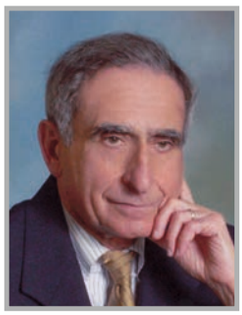
Metabolic/bariatric surgery



Henry Buchwald*: Attended Columbia College (Valedictorian, 1954) and the College of Physicians and Surgeons of Columbia University. He studied under Drs Wangensteen and Varco at the University of Minnesota (USA). He is Professor of Surgery and Biomedical Engineering at the University of Minnesota, and was the first Owen H and Sarah Davidson Wangensteen Chair in Experimental Surgery at the University of Minnesota. Dr Buchwald served as President of the International Federation for the Surgery of Obesity (IFSO), American Society for Metabolic/Bariatric Surgery (ASMBS), Central Surgical Association, International Study Group for Implantable Insulin Delivery Devices and the Owen H Wangensteen Society. He was principal investigator of the Program on the Surgical Control of the Hyperlipidemias (POSCH), the first randomized clinical trial to demonstrate, in 1990, that cholesterol lowering via the partial ileal bypass resulted in reductions in myocardial infarctions, angina pectoris and peripheral vascular disease; arteriographic arrest and regression of atherosclerosis; and prolongation of life expectancy – a major metabolic surgery achievement. Dr Buchwald was inventor of the first implantable infusion pump in the 1970s and the implanter of the device for heparin delivery, insulin delivery and chemotherapy. A pioneer of bariatric surgery with over 4000 bariatric cases, Dr Buchwald was the primary author of the first meta-analysis of obesity comorbidities outcomes following bariatric surgery in a world literature review published in 2004. A follow-up meta-analysis on Type 2 diabetes was published by the *American Journal of Medicine*. He wrote the American College of Surgeons' guidelines for Bariatric Surgery Centers, was a member of the Board of Directors of the Scientific Review Corporation of the ASMBS and gained recognition by the American Board of Surgery of the discipline of bariatric surgery. In 2006, Dr Buchwald edited the authorative text on the *Surgical Management of Morbid Obesity* and a text on *Pioneers in Surgical Gastroenterology*. He served as Co-Editor-in-Chief of *Obesity Surgery* from 2009 to 2011. In November 2011, his surgical atlas on metabolic/bariatric surgery was published.

Henry Buchwald speaks to Alisa Crisp, Assistant Commissioning Editor.

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What initially attracted you to the field of bariatric surgery?

Originally, I was coerced into the field of bariatric surgery. My friend and mentor, Richard L Varco, who is credited with performing one of the first bariatric operations, a jejunoileal bypass in 1953, wanted to re-enter the field in 1966. He had, however, severed the median nerve in his right arm and was spending a miserable year in a cast in the hope of a successful regrowth of the nerve and his return to being the brilliant technical surgeon he was known to be. He asked me to start to perform jejunoileal bypasses. I refused his requests, on several occasions, stating that I was involved with the partial ileal bypass operation for hypercholesterolemia and that I did not want the nonweight-losing, cholesterol-lowering procedure to become confused with the jejunoileal bypass. I did the first clinical partial ileal bypass in May 1963, as a junior resident, with Varco's assistance and support. One day, Varco passed me in the hospital hallway and emphatically waved a newly fashioned cast on his right arm at me and said, "I would do obesity surgery if I could and I am asking you to do it for me, and you refuse me." I immediately consented and I have remained in bariatric surgery for well over 40 years. As I came to know the unhappy and desperate individuals afflicted with the disease of morbid obesity and became cognizant of how the world, including physicians and healthcare professionals, treated them – with prejudice and contempt, I came to be empathetic towards the obese. I realized what a problem obesity was becoming and how this health burden, with its multitude of comorbidities, could be helped by metabolic/bariatric surgery. I wanted to become a champion for this discipline and a benefactor to those afflicted with morbid obesity. As the years have passed, I have been privileged to enjoy the friendship of so many of my cohort of formerly obese patients.

What do you think is your greatest achievement throughout your career?

