing care.

By advancing *Patient Interest*, the care provider also works with the patient to review and evaluate treatment options and, together, they can mutually establish a care plan. Partnering with the patient, the care provider is able to elevate *Patient Interest*. It is important for care providers to understand the significance of partnering with the patient especially in helping to ensure patient compliance given the patient is typically the one who is responsible for following the instructions of their care plan and for taking actions consistent with the plan.

Patient Interest is grounded in patient belief and patient desire. Accordingly, the care provider needs to assess *Patient Interest* relative to patient belief in their therapy, care, care plan, and the care team as well the care provider needs to assess patient belief in their ability to self-care, manage their condition, and achieve a quality of life appropriate with their condition. Add to that, the care provider needs to also assess patient desire for health, healing, and wellbeing in determining their level of *Patient Interest*. The degree of desire a patient has for their health, healing, and wellbeing and their corresponding belief is critical to achieving compliance and optimal patient outcomes.

Besides providing the ability to communicate, the role of technology, in helping to ensure patient compliance through *Patient Interest*, is an excellent means of delivering additional patient information and supplemental education when and where it is required. Technology, however, does not play a direct role with the patient in ensuring *Patient Interest*, patient belief, and patient desire nor does it ensure patient / care provider access, open and sincere communications, and reliable and trusted relationships. And although technology provides a means of access, connectivity, and communication, these require patient and care provider sharing and mutual involvement.

3. PATIENT INVOLVEMENT

As a natural extension of *Patient Interest*, *Patient Involvement* is *the* decisive condition of engagement defined by patient acceptance and agreement; that is, patient acceptance for the diagnosis and disease,

patient acceptance for the therapy and care, patient agreement with the care, care plan, care team, and patient agreement with their role in their self-care. Fostering a trusted relationship through open and sincere communications and seeking to understand the patient's enthusiasm and motivation to comply, the care provider needs to assess patient acceptance and agreement. In particular, acceptance, not denial, of their diagnosis and disease is an essential measure of patient involvement in that the patient is empowered, not victimized, in their condition. Acceptance, however, does not necessarily mean agreement although the patient needs to accept their diagnosis as a reality of their condition; the patient also needs to actively agree with the therapy, care plan, and care team, not passively resist. What's more, the patient, in their acceptance, needs to agree to follow the care provider's instructions and recommendations and take the right actions consistent with them.

Acceptance and agreement are choices the patient makes based on their desires and beliefs. In view of that, the patient needs to express their desire to manage their condition and their desire for health and healing as well as their desire *and* willingness to do what it takes to achieve it. In addition to acceptance and agreement, *Patient Involvement* is also concerned with patient approval and appreciation of the care, care plan, and care team. What that means is, in being engaged in their condition and care, the patient likes, trusts, and believes in the therapy, themselves, and the people who will help to make it happen. As such, the patient *wants* to be compliant and is *willing* to do what it takes to achieve optimal outcomes. There can be no patient involvement without patient like, trust, belief, and desire.

Finally, *Patient Involvement* necessitates patient self-efficacy. The care provider must assess the patient's confidence and ability to follow instructions and take actions. Patient self-confidence is essential and fundamental to *Patient Involvement* for managing their care, condition, and healing in the same way patient like, trust, belief, and desire is critical and indispensable to involvement. Without patient confidence and ability, without patient self-efficacy, there is no engagement; and without engagement, there is no compliance.

The role of technology is limited in helping to ensure patient compliance through *Patient Involvement* for obvious reasons. For example, technology is certainly used as a means of communication among the care provider, care team, and patient but in other applications, it does not play a role. Technology cannot play a role in patient acceptance and agreement, other than through some communication it may affect thoughts and feelings, nor does it play a role in patient like, trust, belief, and desire. What's more, technology does not play a role in patient self-efficacy, self-confidence, or self-reliance as these are matters related to human perception, preference, and emotion.

Although technology offers many benefits to helping make patient engagement happen by playing a limited yet supportive role in *Patient Awareness, Patient Interest*, and *Patient Involvement*, *Patient Engagement* occurs with the patient in their thoughts and feelings, in their perceptions and preferences, in their attitudes and values, in their beliefs and desires, and in their sentient behaviors; all of which constantly and continuously prevail over technology. As such, technology cannot ensure *Patient Engagement*.

PATIENT ACTIVATION

The second stage of compliance, *Patient Activation*, works to create patient preparation, action, and assessment relative to the patient's therapy and care plan. Accordingly, *Patient Activation* requires the patient to work through these three conditions of activation or phases to ensure successful patient persistence, compliance, and outcomes.

1. PATIENT PREPARATION

In the first stage of compliance, *Patient Engagement*, information and education, focused on the patient's diagnosis, disease, and prognosis, is provided to the patient. In the second stage of compliance, *Patient Activation*, the patient is provided further information and education but this time it is focused on the patient's therapy and care plan.

Patient Preparation is concerned with educating, training, and assessing the patient for self-care. That means the care provider or a nurse educator or other professional instructs the patient on their therapy regimen and care plan involving the plan's instructions and recommendations plus the other *Components of Compliance* including patient medications, devices, equipment, additional treatments and therapies, ongoing care, tests, examinations, and other recommendations regarding the patient's health and wellbeing. For example, the patient is instructed, as part of their preparation, on various aspects of self-care like medication dosage and administration, medication side effects and warnings, adverse reactions, device use and maintenance, wound cleansing, dressing changes, and more.

Information and education during *Patient Preparation* also involves, in some instances, the need for care providers to demonstrate techniques to the patient for using healthcare products, devices, and equipment. To substantiate their training and education, the patient will need to demonstrate competency and understanding for correctly carrying out the instructions and recommendations of their care plan. Accordingly, *Patient Preparation* points to an important task for care providers to understand and corroborate the ability of the patient to self-care based on their education and training provided during this second stage of compliance. In addition, the care provider also needs to understand the patient's ability to make choices, resolve problems, recover from setbacks, ask for assistance, and seek support should the need arise.

Assessing patient knowledge, ability, and skill are decisive during *Patient Preparation* to determine patient competence, confidence, courage, and conviction for being compliant. Accordingly, it is suggested the information and education regarding the patient's diagnosis and disease during the first stage of *Patient Engagement* be kept separate from the information and education regarding the patient's therapy and care plan during the second stage of *Patient Activation*. The two topics should *not* be collapsed into one conversation but kept separate so as to create greater clarity, understanding, and competency with the patient for advancing their compliance. While one conversation defines the challenge, the other prepares the patient to address it powerfully.

