

# Profiles in Medicine: Bruce Bistran, MD, PhD, MPH



**Dr. Bruce Bistran and Dr. George Blackburn**

Over the course of a distinguished career, it was gathering with the fellows in Clinical Nutrition that provided **Bruce Bistran, MD, PhD, MPH**, with his favorite moments each day. The Division of Clinical Nutrition at BIDMC grew significantly under Dr. Bistran's leadership and expertise, as the group made great strides toward life-changing developments in medicine. While he received numerous awards and recognition for his major impact on clinical nutrition, Dr. Bistran found that the best reward was his ability to impart knowledge and offer guidance to those he taught.

Dr. Bistran is the Chief of the Division of Clinical Nutrition and was a Professor of Medicine at HMS. Dr. Bistran received his MD from Cornell, an MPH Johns Hopkins, and his PhD in Nutritional Biochemistry and Metabolism from MIT. He completed his clinical training in medicine and metabolism and endocrinology at the University of Vermont. Before focusing on research, he practiced critical care medicine for 20 years.

"Traditionally, we view medicine and academic medicine as being a three-legged stool: clinical care, research, and training," said Dr. Bistran. "When I first started, most professors often did all three although they usually specialized more in one than another."

With continuous NIH support from 1975 to 2014, Dr. Bistran explored nutritional formulas for patients with varying needs and he examined the roles of cytokines such as interleukin 1 and tumor necrosis factor in metabolic derangements stemming from tissue injury. These studies led to the development of numerous approaches towards enhancing nutrition in critically-ill patients, resulting in the awarding of 32 patents, many of which resulted in commercially successful products which are still used today to enhance the nutrition of hospitalized patients.

"I always was good at science and my Dad who was a potato farmer on Long Island had developed diabetes as a young man," said Dr. Bistran. "And that made me develop an interest in nutrition and metabolism."

Dr. Bistran was President of the American Society for Clinical Nutrition, now merged with the American Society of Nutrition Sciences, as well as the American Society for Parenteral and Enteral Nutrition (ASPEN), and the Federation of American Society of Experimental Biology, commonly known as FASEB. Dr. Bistran authored or co-authored more than 500 publications, and he is the recipient of numerous awards in teaching including the Lifetime Award in Teaching from HMS as well as one from ASPEN and the Goldberger Award in Nutrition for teaching from the American Medical Association. He was on editorial boards for eight major clinical nutrition journals as well as some related to obesity, *Critical Care Medicine*, *Harvard Health Letter*, *Harvard Family Health Letter*, and *the Harvard Women's Health Letter*. Dr. Bistran has also served on the IRB, the Institutional Review Board, for nearly 37 years.

Clinically and in research and teaching, Dr. Bistran worked with the late George Blackburn, MD, PhD, whom he had met at MIT. Dr. Blackburn was the Director of the BIDMC Center for the Study of Nutrition Medicine and the S. Daniel Abraham Professor in Nutrition Medicine at HMS. Together, they collaborated for over 20 years to create training and research programs at BIDMC that first identified the common occurrence of protein calorie malnutrition (PCM) in hospitalized patients, developed tools to assist in the improved diagnosis of PCM, initiated the concept of the nutritional support service combining the skills of physician, nurse, pharmacist, and dietitian to make parenteral nutrition a safer mode of treatment, researched and developed enteral feeding formulas widely used throughout the world, and founded one of the early home parenteral feeding programs that was life saving for those with permanent loss of intestinal function. Dr. Bistran and Dr. Blackburn developed two of the special ingredients, a novel form of fish oil and structured lipids, for which the hospital received royalties from Nestle and Abbott Nutrition. They also found that enteral nutrition or for some TPN, Total Parenteral Nutrition, was essential for many patients with malnutrition. In addition to this, the first gastric bypass procedure in New England was done at the New England Deaconess Hospital, prior to its merger with the Beth Israel Hospital to become the BIDMC, largely because of Dr. Bistran and Dr. Blackburn's nutrition and dietary research. Drs. Bistran and Blackburn also developed a semi-starvation ketogenic diet called the protein sparing modified fast, still widely employed in the medical treatment of obesity worldwide and pioneered the use of such diets in combination with techniques of behavior modification to change eating habits and foster the role of increased activity in long-term weight management.

Originally started for inpatients, the TPN service was expanded to begin to meet the needs of the 30,000 - 40,000 people in the US who are unable to maintain adequate nutrition due to loss of intestinal function. "We were providing this type of home therapy for many in New England," said Dr. Bistran. "And so the hospital, under our guidance, started a for profit service called the Deaconess Home Health Care. We then expanded throughout the Northeast." Because the Deaconess Home Health Care was for-profit and was growing beyond their core mission, the hospital decided to sell it for \$40 million, which was then used for research funding at BIDMC.

Throughout Dr. Bistran's career, he has also worked with many fellows in Clinical Nutrition. The program accepted two to four fellows per year and over his career, Dr. Bistran has trained over 200 fellows, 40 of whom have subsequently risen to be full professors.

"Teaching young, aspiring doctors is by far the greatest fun for me," said Dr. Bistran. "It was not a job. I'd lucked into something far, far more rewarding than I ever could have imagined."

Dr. Bistran has shaped the field of clinical nutrition, both through his discoveries and the people he has mentored. In addition to the people he cared for here at BIDMC, through his research and teaching, he has improved the health of hundreds of thousands of patients world-wide.