Most sincerely, it is the achievement of helping others. A surgeon has the privilege in his/her lifetime of restoring health and hope to thousands of individuals by a feat of hand labor and some cognitive reasoning. The researcher and educator may do the same for many more people who will never be known to him/her. I have had three areas of primary interest: hyperlipidemia and atherosclerosis, in which I contributed the partial ileal bypass operation and headed the Program on the Surgical Control of the Hyperlipidemias (POSCH); implantable infusion pumps and ports, the first ones of each emanating from our University of Minnesota research laboratory; and metabolic obesity surgery, where I have been a flag bearer.

You must have seen a lot of change as this field has developed over the years, is there one development that you think has had the most impact?

The gradual realization, still far from universal, by physicians, other healthcare professionals, healthcare providers, governments and the public at large that obesity, in particular morbid obesity, is a disease and the harbinger of a multitude of comorbid diseases. Obviously, without this realization, no real progress in the management of obesity is feasible, the necessary funding for successful research and therapy will be lacking and the societal impact of obesity will engulf and debilitate nations. When I started in this field, I was labeled by my fellow surgeons as "doing psychiatry with a knife" and was told by my friends that I was sacrificing my career by being affiliated with people in this field. We have progressed, but done so slowly, and certainly not completely. In the realm of American surgery itself, it took years for the American Board of Surgery to recognize the existence of bariatric surgery, and for the American College of Surgeons to give the discipline anywhere near proportional representation at its annual congress. Even though the dominant general surgical procedures in American operating rooms today are bariatric operations, the chairs and leadership positions in academic departments of surgery, the educators of future surgeons, as a rule, go to individuals with a speciality that treats a small fraction of the needy American populace, rather

than to the surgeons who take care of the largest percentage of our people with an illness.

Q You have received many honors and awards throughout your career, which are you most pleased with?

I am most pleased with having done the work itself that has led to any recognition that I have received. The personal pleasure of research and surgery is in the process of doing it. That is not to say that I am not most appreciative of the recognitions my peers have chosen to bestow upon me. It would be ungrateful and unwise of me to try to single out a particular honor or award for specific mention.

Q You have been the president of many different societies, including the International Federation for the Surgery of Obesity and the American Society for Metabolic/Bariatric Surgery. What does this role entail? What is the most important work that these societies do?

These societies are the educational foci for the dissemination of knowledge at the meetings of the society among its members, the greater medical and scientific community, and, in essence, the world. Other important roles of a medical society are advocacy of the discipline the group represents, and the setting of standards and recommendations for the field. The president in the year of his/her tenure should focus on the immediate needs of the organization to achieve these goals and work to implement that next step forward.

Q You were part of the Centers for Medicare and Medicaid Services (CMS) Medicare Coverage Advisory Committee hearing for Bariatric Surgery. What was your role in this? What impact did this have on the field?

Harvey Sugerman and I were invited to be guest members of the CMS Advisory Committee, since the official Committee contained no surgeons. Several outstanding presentations by the leaders in bariatric surgery were made before the Committee. Sugerman and I commented on these presentations and performed our role to provide background facts and to expand upon the data presented by our colleagues. Watching the faces of the members of the Committee, I think I saw disbelief, possibly disdain and negativity with respect to support for funding of bariatric surgery. Then three former patients related how their lives had been saved by bariatric surgery, most of their comorbidities resolved and the quality of their lives greatly enhanced. After their presentations, I saw on the faces of the Committee members comprehension, conviction and empathy. When it came time to vote, Sugerman and I were told that, even though we were guest members of the Committee, we had no vote. Nevertheless, the vote was affirmative. This decision had a tremendous impact on the field. It opened access to bariatric surgery to many individuals and it set standards for the private insurance companies, which, as a rule, follow the recommendations of the CMS. Surgery was now approved on the basis of the rudimentary recommendations of the 1991 NIH guidelines (i.e., accessible to individuals with a BMI ≥40 kg/m^2 or ≥35 kg/m^2 in the presence of significant comorbidities) with the addition of the criterion that the bariatric surgery was to be performed only in centers certified by the Surgical Review Corporation of the American Society for Metabolic and Bariatric Surgery or the equivalent committee of the ACS.

Q Is there a difference in preference for specific operations in different regions/countries? Why do you think this difference might be the case? Is this something we should consider addressing?

