Eight years ago a physician appeared in my office in Dallas, Texas and said, “Bill, I am in charge of the program next year for the International Society for the Advancement of Humanistic Studies in Medicine (now known as SHIM, the Society for Humanism in Medicine). It’s an organization of physicians from all over the world who gather each year at a ski resort to discuss a topic relevant to our work, and next year the subject is ‘the brain.’ Next winter the meeting will be at Aspen. We have invited some of the world’s top cognitive neuroscientists to speak, including Michael Gazzaniga from Dartmouth, and we would like for you to give a lecture on the brain as well.” I said, “Henry, I know absolutely nothing about the brain,” went home and told my wife who replied, “That’s never stopped you before!”

After pondering both the challenge and the opportunity, I stopped and read about 50 books on cognitive neuroscience in order to make sure I understood the clinical side of things. It was fun re–visiting some material I had studied in a course on Child Linguistics while completing my Ph.D. at the University of Pittsburgh in the mid–1970s. I also spent time learning all I could from physicians and professors at the University of Texas Southwestern Medical School. Then I began developing a PowerPoint presentation that offered a philosophical and ethical perspective on the brain. In this presentation, I contrasted a more Hellenistic, Cartesian dualism, which separates mind and body with a more Hebraic, holistic world–view. The Hellenistic approach tends to represent the way medical education has been taught for centuries. It’s an approach that has doctors looking at patients as very uninteresting appendages to very interesting
diseases. Suddenly, as a patient, you find yourself being referred to as ‘the appendix in Room 202’ instead of someone with a name, a family and a life. The Hebraic approach tends not to separate mind and body and finds physicians viewing patients as whole persons. My lecture on the brain, entitled “Brains, Bodies, Beliefs and Behavior,” demonstrates how the brain drives every part of who we are as human beings then outlines the difference between the Hellenistic and Hebraic views of patients showing how the latter approach actually helps with the healing process.

Because this lecture attracted so much interest in Aspen at what was primarily a more clinical conference, invitations began coming in from all over the country. As a result my homework only increased trying to keep up with the exciting new discoveries in the burgeoning field of cognitive neuroscience. So I continued to read and learn taking all the seminars I could find, especially at what is now a cutting edge research think tank, The Center For Brain Health in Dallas.

Since 2000, I have given the lecture at the University of Texas Southwestern Medical School, a healthcare retreat in Austin, Texas, as the Dean’s Special Lecture to the entire Freshman Class at the University of Arkansas for Medical Sciences, as the 50th Annual A. Murat Willis Lecturer for CJW (HCA) Hospitals in Richmond, VA, at a conference in Orlando, at Cornell University, in Ann Arbor, Michigan, at a science and theology meeting in Birmingham, Alabama, in China at the Beijing Theological Seminary and the China Academy of Social Sciences. I’ve also shared it at numerous churches and religious conferences where lay people line up to learn what’s going on inside their heads. Why are physicians so interested in hearing a pastor–theologian talk about the intersection between mind and body from a philosophical and ethical perspective? I think it’s because the best physicians understand that they are only co–participants in this delicate balance between life and death, which we call the healing process, a dynamic dance that is both fragile and resilient. My overall premise is that our brains influence our bodies, beliefs and behavior and that our bodies, beliefs, and behavior impact our brains, less through a Hellenistic, Cartesian dualism and more through a Hebraic world–view that does not separate the mind–body equation. These two competing perspectives influence how healthcare providers view and treat patients.

I begin by reminding both physicians and lay people that there’s a lot we know about the brain, and a lot we don’t know. After all, research in neuroscience is exploding exponentially. Like outer space, this new ‘inner space’ has
become the uncharted territory of the twenty–first century. As Baby Boomers age our interest in brain health rivals our sometimes halting attempts to exercise our bodies. Mental health is clearly as important to us as physical health, and both influence each other. You have to want to exercise before you actually do it and that thought starts in the brain. On the other hand, we know that regular physical exercise helps the brain function better. Though I used to get bored running around the block, I wasn’t as bad as another scholar I know who, when he gets the urge to exercise, lies down and waits for the urge to pass! But, now after having studied the brain closely for nearly a decade, I know the impact of physical well–being on my ability to memorize speeches, learn new languages, play the piano effectively and keep my mind working. I also know that using my body and my brain aggressively and actively might actually delay the onset of dementia and Alzheimer’s. As a Greek professor, I used that fact as a way to get lay people in my Dallas church to take the Greek classes I offered there. “Keep those neurons bouncing—Greek is good for you!”