Lastly, *Patient Preparation* involves patient planning. The care provider, care team, and patient need to mutually determine those things that are required, in advance of the patient taking action, to fulfill on

their care plan; for example, filling prescriptions in advance, purchasing medical products, ordering equipment, being fitted for appliances and devices, and so forth. Other planning may include arrangements in advance for homecare services, social services, transportation services, and other clinical or personal services as well other planning may include preparing, organizing, or retrofitting the patient's residence, as appropriate, to the needs of the patient. Still other planning and support may include scheduling and confirming appointments in advance for the continuance of care with patient check-ups, follow-ups, examinations, tests, screenings, and other therapies and personal care.

Patient Preparation and planning are critical to successful *Patient Activation*. Providing basics, teaching care plans, making arrangements, preparing for needs, scheduling events, addressing concerns, encouraging patients, and supporting their beliefs and desires are all part of *Patient Preparation* to ensure optimal outcomes and patient compliance. With these in place, the patient can make healthy choices and take healthy actions with confidence and commitment.

The role of technology in *Patient Preparation* is very important especially in delivering patient information, education, and training. Technology is an excellent means of teaching and training the patient on many topics relevant to self-care, for example, learning about their medications or how to manage their wound or how to properly use medical devices or how to operate equipment and more. Plus, technology is also is an excellent means of patient scheduling and organizing a continuance of care; in fact, it is essential to care. As such, technology plays an important role in some areas of *Patient Preparation*. In addition to education and training, we use technology for a variety of patient support including healthcare products, monitors, communications, devices, instrumentation, equipment, and other innovations. And yet, technology does not play a role with the patient in making choices, resolving problems, recovering from setbacks, accepting help, and seeking solutions; the patient relies on their thoughts and feelings, perceptions and preferences, attitudes and values, beliefs and desires. What's more, technology does not play a role with the patient in building their confidence and expanding their competency, nor does it ensure patient commitment and responsibility. For these reasons, it is important for the care provider and care team to assess the patient's ability to manage these matters independently or, as required, arrange for additional patient support.

2. PATIENT ACTION

Following *Patient Preparation*, the next phase or condition of compliance is *Patient Action*. The patient is engaged in their care plan and prepared to follow their instructions and recommendations and to take actions consistent with them. Prescriptions are filled, medical products are procured, appointments are in the book, and the patient is in readiness.

Patient Action is decisive for compliance; it is the patient's initiation into self-care. Accordingly, the patient needs to be able to easily and readily access the care provider and care team, as appropriate, in the patient's first days of self-care to report concerns, adverse reactions, unusual signs, or sensations. Consequently, the patient needs to be able to ask for and receive clinical and personal assistance in addressing any concerns that may occur, in answering any questions, and in gaining other services and support should the need arise.

During their first days of self-care, the patient deals with changes in their life. There are the changes in following a schedule, changes in activities of daily living, and changes in personal habits as well as other probable changes in the patient's diet, exercise, work, rest, and play. In particular, the care provider needs to create awareness in advance for these imminent changes and any inconveniences, challenges, and concerns the patient may encounter. The care provider will need to create a conversation for how these changes and challenges can be potentially and powerfully managed.

Because of the demands of compliance to follow the instructions and recommendations of the care plan and to take actions consistent with them, the patient is faced with incorporating those instructions and recommendations into their daily routine. Often, it is a matter of remembering to take an action when it is required or recalling the precise instructions so the action can be taken. And sometimes, it is a matter of reviewing the instructions because the patient forgot how to take action. As the patient incorporates the care plan into their life, the patient adapts to the challenges and adopts the changes; the patient, over time and with assistance and care, becomes compliant.

The care provider, however, knows all too well the patient might resist taking consistent action and have their reasons and excuses for inaction. Accordingly, the care provider and patient need to renew their conversations, should this occur, regarding the patient's like, trust, belief, and desire for the care, care plan, and care team as well as their wish for health, healing, and wellbeing.

Besides patient resistance, the patient might also be reluctant to follow the care plan because of their experience with medication side effects, anxiety, discomfort, and pain. While the patient takes action according to their care plan, the patient, in doing so, might undergo adverse signs, sensations, and other symptoms. Here, the care provider and patient need to reevaluate the care plan, determine the causes, and generate an alternative approach as required.

Another consideration for the care provider is that the patient might become complacent in their self-care meaning the patient experiences improvements in their condition and the way they are feeling and, as a result, alter or stop their participation in self-care. As appropriate, the care provider and patient need to create a new conversation for patient commitment, responsibility, and persistence appropriate to the patient's condition.

Whether the circumstance is patient resistance, reluctance, or complacency, the patient and their care provider need to explore the patient's concerns and challenges, as well as the changes the patient has had to make in their life, and determine ways to overcome these barriers and behaviors. The patient and care provider begin this process with open, forthright communications, nothing withheld, coupled with a restatement of mutual intentions.

Helping to establish a patient routine and ensure compliance, technology provides an invaluable service to both the patient and care provider in scheduling, notifying, and prompting patients to take action. Besides electronic messages and reminders, technology also offers the care team an excellent means of

monitoring, measuring, and reporting patient compliance; it provides patient data for care management analysis and continuous quality improvement. As technology extends its effectiveness within health care, it plays and will continue to play a role in the delivery of medications, monitoring patient vitals and conditions and monitoring patient therapeutic levels. Clearly, technology plays an important role with the patient for following instructions and recommendations and for taking actions consistent with their care plan.

In view of this, consider three additional viewpoints regarding the use of technology with patients in achieving highly-effective compliance. First, although technology helps encourage patient compliance, it obviously cannot ensure *Patient Action* especially when the patient is not engaged and when the patient is being complacent, reluctant, or resistant. What's more, technology cannot conclusively ensure *Patient Action* when the patient is suffering in their condition or when the patient feels like a victim to their circumstances or when the patient experiences feelings of hopelessness, defeat, and depression. Human feelings and emotions always prevail over technology.

Second, the use of technology requires a certain level of human compliance for the technology to be effective. The patient must want to use technology (or in some instances, allow the technology to be surgically implanted) in the same way the patient must want to follow their care plan. The patient must also be willing to use the technology the way it was designed to be used in the same way the patient must be willing to adhere to the instructions and recommendations of their care plan.

Besides determining the patient's belief in and desire for supportive technology (using a device and an app for managing their actions, care, and compliance), the care team needs to educate and train the patient on the operation of the technology as required. While this additional education needs to occur in the *Patient Preparation* phase, it also needs to be presented separately from the education regarding the diagnosis and disease and be presented separately from the education regarding the therapy and care plan, again, to create greater patient clarity, understanding, and competency.

Third, by using a device and an app, the technology actually becomes a product or device for integral to achieving patient compliance. In point of fact, the technology becomes a tool for addressing patient health and healing in exactly the same way prescriptions, healthcare products, medical devices, and equipment are also tools for patient health and healing. As such, the care provider clearly needs assurances that the patient is not only compliant with their care plan but also compliant with the use of the technology. If technology is used to ensure compliance and yet the patient does not use the technology, the patient is noncompliant. By adding technology as a requisite for being compliant, it can complicate compliance with some patients and simplify and encourage compliance with others. The care provider needs to individually assess the use of technology and determine its value for their patient. Technology can serve no purpose if the patient does not want it or if the patient is unwilling to use it.