My associate, Danette Oien, and I presented at the 2009 Paris meeting of International Federation for the Surgery of Obesity (IFSO) and subsequently published, a survey of the number of bariatric procedures, the number of bariatric surgeons and the specific bariatric operations performed in each of the IFSO nations and in a particular region. This study, complete up to 2008, demonstrated that the use of

laparoscopic adjustable gastric banding was plummeting in Europe, as Roux-en-Y gastric bypass was rising, and that the reverse trends were taking place in the USA. At that time, the sleeve gastrectomy was rapidly climbing from 0%. We plan to present a follow-up report at the 2012 IFSO meeting in India. One would like to believe that the shifting patterns in the operations performed and the introduction of new procedures reflects a distilling of bariatric surgery to ascertain the best operation with respect to efficacy, safety and durability. This is probably true but, in addition, other factors are at play. Over time, any procedure will result in more complications and/or loss of effectiveness, thus, initiating its decline in popularity. As in fashion, people, including surgeons, are drawn to something new. There is also the reality that certain surgeons practicing bariatric surgery cannot safely perform the more difficult operations (e.g., biliopancreatic diversion/duodenal switch) and, therefore, the use of these excellent procedures remains low. Finally, unfortunately, the popularity of operations is influenced by the speed of the procedure; the faster an operation can be performed, the greater number can be done in a day, the more money is made for the surgeon and the hospital, as well as the disposable instrument manufacturers who often attempt to drive clinical practice.

Q Some types of bariatric surgery have been described as a cure for Type 2 diabetes, and your recent meta-analysis (2009) showed a large impact of bariatric surgery on this disease. How important should bariatric surgery be in the management of diabetes?

Bariatric surgery is metabolic surgery. In 1978, Richard L Varco and I published a book entitled *Metabolic Surgery*, in which we defined this discipline as "the operative manipulation of a normal organ or organ system to achieve a biological result for a potential health gain" [1]. This definition means that treating Type 2 diabetes by a metabolic surgery procedure is feasible today, and will become more popular as operative limitations are defined and new operations are introduced. Bariatric surgery as therapy for Type 2 diabetes in the morbidly obese currently has achieved acceptance by the internal medicine, endocrinology and diabetology community. Extending metabolic surgery to the BMI ranges below 35 kg/m^2 will most certainly come to pass.

Q Your recent research focuses on the problems caused by bariatric surgery – what are the main risks associated with this type of procedure? Is there anything that can be done to try to avoid these? What research is being done to try to reduce these risks and make this surgery safer?

The risks are acute and long-term complications caused by the surgery, as well as loss of efficacy. With respect to safety, standardization of clinical practice by certification is essential. With respect to efficacy, the maintenance of registries and the performance of randomized controlled trials will provide the research for making appropriate judgments. Interestingly, there is today, some enthusiasm for abandoning the search for long-term efficacy in favor of repetitive, simple procedures with limited long-term favorable outcomes.

Q The obesity epidemic is something that needs to be dealt with at a population level; having first used metabolic surgery for the management of cholesterol years ago, and having worked on obesity diseases since, what are your opinions about the best ways to do this?

I believe that therapy for the obesity epidemic will evolve in a similar fashion to the treatment of hyperlipidemia. The partial ileal bypass operation, first performed in 1963, was a metabolic surgery procedure, and the first truly effective therapy for high cholesterol levels. POSCH was the first randomized controlled trial to use metabolic surgery, partial ileal bypass, as the intervention modality and the first national trial to statistically significantly demonstrate the clinical and arteriographic benefits of cholesterol lowering (in 1990). POSCH

was followed by the statin trials (in 1992 and thereafter), the institution of global pharmaceutical management and the now limited use of the partial ileal bypass operation for patients refractory or sensitive to the statins. In essence, surgery showed the way, drug therapy followed.

Q How do you think the field will change in the future? What are the priorities for weight loss surgery research for the next year?

I believe the popular concept that basic research leads to translational research, and that, in turn, this work results in innovative clinical practice is only partially correct. I think that basic research leads to clinical research and to new clinical practices, which, in turn, engender a return to the laboratory to study mechanisms of action. The field of metabolic bariatric surgery will be changed by surgeons and nonsurgeons working together to understand the neurohormonal principles of the operative interventions we employ and, possibly, thereby, the very basis of the diseases of obesity and diabetes.

Financial & competing interests disclosure

H Buchwald has no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

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Reference

1 Buchwald H, Varco RL. *Metabolic Surgery.* Grune & Stratton, Inc., NY, USA (1978).