There is a lot we know about the brain. We know it’s the shape of a walnut, roughly size of a coconut, the consistency of chilled butter and the color of uncooked liver. On the surface, it’s fat, boring, ugly and fragile, but at the same time it is also enduring, creative, beautiful, ever–active and ever–changing. It’s like a computer but more because a computer can’t re–wire itself. We know that billions of neurons are bouncing in your brain at this very moment, and you reply, “Only millions before my first cup of coffee!” We know about the different lobes (frontal, parietal, occipital and temporal) and sections. We know about the dendrites (from the Greek word dendron, which means “tree” because that’s what they look like) and synaptic connections (another brain word with Greek roots—which Sir Charles Scott Sherrington and his colleagues coined from syn meaning ‘with’ or ‘together’ and apto meaning “hold, cling to, or clasp,” not to be confused with the word “apse” in ecclesiastical architecture, which comes from the Latin absis meaning “arch” or “vault” and just wouldn’t fit into the tight spaces inside our heads). We know that synapses allow nerve cells to communicate with one another through axons and dendrites, converting electrical impulses into chemical signals. We know about neurotransmitters and neurotransmitter receptors.

So, there is a lot we know about the brain. But we have to admit that there’s a lot we don’t know as well, which is a good thing. It keeps us humble and keeps us digging, probing and learning more. As Stephen Pinker noted in the preface to one of his ground–breaking books on the brain, “Any book called How the Mind
Works had better begin on a note of humility, and I will begin with two. First, we don’t understand how the mind works—not nearly as well as we understand how the body works, and certainly not well enough to design utopia or to cure unhappiness . . . Second, I have not discovered what we do know about how the mind works. I have selected from many disciplines . . .”¹ I agree. If Pinker, who is the Johnstone Family Professor in the Department of Psychology at Harvard University and prior to that, was Professor of Psychology and Director for the Center for Cognitive Neuroscience at MIT, is humble when facing this topic, you can imagine how modest I feel when talking about the brain. Like Pinker, I draw from several different disciplines including medicine, psychology, philosophy and theology as well as the Hebrew and Greek languages to create the lecture “Brains, Bodies, Beliefs and Behavior.” In this lecture I talk in broad sweeps about how the brain works, how it influences our bodies, beliefs and behavior and vice versa, and how we tend to dissect and separate these things into limp parts instead of seeing them as a living, vibrant holistic persons needing our care whom healthcare providers call ‘patients.’

We know that our brains are the result of Genetics and Culture. You can pay your money and take your choice on which side of the Nature/Nurture scale to tip more heavily. Both are influential. Those of us who claim to be religious also contend that the brain is God–given. We know that the brain is more than neurons and neurotransmitters. It is somehow related to what we call the mind. But the mind is not the brain; it’s what the brain does. Pinker was right in saying that “the 1990s were named the Decade of the Brain, but there will never be a Decade of the Pancreas . . .” because the “brain’s special status comes from a special thing the brain does, which makes us see, think, feel, choose, and act.”² That special thing is information processing, or computation. But the information processing is for specific purposes.

The Grammar and Syntax of the Brain
In my lecture I show a diagram I created that outlines the interrelation between the brain and what it influences in the human life. On this diagram I overlay Augustine’s test for a great speech, lecture or sermon, which should do three things to be successful: ‘teach the mind,’ ‘touch the heart’ and ‘move the will.’ What the diagram demonstrates is how the brain drives every part of who we are: memory, perception, rationality, creativity, physiology, emotion, belief, moral behavior and finally our use of language, which leads to action. What fascinated me as I began to develop this schema is that each element on the graph
represents a different course of study in the academic curriculum. Thus memory relates to the study of history, perception to epistemology, reason to logic and math, creativity to the arts, body to biology, emotions to psychology, beliefs to theology, behavior to ethics, and language and action to linguistics and drama. Furthermore, the first three (memory, perception and reason) relate to the mind while creativity relates to both mind and heart; and the rest—body, emotions, beliefs, behavior and language/action—are connected to both heart and will. Thus Augustine’s theory intersects neatly with the multifarious impacts of the brain on our lives.

Since entire books have been written on the relationship of the brain to each area displayed in the diagram below, I only hit the high spots to give the hearers just a taste of the vast knowledge that has already been amassed and continues to be researched. Each day new discoveries open new doors of insight into how the brain affects every part of our lives.

