

## ARTICLES

# The Bridge From Genomic Discoveries to Disease Prevention

Amy Strauss Tranin, ARNP, MS, AOCN®  
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### Dedication

My presentation is dedicated to Susan Birnbaum; her sister, Sharon Luschen; and their families. Susan was a best friend of mine since junior high school who lost her long-fought battle with breast cancer on August 1, 2005, when she was just barely 46. The very day of Susan's funeral, her sister, Sharon, was hospitalized and diagnosed with brain metastasis. At the gathering at the house after Susan's funeral, their mother gave me a really tight hug and said, "You have to stay with me to help Sharon." Their mother knew exactly what was in store for her only other child. Sharon recently died at age 44, leaving her husband, five children, and a large extended family.

Even before Susan was diagnosed, she was a great listener who always offered encouragement and support, no matter what the situation. Susan was diagnosed in 1995, just a few years after I began my work in cancer genetics. Because I was new to the field and went "against the grain" most of the time, I frequently whined and talked to her about going back to general oncology nursing—my comfort zone. Susan always told me that she could see the passion I had for this work and reminded me that passion was crucial for me as well as the people with whom I work.

Susan, Sharon, and their families valued "their" nurses the most but also all nurses in general. They showed me how important the extra time we spend with patients is, even though we never really have extra time. Or how the smile we offer someone even when we are smiled out has a healing and lasting impact. They will forever remain central in my heart.

In April 2003, scientists from around the world gathered to announce the completion of the initial goals of the Human Genome Project, 50 years after the discovery of the first description of the DNA molecule. The same scientists worked together to unravel and record the entire set of

human genetic instructions, the human genome (McPherson et al., 2001; Venter et al., 2001). The achievement was lauded as the beginning of a new age of discovery sure to transform human health.

Many compared the full sequencing of the human genome to Neil Armstrong's landing on the moon in 1969 (Collins, 1999; Regalado, 2002)—what some say is the greatest scientific achievement of the 20th century. The unraveling of the human genome well may be the greatest scientific achievement of the 21st century. It undoubtedly will lead to other great scientific achievements. In 1969, people could not imagine today's scientific advancements related to and beyond space exploration. Even today, people cannot imagine the possibilities that knowing the human and other genomes will bring to health care and our world.

In a speech about space exploration, President John F. Kennedy retold the story of Irish writer Frank O'Connor's boyhood. As a boy, O'Connor and his friends would roam across the countryside of Ireland.

When they came to an orchard wall that seemed too high, and too doubtful to try, and too difficult to permit their voyage to continue, they took off their hats and tossed them over the wall—and then they had no choice but to follow them (Kennedy, 1963, p. 9).

Kennedy continued his speech by saying,

This nation has tossed its cap over the wall . . . and we have no choice but to follow it. Whatever the difficulties, they will be overcome; whatever the hazards, they must



*Amy Strauss Tranin, ARNP, MS, AOCN®, is a cancer genetics consultant with Cancer Genetic Counseling, LLC, in Kansas City, MO. As the recipient of the 2006 Oncology Nursing Society (ONS) Clinical Lectureship, Tranin presented this article at the ONS 31st Annual Congress in Boston, MA. The ONS Clinical Lectureship is supported by an independent educational grant from Schering Corporation.*

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