INTRODUCTION
Science and technology have long been at the heart of medical advancements in health care. As indispensable as these are, however, scientific and technological progress may have come at the expense of compassion and the human dimension in medical care.

My insights into the empathic delivery of health care stem from my holistic approach to the practice of dermatology—treating the whole patient versus just the skin. This was my motivation for cofounding the Insight Institute, a nonprofit organization that integrates the arts and humanities into the study and practice of medicine (Figure 1). The institute’s art- and museum-based initiatives have demonstrated that the use of art in various forms for the training and continuous education of medical students and accomplished practitioners alike improves capabilities directly relevant to clinical practice, such as attentiveness to visual clues/symptoms and their meanings.

Evidence of the role of art in medicine dates back to antiquity, when the ancient Egyptians, Babylonians, Greeks, Chinese, and Indians drew medical-related illustrations on stone, metal, ceramic, porcelain, bamboo, and silk.1 For example, a drawing found in a prehistoric cave of a mammoth with a leaf-shaped dark area showing the position of the heart may

Figure 1. Dr. McKinley-Grant training medical residents at an art gallery
have taught young hunters how to kill their prey.\textsuperscript{1,2} Meanwhile, the great Renaissance artist, Leonardo da Vinci, was one of the first contemporary medical artists, producing some of the most intricate and perceptive anatomical illustrations of his generation (Figure 2).\textsuperscript{1,3} Leonardo dissected as many as 30 corpses and was the first to describe atherosclerosis and hepatic cirrhosis.\textsuperscript{4}

Today, the integration of art into medical training and medical education continues to positively impact care, particularly as it relates to understanding patients’ emotional and psychological needs and improving the health care professional (HCP)-patient dialogue. In addition to art- and museum-based education, collaborative art projects such as the Novartis-supported Patient Listening Project serve as successful examples of helping bridge the gap between the emotional burden carried by patients and what their HCPs perceive to be their reality. The premise of the Patient Listening Project was to ask people living with psoriasis to find a creative way to express the physical and emotional realities of living with the disease.\textsuperscript{5}

In this article, I will review findings that demonstrate how art has been used to help HCPs improve the ways in which they treat patients. I will also draw particular attention to the Patient Listening Project and its use of artistic expression to change the way HCPs interact with their patients.

**USING ART TO IMPROVE PATIENT CARE**

Observational skills, pattern recognition, and data interpretation are key elements of medical decision making.\textsuperscript{6,7} Experiencing art and communicating its impression may help HCPs develop better observational skills, increase emotional recognition, and improve empathy.\textsuperscript{6,8} Two studies found that medical students who were trained in visual thinking strategies demonstrated a significant increase in the amount of time spent examining clinical images; they made significantly more observations and had increased sophistication in their description of clinical imagery.\textsuperscript{9,10} Moreover, the more training these students received, the more observations they made.\textsuperscript{9}

Using the Jefferson Scale of Physician Empathy, developed to measure...
empathy in medical education and patient care, Hojat et al found that empathy among medical students declined significantly from the end of year 2 to the end of year 3, and the decline persisted until graduation. Thus, education and training in cognitive empathy should be an integral part of medical education and initiated as early as possible. Cognitive empathy is the ability to understand the mental and affective states of others, and importantly, study findings suggest that it can be learned through interpersonal contact.

With our understanding of science and medicine constantly evolving, we cannot expect medical students to continue memorizing an impossibly large body of evidence that is readily available online. Rather, students may be better served by focusing on becoming flexible thinkers who can deal with complexity and uncertainty using not only cognitive but also emotional skills. Students should gain knowledge of human emotion, body language, and culture. Metacognition—awareness or analysis of one’s own learning or thinking processes—appears to offer a viable path toward developing these skills. A metacognitive approach has been found to increase the mental agility of HCPs, elicit empathy, increase awareness of the diversity of human emotion, and allow HCPs to gain an understanding of how cognitive biases and misperceptions can lead to medical errors. This and other studies show a strong connection between metacognition and exposure to artistic expression (Figure 3).