The first area has to do with Memory (History), especially the hippocampus, which is in the limbic system one of the oldest parts of the brain, sometimes called the mammalian brain. Greek surfaces again in the naming of the hippocampus since it looks like a seahorse—hippos is the word for horse and campos the word for sea animal or monster. The hippocampus is involved in the formation of long-term memory. Left hippocampus relates to verbal memory and
right hippocampus to visual memory. Here I talk about the study done by University College London neuroscientists on London cab drivers, which discovered that they have the most highly developed right posterior hippocampi in the world because they spend two years memorizing all the street names, roads and alleyways in London.\(^3\) In other words, the more you work your brain the better it can remember. I also talk about Joseph Campbell’s work on myth as referenced in Christopher Vogler’s creative analysis of the deep structures of story-telling that seem programmed in the memory of the human psyche.\(^4\) I also want people to reflect on the ethical implications of new procedures for erasing bad memories from traumatic experiences. Since emotion and memory are inextricably tied together, which have implications for the relationship between mind and brain, it’s important to point out that purposeful memory erasure may change personality just as lesions and lack of oxygen can cause memory loss and alter one’s persona.\(^5\) So, the moral question neuroscientists are asking correctly is: Should we be erasing people’s memory as in the movie the *Eternal Sunshine of the Spotless Mind*?\(^6\) If memory and individuality are woven together, how can you change one without changing the other? We really are doomed to repeat history, even our own mistakes, if we don’t remember it. In the lecture I reference my mother-in-law who had a cardiac arrest in the mid-1990s, and was essentially gone briefly until the paramedics who were nearby brought her back to life. Lack of oxygen to her hippocampi caused loss of the most recent 20 years of memory. Everything before that was still intact. As a result, she did not know her grandchildren and she did not know her husband had died. Across the next few years, with the help of family story-telling and family scrapbooks, little by little she began to piece her life back together as a slightly different person. Because of the brain’s amazing neuroplasticity,\(^7\) there is always hope even for those of us Baby Boomers who sometimes forget our own phone numbers!

Under **Perception** (Epistemology), I point out the olfactory, occipital and auditory sections of the brain that help us process information that is coming in to at least three of our senses. The reality is we all see and hear what we want to from our own perspectives. Rita Carter puts it this way: “Every brain constructs the world in a slightly different way from any other because every brain is different.”\(^8\) Physicians need to remember this when they are communicating information to patients about their injuries or diseases and the plans for curing them. I remind them that a lecturer speaking to 500 persons may think she is giving only one speech, but in reality there are 500 different speeches going on
in people’s heads simultaneously. As a result others often hear things we never say. The reason is each of us brings his/her own genetic makeup, history, life experiences, prejudices, needs and desires to the process of listening. Another reason is that, as with memory, the perceiving and knowing brain is also directly influenced by our emotions. Because certain words and phrases trigger specific feelings, everything we hear is colored by our experience with those words and phrases, good or bad. In addition, we know that some people process facial communication and group dynamics more ‘intuitively’ than others. It’s not that their brain takes in more but rather that their mind processes it at a deeper level. On the other hand, people who score higher on the S (or Sensing) side of the N/S scale of the Myers–Briggs Personality test may actually observe more details than ‘intuiters’ can ever grasp. What can we conclude? That our perception of what’s going on in the world may start in the brain but simultaneously taps into our mind’s history and experience emotionally, cognitively and volitionally. Thus we already see what we will understand more poignantly in our analysis of the mind–body equation—how hard it is to separate the two. It’s also interesting under the category of Perception to share the fact that the corpus callosum—that thick band of nerve fibers through which the right and left cerebral hemispheres communicate—is somewhat larger in women’s brains than men’s, which helps women pick up more of what’s going on around them, especially emotionally, and which may explain why in complex mental tasks women tend to use both sides of their brains where men have a propensity of focusing on one side or the other.9 The reason may be that for millennia women have had to be multi–taskers—more evidence that we perceive the world around us differently because of both our genetic makeup and environmental influences.