3. PATIENT ASSESSMENT

The third phase or condition of *Patient Activation* is *Patient Assessment* in which the care provider and the patient mutually evaluate the patient's actions and experiences as well as any initial therapeutic results of treatment. Patient assessment is important in understanding how the patient is following their instructions and recommendations and if the patient is being compliant with the care plan. *Patient Assessment* is also important in understanding how the patient is responding or reacting to the therapy. The care provider and patient need to determine any changes in the patient's condition and they need to review how the patient is feeling physically and mentally overall. As such, *Patient Assessment* helps determine if there are any unusual signs, sensations, or symptoms or any unwanted side effects, adverse reactions, discomfort, or pain. As appropriate, the care provider will need to adjust, correct, or modify patient instructions and recommendations, medications and drugs, and products and devices. In addition, the care provider will also need to address any patient questions, challenges, and concerns that may arise during this phase.

As we know, *Patient Assessment* is concerned with patient experiences and evaluating the efficacy of treatment. While it often takes time before therapeutic results are observed and achieved, the patient commonly evaluates their care experiences and any changes with their condition within moments of the patient taking action or shortly thereafter. For instance, the patient evaluates the simplicity or complexity of the instructions and recommendations, the ease or difficulty of use, the convenience or inconvenience of the regimen, the timing relative to patient activity, and so forth. The patient also commonly evaluates the care they have received, the care provider, and care team up to this moment. Developing their opinions, judgments, beliefs, and initial perceptions, the patient assesses their care and self-care as positive or negative, working or not working, right or wrong medication, good or bad treatment, safe or unsafe, difficult or easy, like or dislike, and so forth.

Although *Patient Action* is decisive for compliance, *Patient Assessment* helps ensure continuance. Patient compliance correctly comes into being when the patient is actively following their care plan and, more importantly, when the patient is aware, present to, and accepting of their new condition or quality of life as a consequence of their condition and therapy. First, the patient must adapt to the challenges and changes they encounter with their care plan and, second, the patient must adopt a new, powerful way of being, focused on health and healing, for managing their condition. *Patient Assessment* is concerned with how the patient is adopting the care plan and adapting to changes in their lifestyle by creating new practices and habits.

Helping to determine the probability for continuing self-care and achieving compliance, *Patient Assessment* addresses the initial perceptions of the patient's experiences as well as their concerns, challenges, and questions. In view of that, *Patient Assessment* also addresses patient barriers to compliance and patient behaviors arising out of their barriers. Barriers to compliance occur from many different reasons, purposes, or causes. For instance, something in the care plan or therapy regimen may create a barrier. Or perhaps the care provider or someone on the care team may unknowingly create a barrier with the patient. Besides the care, care plan, and care team, the patient may have some circumstance, condition, perception, preference, or belief that brings about some barrier to their

compliance. Whatever the reason, *Patient Assessment* provides an opportunity to determine patient obstacles to compliance, discover their reasons, identify any unhealthy behaviors, and help eliminate the barriers.

The role of technology is very important in monitoring, measuring, and reporting patient compliance. As part of *Patient Assessment*, it helps ensure continuance and patient compliance. And although technology cannot help the patient in adapting to changes in their new life style, in their new identity, it can provide some service to the patient in adopting their care plan. Beyond that, technology cannot provide support, especially in how the patient is feeling, in determining unusual patient signs and sensations and symptoms, or in ascertaining unwanted side effects, patient adverse reactions, discomfort, or pain. Only the patient can say how the patient feels in that regard. Furthermore, technology cannot provide individual, one-on-one support, conversation, or coaching to identify and resolve barriers; it is up to the patient and care provider to determine those things in their assessment of treatment and care. Finally, technology cannot make a difference with patient thoughts and feelings, opinions and judgments, perceptions and preferences, beliefs and desires, when it comes to the patient personally evaluating the care plan and experiencing the care and the results of the care. Here, again, only the patient can say how the patient feels.

Even so, technology offers many outstanding benefits in helping make *Patient Activation* happen; it plays a considerable role in *Patient Preparation*, in the patient taking action, and in *Patient Assessment* of their treatment and care. Although technology can assist the patient in making healthy choices and taking healthy actions, we are mindful that patient thoughts, feelings, and sentient behaviors relative to choosing, taking action, and assessing the results and experiences of those actions will always prevail over technology as do patient perceptions and preferences, attitudes and values, beliefs and desires. As such, technology cannot ensure *Patient Activation*.

PATIENT PERSISTENCE

Patient Persistence is central to compliance. As the third stage of compliance, it creates three ongoing conditions: *Patient Commitment*, *Patient Continuance*, and *Patient Performance* for total compliance throughout the therapy regimen and, in many cases, throughout the patient's life. The first two stages of compliance, *Patient Engagement* and *Patient Activation*, are undoubtedly essential to the care plan but it is *Patient Persistence* that helps ensure the patient continuously, constantly, and ideally manages their condition; and, helps ensure the patient makes healthy choices and takes healthy actions consistent with their plan.

Focusing on performance, progress, and outcomes, *Patient Persistence* is all about the patient choosing health and healing and making a commitment to do the work of health and healing the way it was meant to be done or better; that means, the patient must take responsibility and steadfastly perform their self-care.

The three phases of *Patient Persistence* – commitment, continuance, and performance – help ensure successful compliance and optimal patient outcomes. More importantly, however, the three conditions

of *Patient Persistence* transform the patient's way of being from having to endure a compulsory care plan and do things they don't want to do to a new way of being enlivened and empowered in their health, healing, and wellbeing.

1. PATIENT COMMITMENT

Patient Commitment works to help the patient be responsible and committed to their care, care plan, and self-care. *Patient Commitment* requires a certain amount of patient dedication and devotion to always making right and good choices and always taking healthy actions no matter the patient's experience, condition, or circumstance. The patient must choose their condition rather than resist it; the patient must adapt to the changes and circumstances caused by their therapy and disease; and the patient must adopt their care plan and take right and good actions consistent with it.

Patient Commitment is a state of being dedicated to the cause of health and healing and the corresponding activity of self-care. The patient gives their word to follow instructions and recommendations of the care plan and to take actions consistent with them. Although the patient's word should be given as a promise or pledge rather than an obligation (which can have a negative connotation with the patient), the patient is responsible for keeping their word as a matter of their integrity. The patient is accountable to their family members, friends, and loved ones as well as their care provider and care team. As such, the patient is responsible for their continuance and performance of self-care.