A variety of artistic expressions, including film, theater, literature, music, and art, could be incorporated into medical education programs to improve empathy, broaden perspective, and stimulate self-reflection (Figure 4). Programs that include the humanities as part of the medical education curricula may improve HCPs’ abilities to speak about difficult topics and improve clinicians’ abilities to process complex feelings into nuanced words.

Despite the data suggesting that humanities education improves empathy and professionalism, there is continued debate about the precise role of humanities in medical training. Nonetheless, training in the humanities appears to be an increasing trend in the preparation of future HCPs: some medical schools are accepting humanities majors, more medical schools are adding humanities course requirements, and a behavioral science section was added to the Medical College Admissions Test in 2015 to provide a foundation for learning about the human and social components of health.

**CASE STUDY: THE PATIENT LISTENING PROJECT**

To illustrate, through art, the emotional burden of psoriasis and how
it impacts the lives of patients with moderate to severe psoriasis, Novartis Pharmaceuticals Corporation created the Patient Listening Project. In this program, 123 patients with self-reported moderate to severe plaque psoriasis were asked to respond to a series of questions and create collages with the aim of exposing the emotional burden of psoriasis to dermatologists who treat the disease.5,23

In an attempt to show dermatologists how their patients with psoriasis are silently suffering, these collages were displayed at the 2014 Annual Meeting of the American Academy of Dermatology where the artwork elicited strong emotional reactions from clinicians. The Patient Listening Project exhibit uncovered emotions and attitudes related to living with moderate to severe psoriasis that are often internalized by patients (Figure 5).23,24

The patient collages reflected deep and often disheartening emotions, such as embarrassment, anxiety, low self-esteem, denial, isolation, discomfort, and depression. Interpersonal relationships were particularly difficult for patients with psoriasis. Intimacy, attitudes toward dating, and fear of rejection were all shown to be negatively impacted in the collages (Figure 6). Many of these patients felt that others did not really understand their disease; some described their encounters with people who believed that psoriasis is a contagious condition.23,24

In an attempt to open the dialogue between HCPs and patients, the Patient Listening Project also identified questions that HCPs could ask to better understand the

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Figure 5. Examples of collages from patients with moderate to severe psoriasis who used art to describe the embarrassment, isolation, and fear of rejection associated with their disease.23,24 (Reproduced with permission of Novartis.) To view more collages, visit the Patient Listening Project website at http://www.psomuchmore.com/hcp/psoriasis-patient-listening-project.jsp
The Power of Art in Medicine: The Patient Listening Project

impact psoriasis has on their patients’ lives. The questions that patients identified as those they wished their dermatologists would ask are highlighted in Figure 7.

The Patient Listening Project demonstrates the power of utilizing art to guide medicine. The emotional burden expressed by the patients has been revealing for many clinicians, and the project hopes to stimulate constructive dialogue between patients and their dermatologists about patients’ satisfaction with their current management plan.

LOOKING AHEAD

The integration of artistic expression and interpretation into medical education is an overlooked yet effective strategy for improving the lives of patients and the way medicine is practiced today. In my own experience with workshops given by the Insight Institute, I have seen how art-based initiatives can improve HCP capabilities, such as attentiveness to visual clues/symptoms and their meanings, ability to accept and reconcile a variety of different perspectives, and responsiveness to the emotional and psychological needs of patients.

By uncovering the true emotional burden of patients through art, HCPs can better understand their patients’ needs and be more proactive in improving HCP-patient dialogues. Collaborative efforts, such as the Patient Listening Project, are other examples of how artistic expression may benefit the management of disease and potentially improve patients’ lives. The Patient Listening Project underscores the need for creating an environment where patients feel comfortable communicating the impact of their disease with their HCP.

Figure 7. Questions patients wish their dermatologists would ask

“How is your psoriasis affecting you beyond your skin?”

“How are you coping with your psoriasis on a daily basis?”

“Are you comfortable with the level of disease control you’re getting?”

Figure 6. Example of collage from the Patient Listening Project showing how symptoms of moderate to severe psoriasis can have a dramatic impact on a patient’s relationships, attitudes toward dating, and intimacy

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