Under Creation (Arts), I refer not just to those right–brain geniuses who seem to have something ‘extra’ in the area of imagination, but to all of us who ever tried to create anything new. Not everyone can sit down and crank out music effortlessly like Mozart and the reality is most probably don’t. Howard Gardner puts it this way: “For every fluent Mozart, Trollope, or Picasso, who poured forth works with unceasing fecundity, and for every Edgar Allan Poe, who claimed to plot out his works with mathematical precision, one encounters reports of a Dostoevsky, who reworked his novels numerous times, a Thomas Mann, who struggled over three pages a day, or a Richard Wagner, who had to work himself up into a nearly psychotic frenzy before finally finding himself able to put pen to score.”10 We’re told Charles Frazier re–wrote Cold Mountain no less than twenty times. In other words, no matter how smart you are or which
part of the brain you use, for most people inspiration still is 90% perspiration. Gardner goes on to cite Darwin who experienced “no sudden epiphany of inspiration,” but instead “marshaled endless lists of thoughts, image . . . arguments, and notes to himself . . . all part of a mammoth, painstaking effort to understand the way living processes have yielded the plethora of plant and animal species in the natural world.” Beyond the inspirational process of creating great art, we also need to highlight the capacity to appreciate it as well. Neuroscientist, Jean–Pierre Changeux writes, “A work of art draws upon the highest level of the hierarchy of cerebral functions, that of intentions and reason. It creates harmony between sensuality and reason without having to resort to explicit reasoning . . . But art possesses an additional dimension, the faculty of stimulating the mind, the evocative power that makes images, memories, recollections, and gestures suddenly appear in the brain of the viewer or listener and, in so doing, provides food for thought and gives rise to dreams—to the shared dream of an authentically good life, with that freedom of speech and understanding of which only poetry is capable. . . .” Changeux is right. The aesthetic and the artistic provide enough rhythm, novelty and coherence to keep any person’s brain challenged and growing in intellect and joy.

From Creation we move to Reason (Logic, Mathematics), which takes us into the frontal lobe, the neo–cortex, and especially the prefrontal cortex. If the Brainstem and cerebellum (Reptilian brain) and the Limbic system (mammalian brain) represent the oldest part of the brain, the neo–cortex is the newest part and thus dubbed ‘the human brain.’ It’s the area where we make mature, rational decisions. The prefrontal cortex is the part where the planning of complex cognitive behaviors occurs as well as the expression of personality and appropriate social behavior. Since it doesn’t fully develop until the mid–twenties, we now have an explanation for why we take so many risks and do so many questionable things in our teenage and college years. One person expressed it this way: “We let them drive when they’re 16, send them off to war when they’re 18, and let them drink legally when they are 21. Only the rental car companies and the insurance companies seem to understand that the prefrontal cortex doesn’t fully develop until they are 25!” The frontal lobe, especially the prefrontal cortex is the brain’s parent. It helps us reason. It provides us with inhibitions and makes us take a second look before we leap.

I rarely ever spend much time on the brain’s influence on the Body (Biology) since physicians already understand how the brain drives every biological function: the autonomic nervous system, the endocrine system, the lungs, the heart,
the stomach, the pancreas and the intestines. This section always provides more of a surprise for lay people than for healthcare providers. As we go from the brain’s effect on our rationality to the brain’s impact on the Body, we are clearly moving from Augustine’s “teaching the mind” to his “touching the heart.” The same is true as we proceed to the next level—Emotions.

The brain’s impact on Emotions (Psychology) is again a bit of a surprise to lay people who have never studied neuroscience, thinking emotions are matters of the heart figuratively speaking. But the fact is the limbic system (including thalamus, hypothalamus and amygdala) is directly involved with our deepest emotions. The feelings of passion, stress, fear, grief, anger, and lust all arise from this primitive region of the brain that evolved ages ago. If the prefrontal cortex is the brain’s parent, the limbic system is the brain’s teenager. Here we examine the role fear and stress play in the quick, involuntary reactions we have to real and perceived danger. As one writer put it, “In reality, our passions and our desires are as much the brain’s creation as are intellect and reason. They are all brought to life in a small amphitheater of tissue known as the limbic system. Inside a collection of parts that make up roughly one–fifth of the brain’s area, the cold world of reality is transformed into a bubbling caldron of human feelings.” In this section of the lecture, I speculate briefly on the connections between the amygdala’s various responses to perceived threats in our time, and the kinds of conflict that get us into trouble when we over–react in marriages, neighborhood disputes, work situations, political entanglements and disagreements over theology or ideology. Neuroscientist Changeux reminds us that fear that arises in the amygdala helps us avoid danger and contributes to survival. “But it can also give rise to abandonment of the social group, to a loss of the sense of common cause. As a result, it is associated with the definition of evil.” He says this because his definition of evil involves that which challenges “social bonds and the capacity to understand others…to grant them our sympathy, our friendship and perhaps our love.” I believe there is more research that needs to be done in this area. The implications are profound in a time of terrorism and war.