Equally, the care provider is responsible for patient progress and optimal clinical outcomes as the prescriber. And while the care provider is responsible for helping to create positive outcomes, the patient is ultimately responsible for being compliant, partnering with their care provider, and generating a mutual patient-provider relationship built on integrity and workability. Because there are no assurances of health and healing without patient compliance, *Patient Commitment* is decisive.

Patient Commitment also works to ensure candid communication and trusted relationships. The patient commits to staying in communication no matter the patient's experience, condition, or circumstance. Setbacks, breakdowns, and lapses in self-care, at times, can cause the patient to go undercover, withhold communication, avoid contact, or to be unresponsive because the patient regards these events as something that is bad or wrong. However, breakthroughs arise out of breakdowns especially when the patient keeps their word and stays in communication. By staying in communication, the care provider and patient can work through the challenges and treat the breakdown not as something bad or wrong but as "something that is missing." The care provider and patient can determine "that which is missing" and restore it to the care plan, recommit to the care, and restore the relationship back to integrity and workability. Setbacks, breakdowns, and lapses in life and health care will occur; they are inevitable. Acknowledging their role and reality in being human and being a patient and then moving forward are important to advancing patient health, healing, and wellbeing.

Besides staying in communication, the patient also needs to commit to being resilient and coachable. As we know, stuff happens in health care as it does in other areas of life. By being coachable, the patient

and care provider can deal more powerfully and effectively with patient breakdowns, barriers, and behaviors. What's more, by being coachable, the patient discovers the difference in responding rather than reacting to circumstances and the patient discovers the difference in being empowered and free rather than being at the effect of circumstances. Finally, by being coachable, the patient is open to discovering those choices and corresponding actions that could make a significant and lasting difference for their health, healing, and wellbeing.

Technology does not play a role in *Patient Commitment*. *Patient Commitment* is a matter of perception, belief, desire, and choice. Although technology may be used in monitoring, measuring, and reporting patient performance as a result of the patient's commitment to self-care, technology has little to do with patient thoughts and feelings, values and aspirations, discernment and choices. The patient takes responsibility in their belief and desire to be devoted and dedicated to something in their life; the patient commits to causes and actions and gives their word without any need for technology. Moreover, the patient chooses to be powerful and resilient of their own volition; the patient does not depend on technology to rise above circumstances. Finally, technology does not play a role in patient coaching as the very nature of coaching is founded in personal interaction, thoughtful conversation, establishing mutual confidence, respect, and trust, and creating close valued relationships.

2. PATIENT CONTINUANCE

Patient Continuance works to help the patient sustain high levels of interest and involvement in their condition and care. *Patient Continuance* helps the patient to maintain awareness of their condition, to be continually present to their signs, sensations, and symptoms, and to eliminate, or at least limit, patient complacency. Because complacency can lead to patient noncompliance and result in additional complications and comorbidities for the patient, it is prudent for the care provider and care team to ongoingly communicate with the patient and provide continuous, relevant information and education. The information and education can be news, tips, tidbits, trends, wide-ranging data and knowledge, and more, however, it should also be specific and directly applicable to the patient's needs. By staying in communication with the patient and by personalizing the communication, the patient develops a stronger sense of care, commitment, and connection to the care provider. As a result, the ongoing communication, information, and education further expand the patient's interest in their self-care while deepening their overall involvement and partnership with the care team and care plan.

Patient Continuance also works to reaffirm patient acceptance for the diagnosis, disease, and prognosis as established in the first stage of compliance. It also works to reaffirm patient agreement for the care, care plan, and care team now that the patient has had experience in working with them. With an intention to maintain open communications, the patient is invited to share their thoughts and feelings for their acceptance and agreement as well as their desire for health and healing plus their continued willingness to achieve it. In addition to acceptance and agreement, *Patient Continuance* also works to reaffirm patient approval and appreciation for the care, care plan, and care team. The patient is invited to share their like, trust, and belief in their care providers as well as their desire for continuance.

Besides clinical information and education, *Patient Continuance* also works to create patient motivation, acknowledgement, and recognition. During this phase, the care provider and care team need to provide encouragement and show appreciation for the patient taking on their condition freely and powerfully. By being compliant, the patient is in the top twenty percent of patients, with a chronic condition in the United States, for taking on their health and healing; it's a big deal and the patient, as such, should be acknowledged. The care team should also consider providing motivational and inspirational materials such as patient success stories and testimonials as well as inspirational verses and maxims.

In helping the patient stay motivated, the care team should also encourage the patient to get involved in a patient compliance coaching program for either individuals or groups, if available and appropriate to the patient's needs. Although patient compliance coaching programs may add some cost to care, the programs help ensure patient compliance and engender optimal patient outcomes. They can be a valuable investment in patient care especially for the patient who is dealing with a chronic illness with complications and comorbidities or the patient who wants and really needs additional support. In the long term, the return on investment for a patient compliance coaching program is proven greater than the additional costs of managing complications and comorbidities from patient noncompliance.

The care team should also consider suggesting the patient get involved with a care community or care circle comprised of other patients who have the same disease state and share similar conditions, challenges, and concerns for helpful tips and encouragement, often shared within the group, and for peer and professional support.

In addition to patient compliance coaching and providing motivational and inspirational materials, the care team should also consider offering other patient information that supports healthy patient diets, exercise, and changes in behavior and lifestyle. Those materials include, but are not limited to, nutritional guides, food diaries, menus, recipes, and activity and exercise logs as well as self-help materials and other patient support literature. As a complement to these materials, the care team should also consider using patient incentives and rewards to help ensure *Patient Persistence* and compliance. These recommendations often advance *Patient Continuance* and provide additional, valuable support for increasing *Patient Performance*.

There are a few but valuable roles technology plays in creating *Patient Continuance* especially for patient communication and providing further information and education. While technology can also play a role in providing some patient motivation and inspirational messages as well as the means for forming and accessing a care community or circle, the use of technology is not a factor, however, with patient compliance coaching programs and other services and support that involve close relationships and personal interaction. Coaching and serving the patient, as we know, require personal conversation, collaboration, and compassion.

Regarding other aspects of *Patient Continuance*, technology does not play a role in creating awareness for or being present to any physical signs, sensations, and symptoms the patient might possibly experience nor does technology play a role in generating patient self-awareness, self-reliance, and self-

confidence. What's more, technology does not play a role for the patient in reaffirming their acceptance and agreement, approval and appreciation, for their care, care plan, and care team.

3. PATIENT PERFORMANCE

Patient Performance works to help the patient sustain their healthcare activities, manage their medications, materials, and supplies, and constantly assess their health, healing, and wellbeing. Although it is the last phase of persistence, *Patient Performance*, along with *Patient Commitment* and *Patient Continuance*, is an ongoing phase of compliance, perhaps a lifetime behavior, for long-term care and maintenance by constantly, continuously, and consistently making healthy choices and taking healthy actions.