It’s natural to move from Emotions to Beliefs (Theology) since both intertwine. Spirituality touches our deepest feelings, but also makes us think. For that reason we find this area of belief and theology being driven by the frontal cortex. There are interesting studies on the role of prayer in people’s lives, some conclusive and some not, that need to be examined more closely like Patrick Glynn’s work. Harold Koenig, founder and co–director of Duke’s Center for
Spirituality, Theology and Health, regularly shares the results of his studies demonstrating the impact of spirituality on health. In a Grand Rounds Lecture at the University of Texas Southwestern Medical School, I heard him share the following information from tests he has run: spirituality leads to better mental health; depression rates are half for those who pray; for people involved in religious communities there are less instances of stroke and heart disease, lower cholesterol, wounds heal and close more quickly, better immune functions and lower mortality rate from cancer. I went away from that lecture thinking ‘religion really can be good for your health!’17 One would imagine that a theologian would say that theology and spirituality are matters of the soul, not the brain, but as we will see when we examine the mind–body equation that is a false dichotomy. As we move away from a dualistic approach to the mind–body equation and into a more physicalist approach that looks at the whole person, we understand more fully how the brain can influence our beliefs and our faith journeys.

Under the subject of Behavior (Ethics), which again engages our frontal cortex, I examine such questions as “Do our genes make us bad?” and “Can we train the brain to overcome certain bad habits?” I also ask “How can we have free will if all sources of bad behavior are found in the brain and someday we will have drugs to correct every form of bad behavior?” Stephen Pinker outlines the implications of neuroscience for questions like these when he shares the following information: “In 1982 an expert witness in the insanity defense of John Hinkley, who had shot President Reagan and three other men to impress the actress Jodie Foster, argued that a CAT scan of Hinckley’s brain showed widened sulci and enlarged ventricles, a sign of schizophrenia and thus an excusing mental disease or defect. (The judge excluded the evidence, though the insanity defense prevailed.)”18 Eventually, “the devil made me do it” will be replaced with “my brain’s to blame.”19 However, Gazzaniga believes that the brain’s influence is only part of the equation—we still have free will and personal responsibility.20 At the same time, there is increasing evidence that defects in the brain cause various kinds of criminal behavior. Laurence Tancredi’s analysis of psychopaths in his chapter “Bad without Conscience” demonstrates the effect of both genes and environment on the brains of serial killers. He also outlines what a “moral brain” looks like and how it works.21 Others like Larry Falwell are attacking the problem from the other side. Falwell’s criminology techniques called “brain fingerprinting” identify perpetrators by measuring non–invasively brain–wave responses to crime–related words and pictures flashed on a computer screen.
The technique is called MERMER (Memory Encoding Related Multifaceted Electroencepholographic Response). Although more reliable than lie detector tests, there are still questions about its use.22 One of the most hopeful signs in the field of neuroscience is the fact that neuroscientists have begun realizing the importance of asking ethical questions about their own research, what it is doing to society and where it is heading. In fact, a new organization was formed in 2006 called The Neuroethics Society, “an interdisciplinary group of scholars, scientists and clinicians who share an interest in the social, legal, ethical and policy implications of advances in neuroscience.” From this society’s website (www.neuroethicsociety.org/) we see the following mission statement: “The late 20th century saw unprecedented progress in the basic sciences of mind and brain and in the treatment of psychiatric and neurologic disorders. Now, in the early 21st century, neuroscience plays an expanding role in human life beyond research lab and clinic. In classrooms, courtrooms, offices and homes around the world, neuroscience is giving us powerful new tools for achieving our goals and prompting a new understanding of ourselves as social, moral and spiritual beings. The mission of the Neuroethics Society is to promote the development and responsible application of neuroscience through better understanding of its capabilities and consequences.” Clearly, there is more ground to be covered in the area of the brain and its effect upon ethics, but the Neuroethics Society’s mission statement is a good start.