Patient Performance requires the patient's participation and preparedness for managing their care plan continuously which includes refilling medications and restocking products, using and maintaining devices and equipment, scheduling and keeping appointments, arranging specialty care and home care, and always handling other patient services and support. *Patient Performance*, as we know, also requires constant, continuous monitoring, measuring, and reporting of activities, performance, and progress. Continuous tracking and reporting offer the care provider and patient opportunities to better manage the patient's condition; they also offer opportunities to determine areas for continuous improvement, to achieve logical, incremental enhancements for the patient's health and quality of life.

As the patient continues in their care and as the patient fully integrates their care plan into their life, the daily routine of following instructions and recommendations and taking actions becomes second nature to the patient; the patient develops healthy habits by making healthy choices; and as a result, the patient creates a personal culture of health and wellbeing.

When patient concerns and challenges arise, the care provider and patient may need to adjust, correct, or modify the care plan which may require additional patient engagement and activation. As a result, the patient will, in all likelihood, need to return to the first and second stages of compliance in managing their concerns and challenges. This may require additional patient information, education, and motivation. This may also require additional patient training for a change in meds or devices. And, this may require a change in ongoing care, specialty care, and the care team. Whatever the concerns, whatever the challenges, the care provider and patient will need to work through the earlier phases and stages of compliance as needed.

Something to keep in mind since we are discussing concerns and challenges: all challenges, concerns, and conflicts, in health care and in life, are resolved in communication. The patient and the care team, however, must share the mutual intention to want to do just that in their relationship: stay in communication, be open and forthright, directly share thoughts and feelings for building mutual trust, integrity, responsibility, and workability, and resolve any challenges, concerns, and conflicts that may arise.

In addition to patient concerns and challenges, the care provider and patient may need to address changes in the patient's condition along the way such as complications and comorbidities. Again, the care provider and patient will need to work through the structured approach to compliance provided in the *Patient Engagement* and *Patient Activation* stages. Ultimately, the objectives are to continue to create an equally beneficial relationship and to create a revised or updated care plan that works for the patient for the duration of their therapy or, as appropriate, for a lifetime of managing their condition.

Technology provides an important service to both the patient and care provider in *Patient Performance* especially as a means of communication. However, the "distance technology" of texting, emailing, or voice mailing cannot be the only means of communication between the patient and care provider; they must speak, most preferably, in person or, as an acceptable alternate to one-on-one communication, on the telephone or in a video conference.

With *Patient Preparation*, *Patient Action*, and *Patient Assessment* from the *Patient Activation* stage, technology provides patients with valuable prompts, notifies, reminders and messages in the *Patient Performance* phase. It also provides monitoring, measuring, reporting, and analysis functions for managing and improving the quality of patient care. And as required, technology provides the means for ongoing patient information, education, and motivation. Clearly, technology plays an important role in patient compliance especially for managing the care process, providing a means of communication, enhancing patient knowledge and performance, and providing patient information and data for advancing clinical, economic, and patient satisfaction outcomes.

Conversely, technology cannot persuade, change, manage, manipulate, motivate, or control patient emotions and feelings, beliefs and desires, discernment and choices. And, because it cannot affect these things, technology cannot dominate patient sentient behaviors. Surely information originating from technology may influence patient thoughts and feelings; still it cannot guarantee the patient will gain comprehension and understanding of that information and, thus, knowledge and intelligence. Likewise, innovative technology cannot guarantee patient acceptance and agreement, appreciation and trust; nor can it determine human desires, evaluate emotions, discern choices, develop beliefs, or enforce demeanor.

Although technology offers benefits to helping make *Patient Persistence* happen by playing a limited yet supportive role in *Patient Commitment*, *Patient Continuance*, and *Patient Performance*, patient persistence occurs with the patient in their thoughts and feelings, in their perceptions and preferences, in their attitudes and values, in their beliefs and desires, and in their sentient behaviors; all of which constantly and continuously prevail over technology. As such, technology cannot ensure *Patient Persistence*.

In summary, we see that innovation and the use of technology contribute significantly to the *Continuum of Compliance* (*Patient Engagement*, *Patient Activation*, and *Patient Persistence*) in five basic ways. First, technology offers the patient and care provider innovation for creating connections, communities, and communication; second, technology offers a means of delivering patient information, education,

training, and motivation; third, technology offers the ability to monitor, measure, and manage patient care; fourth, technology offers alerts, prompts, and reminders for self-care, appointments, and other patient activities; and fifth, technology offers the ability to deliver medication as well as other patient services and support that track and report patient activity, exercise, and nutrition and promote patient safety, security, and quality of life. To be sure, these five areas of innovative and technological contributions are valuable and very supportive to the patient in being compliant. Yet, in the final analysis, the patient, the one who makes the choices and takes the actions, must have the belief and desire for health, healing, and wellbeing. Patient choices, behaviors, and actions are always driven by patient thoughts and feelings, perceptions and preferences, attitudes and values, and beliefs and desires which ultimately and persistently prevail over technology.

REQUISITES FOR COMPLIANCE

Patient compliance is vital to achieving optimal clinical, economic, and patient satisfaction outcomes. Besides adversely affecting the quality of care, patient noncompliance increases patient risks, adds needless and often excessive costs to care, and potentially contributes to other patient conditions, complications, and comorbidities besides immense patient dissatisfaction with the care and care team. In achieving patient compliance or, for that matter, in achieving anything in life, there are four provisions or requisites that contribute to accomplishment.

1. INTENTION AND DETERMINATION

In the first requisite for achievement, *Intention and Determination*, the patient and the care provider must mutually share the same purpose; they must have the same goals and objectives for care and compliance as well as outcomes. The patient and the care provider must also share the same belief in the care plan as well as the same desire and drive for patient performance, progress, and optimal outcomes. Accordingly, the care provider must declare their intention to deliver quality patient care while the patient must declare their intention to be fully compliant.

2. KNOWLEDGE AND ABILITY

The second requisite is *Knowledge and Ability*; the patient should have the understanding, experience, and skill to achieve compliance. Simply having belief in the care and care plan and having the desire to be compliant does not ensure compliance; the patient must know how to take actions consistent with their care and care plan and the patient must be able to take those actions. In view of that, the care provider must, first, provide the patient with the appropriate information, education, and training necessary to take actions and be compliant; second, assess the patient's level of comprehension and understanding for the care and care plan; and, third, evaluate the patient's competence and capability to self-care.

3. PROCESS AND METHODS

The third requisite is *Process and Methods*; the patient must have a proven practice and procedure to follow in order to achieve compliance. The process provides the patient with an established way of doing what the patient needs to do, when and where the patient needs to do it, in order to adhere to their care plan. As part of patient education, the care provider must deliver and demonstrate the

instructions and recommendations of the care plan and, as expected in the third requisite, evaluate the patient's proficiency and aptitude to perform their care plan for the duration of therapy.

4. TECHNOLOGY AND TOOLS

The fourth requisite is *Technology and Tools*; the patient must have the right products, programs, services, and support to be compliant. As such, the technology and tools of compliance include patient medications and drugs, personal and healthcare products, equipment and devices, as discussed. It also includes any technology and tools as well as media that assist the patient and the care provider in delivering and managing the care and care plan and in monitoring and measuring patient progress and performance.

In addition to being intentional and determined, the patient needs to know how to perform the care and have the confidence and ability to do it. Hence, the patient must follow established practices and procedures and use the prescribed products, programs, and services outlined in their care plan in order to achieve compliance. Patient intention, determination, knowledge, and ability coupled with tools, technologies, procedures, methods, and a process are not only indispensable to achieving compliance but also indispensable, for all intents and purposes, in accomplishing anything and everything in life.

For example, in their desire to wear shoes, the patient must be intentional and choose which shoes to wear, put them on, and tie them. At the start, the patient not only needs to know a process for tying laces but the patient must also have the ability to tie the laces; that is, the patient must be able to hold and handle laces, create bows, tie knots, pull laces tightly, and so forth. Then, to complete the analogy, the patient needs a technology to tie the shoes; we call that technology, shoelaces.

Patient compliance is like tying shoes; it requires patient *Intention and Determination* as well as patient *Knowledge and Ability*. In addition, compliance requires a *Process and Methods* for the patient to follow, that is, the patient must have a care plan to follow with its instructions and recommendations; and compliance also requires *Technology and Tools* for the patient to use to be compliant. *Patient Persistence* for achieving compliance occurs with the patient when compliance becomes effortless and second nature in life… like tying one's shoes.

THE VALUE OF TECHNOLOGY

In achieving patient compliance we know technology and tools play an important role in its accomplishment, in *Patient Engagement*, *Patient Activation*, and *Patient Persistence*. Technically speaking, technology and tools are the artefacts humans invent and manufacture that extend human ability and human effectiveness and contribute to accomplishment. Often, technology and tools dictate new practices and procedures and methods of accomplishment; and conversely, practices and procedures or the goals and objectives of accomplishment, induce new technology and tools.

Clearly, technology and tools are critical in helping achieve patient compliance. As we know, technology offers a means for connection, community, and communication as it also offers a means for delivering patient information, education, training, and motivation. What's more, it also offers a means for

monitoring, measuring, and managing care; for patient alerts, prompts, and reminders; and for delivering medication and therapy. And yet, despite these outstanding contributions in helping achieve patient compliance, technology cannot ensure patient comprehension, confidence, capability, and competency in their self-care.

Thankfully, the care provider can assess the comprehension, confidence, capability, and competency of the patient relative to helping achieve compliance. And, in a similar manner, the care provider can also assess patient intention and commitment. Achieving patient compliance is a matter of establishing a background of relatedness with the patient based on mutual like and trust, responsibility and integrity, belief and desire; as well it is a matter of knowing and understanding patient thoughts and feelings, perceptions and preferences, attitudes and values.

Important in addressing the challenges of patient compliance, technology certainly provides the care provider outstanding support and solutions for the *Continuum of Compliance* although the support and solutions are, *de facto*, limited and incomplete. Accordingly, technology is not merely the answer. Patient compliance requires a more comprehensive approach focused on creating mutual understanding, relationships, communications, services, and support that bring about patient discovery, awareness, and transformation inside of patient choices and behavior, relatedness and being, belief and desire.

By creating possibility and opportunity, the care provider provides access for the patient to discover and generate that which will make a profound difference in their health, healing, and wellbeing, relative to their interests and concerns for their condition and their life, while transforming the patient's way of being for making healthy choices and taking healthy actions. Accordingly, the challenge of compliance is not about technologically issuing reminders and regulations, rules and routines, nor is it always about innovative methods of delivering education and medication. The real challenge of patient compliance is in creating something new in life that gives the patient hope and possibility and a new opportunity for that which the patient wants and needs in their life.

As we know, the patient sometimes wants that which is not possible because of the realities of their life, their condition, and their disease; and sometimes the patient doesn't want anything but that which they have already. Most times, however, the patient wants the possibilities of health; the patient wants the opportunity of being well again; the patient wants a new beginning, a second chance, for healing if only the care, the care plan, and the care provider can provide that light in the darkness of their disease. But it requires a mutual understanding, commitment, and partnership.

When the patient gets present to life and the meaning of their life, when the patient gets present to self and family and friends and loved ones, the patient sees something about their being, their belief, and their desire. Mere motivation is emotional and, as such, transient in nature; feelings come and feelings go; all emotion is momentary. Transformation, rather than mere change, provides the basis for helping ensure patient compliance. The patient transforms in their thinking and feeling, perceptions and preferences, attitudes and values, by getting present and related to life, love, and self; the patient

transforms in their belief and desire, in their commitment and integrity, in making healthy choices and taking healthy actions.

CONDITIONS FOR COMPLIANCE

Highly-effective patient compliance is realized in a more comprehensive approach which, to be sure, involves technology and tools. And yet, it must be acknowledged, the patient is central to compliance and, accordingly, patient thoughts, feelings, beliefs, desires, perceptions, preferences, attitudes, and values, drive choices and sentient behaviors. There are seven interdependent, mutually reinforcing conditions that contribute to optimal clinical, economic, and patient satisfaction outcomes. These *Conditions for Compliance* are established in the wants and needs of the care provider, care team, and patient; they focus on *Patient Communication and Community*, *Patient Education and Motivation*, and *Patient Services and Support* in which technology and tools play an important role. These *Conditions for Compliance* also focus on *Patient Relatedness and Being*, *Patient Belief and Desire*, *Patient Choice and Commitment*, and *Patient Ability and Action*.

1. PATIENT COMMUNICATION AND COMMUNITY

Helping advance compliance, *Patient Communication and Community* establish relationships and convey information, education, and motivation to the patient. Communication and community create valuable connections among the patient, care provider, care team, and others. In addition to being connected, communication and community provide other the patient and care team mutual support, create backgrounds of relatedness, advance patient compassion and care, and engender belongingness. While most communication today relies on technology and tools, some of the most important patient communication is personal and confidential experienced best with one-on-one conversations. In addition to communication, technology contributes valuable benefits to establishing and managing community.

2. PATIENT EDUCATION AND MOTIVATION

Patient Education and Motivation are critical to achieving compliance. Information, education, and training are necessary components of *Patient Engagement*, *Patient Activation*, and *Patient Persistence*. They provide the patient with the instructions and recommendations of their care plan for self-care and often involve training, tutoring, and testing patients for understanding regarding their therapy and care techniques. Technology and tools clearly offer advantages for teaching and learning. Patient motivation, inspiration, acknowledgement, respect, and ongoing encouragement are absolutely indispensable to engagement, activation, and persistence. Although technology can deliver motivational messages and limited coaching to the patient, they are best delivered and the most effective when received in person.