Finally, I examine the impact of the brain on Language and Action (Linguistics, Drama). We know that our world is named for us: “light, ball, Mommy.” The language we learn and the stories we hear help shape our reality, our identity, our view of the world, and in turn influence our actions. We know that mere gestures gave way to language roughly two millions years ago. We know language shapes personality and community. We also know that even in a highly technological age, Cicero’s line, “The one who speaks well has power” still holds true in both politics and commerce. But, how do we acquire language and what effect does the brain have on it? In my lecture I touch briefly on both the Wernicke’s and the Broca’s areas of the brain since both relate to language. The first has to do with how we process and understand what people are saying to us, the second with how we produce speech in response. If a stroke occurs in the Broca’s area of someone you know, that patient, friend or loved one can understand everything you are saying, but just can’t respond. If the stroke is in the Wernicke’s area, the patient, friend or loved one can speak, but may not make much sense because that person cannot understand what you are saying.
In my lecture I share information about children’s acquisition of language and the challenges we as adults confront when we try to learn foreign languages.\textsuperscript{23} The most important fact to remember is that the brain’s neuroplasticity is so strong that we should never stop trying to learn languages because the brain’s neurons are constantly looking for new pathways and new ways to connect.

From this large paradigm we see that the brain doesn’t just compute data; it helps us be who we are. Because we are human, and can transcend time and space in this present life, we also want to know our world, our story, our possibilities; we want to know we are not alone in the universe, that there is a reason we are here; we want to make our moral and ethical choices for proper speech and action, not only for ourselves but for humanity and all creation. As we review the grammar and syntax of the brain in this diagram we see the following neuroscientific declensions and conjugations: memory involves remembering and reminiscing; perception refers to seeing and hearing; creation leads to imagining and planning; reason invokes thinking and organizing; body requires physiological experiencing; emotions evoke feelings; beliefs mean valuing and having faith; behavior demands choosing then making decisions; and finally, language and action refer to expressing and performing. Now we are ready to tackle the great mystery of humankind, the quintessential riddle of the human race.

\textbf{The Mind–Body Equation}

Following Descartes, our tendency is to separate mind and body. It’s the great dualistic two-step. Geoffrey Brown, in his book, \textit{Minds, Brains, and Machines}, suggests that Descartes saw the mind and the body as two quite different substances. Descartes’ famous “Cogito ergo sum” led him to surmise that we first know we have minds then only subsequently are we aware, by using our minds, that we have bodies and that there are physical elements in the world that are directly under our control. There is a direct connection between mind and body: “naturally the mind must be able to control the bodily movements which are subject to our will, and the body must in turn be able to affect the mind, since much of what we know in our minds has to originate with the sense organs of the body.”\textsuperscript{24} After Descartes, the Romantic movement in philosophy, literature, and art, which began about two hundred years ago, assigned emotions and intellect to different realms. “Affect and emotion,” said the Romanticists, “come from nature and reside in the body,” whereas “intellect comes from civilization and resides in the mind. While feelings are hot-headed, sometimes illogical
impulses directed by biological commands, the intellect is the cool deliberator, which keeps our emotions in check. As Pinker notes, “Romanticists believe that the emotions are the source of wisdom, innocence, authenticity, and creativity, and should not be repressed by individuals or society.” Romanticists, then, in delineating intellect and emotion, clearly separated mind and body.

Move on to the Dutch philosopher, Spinoza (1632–1677) and you will find one who did not see mind and body as separate entities, but as two aspects of a single underlying reality, distinguishable from each other, but inseparable. Spinoza’s approach was much more like the Hebrew idea of how we are put together. Both are different from the Greek idea which tends to separate mind and body. Erich Harth in his *The Creative Loop: How the Brain Makes a Mind* sug-

suggests that the brain’s crucial role within the body has been recognized practically from the beginning of recorded history, with the exception of a few notable lapses: the Homeric heroes thought with their diaphragms (probably related to *splanchna*—the Greek word for bowels, which was the seat of emotions and great passions—no doubt related to the splanchnic nerve), and Aristotle, in a major blunder, pronounced one day that thinking is done in the heart, and that the brain served merely to refrigerate the blood and prevent the heart from overheating! Two centuries prior to Aristotle in the fifth century BC, Alcmaeon of Croton, a disciple of Pythagoras, declared by some to be the true father of medicine, not Hippocrates, taught that the brain was the central receiving organ of all our senses. He also gave Plato his idea of the immortal soul, which Plato divided into three parts: the *nous*, or mind, the highest part controlled the appetite or desire, which was the lowest part, with the aid of the *thelema* or will.

Plato is the one who separated mind and body, giving us a dualistic view of human nature and thus influencing centuries of medical education, which finds physicians looking at patients’ bodies or patients’ minds but not whole persons.

On the other hand, Jewish thinking did not separate mind and body. The Hebrew word *nepesh* is translated ‘soul,’ but in English it has too many Greek overtones especially from the Greek word for soul, psyche. “In the Old Testament, *nepesh* never means immortal soul, but is essentially the life principle, or the living being, or the self as the subject of appetite and emotion, occasionally of volition . . . Hebrew thought could distinguish soul from body as material basis of life, but there was no question of two separate, independent entities. . . .” The ancient Jews could speak of flesh the way we speak of the “body,” but their view of *nepesh* meant they saw themselves as psychological
organisms, psychobiological unities. Ancient Jews did not have bodies but instead were animated bodies, units of life manifesting themselves in fleshly existence. The word *nephesh* in many cases means “self” or “person” because the *nephesh* has feelings and emotions. It hungered, thirsted, coveted, rejoiced, grieved, loved, hated, got depressed and hopes. *Nephesh* or soul, and spirit and heart, are sometimes used interchangeably when describing the skill, insight, energy and volition of a person for action. One word commonly translated “mind” in the English Old Testament is the Hebrew word *lev*, or heart, which does not refer to one’s emotional life, but rather to the intimate center of one’s personality, in which all intellectual, emotional and volitional activities occur. Heart in Hebrew is the prime seat of intelligence where practical, not speculative, thought turns into action. In contrast to the Hellenistic view, the Hebraic mind “had no real interest in psychological analysis and no conception of the division of the human personality into separate organs or faculties, each governing some particular phase of man’s psychic activity. Feeling, thinking, planning, and willing were all conceived to be functions of the entire personality, so that the conception of ‘the mind’ as the special seat or organ of reflective thinking as distinguished, e.g., from the heart as the seat of the emotions would have been, for the Hebrews, almost unintelligible.”

To be fair, I need to point out that Greeks did have a more holistic view at times. Consider the Greek god of healing, Asklepios. In my lecture I show some slides of a 4th Century BCE Asklepion or hospital at Pergamum in Turkey. One of them is of the amphitheater where physicians–in–training came every year to observe operations and treatments. Apparently the Greeks did have a pretty holistic view of patients and how to treat them, despite the separation between mind and body Greek language and thought created for medicine. At times they managed patients’ healthcare in four ways: through diet, through exercise, through herbal treatments and through what they called “peace of the soul,” in which they used the sound of running water and sleep therapy.

**Implications for Physicians and Patients**

One good thing about the present state of affairs is that more and more medical schools are realizing that this separation between mind and body inhibits the healing process. More medical school curricula are taking into account the whole person when discussing patients. Theologians and neuroscientists are trying to help by actually listening and learning from each other. Philosopher, Nancey Murphy is trying to move us beyond the dualistic separations of Plato
and Descartes on the one hand and the reductionist forms of physicalism, which deny the individual’s possible relationship with God on the other. Correcting centuries of thought that posit an immortal soul, slipping past death, Murphy writes, “One needs also to understand resurrection differently: not re–clothing of a ‘naked’ soul with a (new) body, but rather restoring the whole person to life—a new transformed kind of life.” Murphy is clearly moving us away from a more Gnostic ‘soul trapped in a body’ dualism toward a more Hebraic, holistic, nonreductive physicalism where we are seen as ‘spirited’ or animated bodies. With this view, we don’t have to ‘dumb down’ and ignore all the new neuroscientific discoveries. In fact, we can take them seriously knowing that we are ‘fearfully and wonderfully made’ by a loving Creator. Thus, Murphy will not settle for a more reductive, atheistic view, which says essentially, “if there is no soul, then people must not be truly rational, moral or religious; that is, what was taken in the past to be rationality, morality and spirituality is really nothing but brain processes. The nonreductive physicalist says instead that if there is no soul, then the higher human capabilities must be explained in a different manner. In part they are explainable as brain functions, but their full explanation requires attention to human social relations, to cultural factors and, most importantly, to God’s action in our lives.”

Not everyone agrees with Murphy. My own preference is to appreciate Murphy’s critique of Cartesian dualism while embracing the Hebraic view of the soul (nephesh) as pointing to the totality of human personality.