3. PATIENT SERVICES AND SUPPORT

Assisting patients with prompts, reminders, and alerts, *Patient Services and Support* also provide tracking, monitoring, reporting, measurement, and management of patient medication delivery, activity, exercise, and nutrition as well as other assistance for filling and refilling prescriptions, procuring and replenishing healthcare products, planning and scheduling continuing and specialty care, specifying and

ordering devices and equipment, and so forth. *Patient Services and Support* also work to create patient ease, convenience, safety, security, independence, and improved quality of life. Technology and tools contribute to many patient services and support while several others are delivered by the care provider and care team.

4. PATIENT RELATEDNESS AND BEING

Patient Relatedness and Being are decisive in achieving highly-effective patient compliance. While patient relatedness is about patient relationships with the care provider, care team, and others (established in their like, belief, confidence, and trust in them), relatedness is more about the relationships the patient has first, with their diagnosis, disease, care plan, and prognosis; second, with family, friends, loved ones, and others in their life; and third (the defining factor of relatedness), with self and the meaning, relevance, and value of their life. Patient being is about patient ways of being engaged, activated, and persistent; being responsible and resilient; being empowered and enlivened; being committed to health and wellbeing; and, most importantly, being the source of healing which requires the patient to always being present, intentional, and committed. Technology does not play a role in *Patient Relatedness and Being*.

5. PATIENT BELIEF AND DESIRE

Patient Belief and Desire, like *Patient Relatedness and Being*, are also decisive in achieving highly-effective patient compliance. Patient belief is about the patient liking, trusting, and believing in self and their ability to make right and good decisions, manage their care, and respond to treatment. Patient belief begins with patient acceptance and agreement in their diagnosis, disease, care plan, care provider, and care. Before the patient forms belief, however, the patient must have a strong, powerful patient desire for health, healing, and wellbeing. It is not enough for the patient to simply articulate their hopes, dreams, and desires; the patient must powerfully choose them and act on them, in the moment, immediately, as urgent wants or needs. Technology does not play a role in *Patient Belief and Desire* which drive *Patient Engagement*, *Patient Activation*, and *Patient Persistence*.

6. PATIENT COMMITMENT AND CHOICE

Beginning with their thoughts and feelings, perceptions and preferences, attitudes and values, the patient chooses that which they want or need in life and continues to choose that as a matter of responsibility and resilience, compassion and commitment, in their belief and desire to satisfy and fulfill their life. And like relatedness, being, belief, and desire, *Patient Commitment and Choice* is decisive in achieving highly-effective patient compliance. Compliance requires the patient to choose powerfully even when the patient does not think they have a choice; for example, the patient must choose, rather than deny, their diagnosis, disease, treatment, and prognosis and, in their choosing, become related to their condition. More importantly, however, the patient must choose health, healing, and wellbeing by choosing healthy thoughts and behaviors and by committing to them. Alongside choice, compliance also requires patient commitment which is, in essence, an ongoing conversation of choosing and choosing powerfully again and again and again; commitment is a choice in life for life. Technology does not play a role in *Patient Commitment and Choice*.

7. PATIENT ABILITY AND ACTION

Patient Ability and Action ultimately are decisive. Action is compliance and inaction is noncompliance and yet, in order to be compliant, the patient must have the ability to take action. Simply stated, action is following patient instructions and recommendations and taking actions consistent with those instructions and recommendations. Patient ability is all about having the intellectual, emotional, and physical facility to follow patient instructions and recommendations. Highly-effective patient compliance requires patient comprehension, confidence, capability, and competency. It requires the patient to be able to follow instructions, perform tasks, take medications, change dressings, schedule and keep appointments, fill prescriptions, pay for goods and services, make choices, seek assistance, and so forth. Since patient inability to perform a task or to follow an instruction results in non-compliance, the care provider and care team must evaluate patient ability and, when appropriate, generate services and support for the patient if they are incapable, incompetent, or incapacitated. Technology and tools do not play a role in *Patient Ability and Action* unless they are required for additional patient services and support as noted in the third *Condition for Compliance*.

The *Conditions for Compliance*, as we recognize and appreciate them, are interdependent, mutually reinforcing conditions (beginning with communication, education, and motivation and continuing with services and support) which unmistakably contribute to the patient taking action and being compliant. However, patient compliance requires other reinforcing conditions to occur within the *Continuum of Compliance* for the patient to take action. They are *Patient Relatedness and Being*, *Patient Belief and Desire*, *Patient Commitment and Choice*, and *Patient Ability and Action* to be compliant. While technology and tools play an important role in reinforcing patient communication, education, and relationship with the care provider and care team, they do not play a role in patient conditions like desire, commitment, and ability as well as personal relatedness, being, and belief. These interdependent, mutually reinforcing conditions are unaffected by technology and driven by patient thoughts and feelings, perceptions and preferences, attitudes and values, beliefs and desires.

NONCOMPLIANCE EPIDEMIC

Life-style health conditions and chronic diseases are among the most common, most preventable, and most costly of health challenges we face in America today resulting in seven out of ten deaths each year. According to reports from the Centers of Disease Control and Prevention, approximately half of adults living in the United States have at least one chronic disease and, to make matters worse, about one-third of them have multiple conditions, complications, and comorbidities. As such, caring for patients with chronic health conditions and diseases – including diabetes, COPD, obesity, arthritis, heart disease, asthma, stroke, and others – accounts for over eighty-five percent of our nation's healthcare expenses.

When it comes to understanding healthcare expenses, we are to some extent familiar with the costs of care and the multitude of factors that contribute to them. What is often overlooked, however, is the cost of patient noncompliance. According to the Annals of Internal Medicine, McKesson Corporation, and The Atlantic Monthly Group, seventy-five to eighty-five percent of patients are noncompliant in one or more ways based on their failure to comply with prescribed treatment regimens. Consequently, patient therapeutic noncompliance, one of the most costly healthcare challenges we face today,

accounts for over $300 billion in wasted healthcare spending per year. As a result, patient noncompliance has reached epidemic proportions in the United States. Achieving highly-effective patient compliance requires a comprehensive approach which, to be sure, involves technology and tools, but technology in itself is simply not the only answer.

SUMMARY

The intention of this piece was to provide insight into the value of innovation and the benefits of technology and tools for improving, developing, expanding, and perfecting life and health care. We could not address the needs, wants, and desires of mankind for making life easier, faster, simpler, better, different, more of something, or less of something without technology. Providing insight into technology and compliance, we examined the role of technology and tools for the patient, the care provider, and care team for use in diagnosis and treatment, education and motivation, services and support as well as for ongoing communication and care. Innovation, technology, and tools, as well we know, are vital to health and living.