Malcolm Jeeves, president of the Royal Society of Edinburgh, Scotland’s National Academy of Science and Letters, former professor of psychology at University of St. Andrews, former editor of Neuropsychologia, and past chairman of the International Neuropsychological Symposium, offers research findings “that point to the ever tightening links between brain, mind and behavior.” Arguing for what he calls “psychophysiological parallelism,” Jeeves believes not in a ‘dualism of substance,’ but a ‘dualism of aspects’ when he tries to understand the mind–body equation. Sounds like the ancient Hebraic view to me.

What do all these conclusions about the mind–body equation mean for physicians and patients in our time? I believe they mean that healthcare providers need to view patients as whole persons, not just uninteresting appendages to very interesting diseases. Happily, many physicians and practically all nurses already understand this. One thing we who are patients need to remember is that physicians’ number one priority is to keep us alive and having time to think about the whole person can easily take a back seat to the immediate clinical problem facing
them. Recently, Dr. Francis Crick (who with Watson discovered DNA in the early 1950s) wrote, “Consciousness remains one of the major unsolved scientific problems of this new century. The solution of it may well change our whole view of ourselves. We hope very much that neurosurgeons, with their privileged access to the human brain, will join in the search for the (neural correlates of consciousness) in one way or another.” Katrina Firlik, M.D., practicing neurosurgeon and clinical assistant professor at Yale University School of Medicine, replied to Dr. Crick’s hope with these words: “I can speculate as to why so few neurosurgeons have broached the subject in depth. Although the mystery of consciousness is a fascinating one, maybe even the most fascinating, the more practical concerns tend to be the most pressing, like the patient who is rolling through the ER doors, or having a seizure in the ICU, or bleeding on the OR table.” That said, I believe there are ways physicians can raise their awareness of the patient as a whole person as they look into our eyes and listen to the echoes of fear and hope in our hearts. After all, we who are patients are putting our lives into their hands.

Norman Cousins summarizes it best when he writes: “At one time, a compartmentalized view of the human body was generally accepted. Recent knowledge of the anatomical and functional links between brain and body point in a different direction. Brain researchers now believe that what happens in the body can affect the brain, and what happens in the brain can affect the body. Hope, purpose, and determination are not merely mental states. They have electrochemical connections that play a large part in the workings of the immune system and, indeed, in the entire economy of the total human organism.” Cousins goes on to talk about the ways physicians are viewed in literature, something I often share at medical conferences and medical schools because it is such a poignant quotation: “Almost every literary figure of any consequence—from Aeschylus to Walker Percy—has had something to say about doctors. To the writer, the physician is not just a prescriber of medicines, but a symbol of all that is transferable from one human to another, short of immortality . . . In the English novel, the doctor tends to be treated more as an institution than as a person, like the physician in Emily Brontë’s *Wuthering Heights* whose professional detachment prevents him from becoming a vitally emotional resource for the patient. William Faulkner’s doctors are more philosophical than Hemingway’s; they look not merely at the illness but at all of life. Steinbeck’s Doc Burton manifests a curiosity not just about the workings of the human body but about society itself . . . What the world’s great literature tells us about medicine is that few things are more important than the psychological management of the patient . . .” Thus, concludes Cousins, “the science
and the art of medicine converge at the point where physicians become concerned—as poets have always been—with the whole of the human condition.”36 Coleridge believed that the best physician is the one who inspires hope.

As I conclude my remarks on the brain and its interconnections with our bodies, our beliefs and our behavior, I remind healthcare providers that the word for salvation in Greek, soteria, means peace, healing, harmony and wholeness for mind, body, and soul—all of who you are—not just for individuals, but for the whole community and all creation; and that soteria is a synonym for shalom in Hebrew and salaam in Arabic. In that way, healthcare providers and clergy are partners with God in the process of bringing healing to a broken and hurting world. So, in the end, we find ourselves moving from Descartes’ “Cogito ergo sum,” “I think therefore I am” to “Caritas ergo sum,” “I care therefore I am.”

Notes
17. For more information on these results and others see his book on this subject: Harold G. Koenig and Harvey Jay Cohen, editors, The Link between Religion and Health: Psychoneuroimmunology and the Faith Factor (Oxford University Press, 2002).
29. Murphy, Bodies and Souls, or Spirited Bodies, op. cit., p. 23.
31. See Steward Goetz’s, William Hasker’s and Kevin Corcoran’s rejoinders to Murphy’s ideas in In Search Of The Soul: Four Views of the Mind–Body Problem, op. cit., pp. 139–151.