What's more, the intention of this piece was to provide an inclusive understanding of the nature of patient compliance, and noncompliance, by defining that which constitutes compliance, by describing two types of compliance, and by outlining the reasons for achieving highly-effective patient compliance and its role in reaching optimal clinical, economic, and patient satisfaction outcomes. Equal to understanding the nature of compliance and noncompliance, the intention was also to identify and classify the *Components of Compliance – Patient Instructions and Recommendations*, *Patient Products* including medications and devices, *Patient Care* with ongoing and specialized care, *Patient Health* recommendations through nutrition, activity, exercise, and lifestyle, and *Patient Wellbeing* suggestions and guidelines with ongoing information, education, motivation, services, and support – all part of the care plan, all essential to achieving total compliance.

Expanding the topic further, the intention of this piece was to present the *Continuum of Compliance*, its principle stages (*Patient Engagement*, *Patient Activation*, and *Patient Persistence*) and the phases within each stage, and distinguish the role of technology and tools in each stage and phase. What's more, the intention is to discern and recognize patient *requisites for compliance* including, of course, the need for *Patient Technology and Tools* as well as *Patient Intention and Determination*, *Patient Knowledge and Ability*, and *Patient Process and Methods*. Building on the requisites, then, another intention of this piece was to define patient *Conditions or Compliance*, seven interdependent, mutually reinforcing conditions that contribute to highly-effective patient compliance and the role of technology and tools. The *Conditions or Compliance* include *Patient Communication and Community*, *Patient Education and Motivation*, and *Patient Services and Support*, in which innovation, technology, and tools play an important role, as well as *Patient Relatedness and Being*, *Patient Belief and Desire*, *Patient Commitment and Choice*, and *Patient Ability and Action* in which innovation, technology, and tools do not play a role.

Finally, the intention of this piece was to create an appreciation for the role technology plays in helping to contribute to patient compliance although it has limitations. Patient thoughts and feelings, perceptions and preferences, attitudes and values, beliefs and desires, and sentient behaviors

consistently, constantly, and continuously prevail over technology. When we acknowledge the complexity of patient belief and desire, choice and compliance as well as the involvedness, resources, and volume of work it takes to create highly-effective compliance with the patient, we then begin to create new conversations, new behaviors, and new cultures of care and compliance for achieving greater clinical, economic, and patient satisfaction outcomes. It takes a lot of work to serve and support the patient in helping them make healthy choices and take healthy actions. Moreover, it takes a lot of work to be in the listening of the patient, create backgrounds of relatedness, generate conversations for possibility and opportunity as well as helping the patient to discover something they didn't know they didn't know about their self while helping the patient access transformation.

FINAL CONSIDERATIONS

The involvedness, resources, and volume of work for achieving highly-effective patient compliance are extensive and considerable to be sure. All of these needs bring to mind the basic concerns of cost and time, as both are significantly limited and greatly valued in the delivery of care, plus the real concerns for a reasonable return on investment and attaining measureable delivered value not only for the patient but also the care provider and other stakeholders.

The involvedness, resources, and volume of work also bring to mind another major concern of managing the *business and profitability of patient compliance*; that is, efficiently and economically balancing patient care with patient compliance. The business of patient compliance means planning, organizing, directing, and managing people and resources responsible for educating, motivating, serving, supporting, coaching, and managing patient choices and actions in perfect complement with the people and resources responsible for the care and care plan of the patient, namely the care provider and care team. Accordingly, an organization and arrangement are required with rules, roles, and responsibilities for ensuring patient compliance is achieved within the delivery of care, balancing the conditions of care with the *Conditions of Compliance*. Likely, the care provider, care team, provider organization, insurer, and employer have a vested interest in the business and profitability of patient compliance, some more than others, for achieving quality clinical, economic, and management outcomes. Yet who, in the final analysis, monitors, measures, and manages this arrangement? Who is responsible for making highly-effective patient compliance happen?

The business of patient compliance presents healthcare professionals as well as insurers and employers, in particular, with an interesting new question relative to expanding and extending traditional case management from something that simply supports the delivery of health care to something that powerfully advances the delivery of health care while helping achieve and ensure patient compliance and quality outcomes. Accordingly, it is not only rational and reasonable but also practical for insurers and employers, in partnership with care providers and care teams, to monitor, measure, and manage the business of patient compliance by developing quantifiable, sustainable solutions that are clinically sensitive and financially sound.

In monitoring, measuring, and managing the patient for highly-effective compliance, we will need to consider new technologies and tools, new forms of patient education and motivation, and new forms of

patient service and support as well as new approaches to communication, coaching, counselling, and community. In addition, we will need to consider new forms of patient preference and prevention programs plus new forms of patient assessment, valuation, and forecasting to enhance and expand patient compliance, to promptly and precisely address noncompliance, and to determine patient predilection for either compliance or noncompliance by responsively providing services, support, education, motivation, incentives, and coaching based on patient choices, actions, or inactions and, as appropriate, by responsively increasing or decreasing premiums, co-pays, coverage, and membership based on patient behaviors.

And in all our consideration, we, as healthcare professionals, will need to keep in mind that patient compliance occurs with the patient making healthy choices and taking healthy actions based on their thoughts and feelings, perceptions and preferences, attitudes and values, beliefs and desires.

IN CLOSING

Making patient compliance happen requires a comprehensive approach of strategies and interventions that address the challenges and problems, barriers and behaviors, beliefs and desires, choices and actions of the patient with the promise of advancing patient involvement, persistence, satisfaction, and outcomes. As such, not only the patient but also the care provider and care team must be committed to compliance expecting and delivering quality clinical, economic, and patient satisfaction outcomes.

Clearly there is a great need for strategies and interventions that engage, activate, and support the patient in their choices, commitments, and actions for health, healing, and wellbeing; strategies and interventions that certainly involve innovation, technology, and tools. And yet, what makes patient compliance so challenging is that every person, every patient, is unique in their thoughts and feelings, beliefs and desires, and no amount of innovation, technology, and tools will affect patient perception and preference, discernment and choice. In addition to innovation, technology, and tools, the greater need is for patient strategies and interventions that address relatedness and being, belief and desire, self-efficacy and commitment.

Accordingly, the strategies and interventions for patient compliance cannot just motivate or manipulate, reward or punish patients to make healthy choices and take healthy actions in the expectation of achieving optimal outcomes; they must address the complex nature of patient compliance and the complex nature of human sentient behavior with all its diverse qualities and dynamics. Patient thoughts and feelings, beliefs and desires, perceptions and preferences, attitudes and values, actions and inactions will consistently, constantly, and continuously prevail over technology. And although it provides valuable services and support, mere technology cannot ensure patient compliance.