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Special Feature

# A narrative celebrating the recent contributions of women to colorectal surgery

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ABSTRACT

*Background:* To interview extraordinary women who have made recent significant contributions to the field of colorectal surgery.
*Design:* The authors asked some of the many extraordinary women who have made significant contributions to the field of colorectal surgery to answer several questions. These women were selected from many potential candidates based upon their extraordinary recent contributions to the field of colorectal surgery. These thought leaders were asked about their contributions to colorectal surgery, their mentors, whether they had any women as role models, and, lastly, what they would tell their younger selves. The study was structured to recognize these women for their remarkable recent contributions to colorectal surgery, and we wished to encourage women to pursue leadership in colorectal surgery including the allied fields of colorectal pathology and colorectal imaging. Furthermore, the authors hoped to inspire male colorectal surgeons to actively mentor and help the career development of women colorectal surgeons. The potential limitations of the study include the fact that there are many more well-deserving women who could have been included in the sample survey but, because of space constraints, were not invited.
*Conclusion:* Women in colorectal surgery and in the allied specialties of colorectal pathology and colorectal radiology have made many recent major significant contributions to colorectal surgery. The expectation is that the volume and frequency of such contributions as well as the number of women making these contributions should further significantly increase with time.


## Introduction

During the past several decades, an increasing number of women have become engaged in and leaders of colorectal surgery. Some of these individuals are trained as surgeons and others are in the allied fields of pathology and radiology. Although numerous women have made outstanding contributions, it would have been impossible to author a single manuscript including reflections from all of these innovators and motivators. However, despite the increase in the involvement of women in leadership in colorectal surgery, we believe there is significant room for additional mentorship and stimulation of aspiring individuals who wish to become engaged as future leaders in colorectal surgery. Accordingly, we created this report to celebrate the triumphs and contributions of the women included here as well as to thank all the myriad women who have contributed to colorectal surgery and we hope to encourage many more women to pursue careers as leaders in colorectal surgery.

## Methods

This project began as a #HeForShe @HeForShe initiative by the senior author who began by enlisting a group of women leaders

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in colorectal surgery and collaborative specialties as coauthors. This study is qualitative in nature—descriptive and exploratory—with no intention to generalize the results to other individuals in the field of colorectal surgery and ancillary specialties. Furthermore, the only variable considered in the selection of the participants was gender. This study did not intend to address the impact of other characteristics that may imply a disadvantage for professional advantage, including race, religion, and nationality. The aim of the study was to gather the participants' perspectives related to the following three themes: (1) Their legacy to the field of colorectal surgery, (2) Those individuals who were instrumental to their career development, and (3) Possible regrets regarding the path they chose. These themes were operationalized in three questions:

- What do you think is your biggest contribution to colorectal surgery?
- Who were your mentors? Were there any women role models and/or mentors?
- What would you tell your younger self?

The questions were posed to the participants via e-mail. The following criteria were applied to select the participants:

- Representatives from various countries
- More than 25 y in the practice of medicine/surgery
- Highest academic ranking within their own institutions
- High volume of original publications
- Documented track record as mentors
- Innovations in the field of colorectal surgery
- Leadership positions in national and/or international societies

Based on their responses, a narrative review was compiled. In this report, these extraordinary women leaders recount their inspiring stories and provide direction for current and future practitioners of colorectal surgery.

## Results

**Gina Brown, MBBS, MD, MRCP, FRCR, FASCRS (Hon)**
Consultant Radiologist and Professor of Gastrointestinal Cancer Imaging
NIHR BRC Senior Investigator
Department of Radiology and Gastrointestinal Imaging
Imperial College London, Royal Marsden NHS Foundation Trust
London, UK

I hope that my total obsession with colorectal cancer imaging and its unique ability to depict the unseen and sometimes poorly understood pathways of colon and rectal cancer spread in vivo has created a better appreciation of the disease and individualizing patient treatments. I hope that this greater knowledge has and will enable surgeons to produce the best possible outcomes for their patients through a better understanding of the way these tumors behave and how to achieve the best results for our patients.

My first mentors in this field were Professor Geraint Williams and Professor Philip Quirke—both brilliant gastrointestinal pathologists—and, of course, Professor Bill Heald. These wonderful people love what they do so much that their enthusiasm is infectious. My mentor in radiology was Dame Professor Janet Husband who encouraged me to pursue research at a very early point in my medical career. When I was a young researcher, she seemed to me a formidable character and, like many of her generation, she represented a unique female force in medicine. It was my great privilege to meet Professor Angelita Habr Gama for the first time in 2004, another great inspiration. These women both traversed a generation in which successful women in medicine were the exception rather than the norm. They definitely had to be stronger, more confident, and show a greater determination than their male counterparts. For those who beat those paths to make our own paths easier, we, who have followed, owe them a huge debt of gratitude. Their steely determination, innate sense of fairness, and equilibrium are why I admire them. I have often found myself asking: What would they do or say when facing challenging situations? And this, I am sure, is the inspiration that gives us all the strength to pursue even the most difficult tasks. Like many of their generation, they are largely unaware of their enormous influence and how this has persisted for decades.

The simple advice I would tell my younger self is—Don't stop and don't give up!

**Sue Clark, MA, MB, BChir, MD, FRCS (Gen Surg)**
President-Elect, Section of Coloproctology
Royal Society of Medicine
London, UK
Consultant Colorectal Surgeon and Director of the St Mark's Hospital Polyposis Registry
St Mark's Hospital
Professor of Practice (Colorectal Surgery) at Imperial College London
London, UK

I have been privileged to have led the education and research programs as St. Mark's Hospital and, through those, I hope I have enabled a group of young surgeons to understand the role of genomics in colorectal disease so that it can be used to benefit future patients. I hope that I have also been a visible example of someone who is active in research, education, and clinical work, with research aimed at tackling the real problems we face daily.

Mr. Robin Phillips, Professor John Nicholls, and Professor Norman Williams were wonderful mentors. Ms. Asha Senapati taught me when she was a trainee and I was a medical student, and Dr. Robin McLeod showed me that women can be outstanding colorectal surgeons.

I would tell my younger self to stay focused on the clinical and research areas that are coherent—Don't waste time and energy going off piste! Don't worry about all the things you would like to do and can't.

**Nicola Fearnhead, BM, BCh, MA, FRCS, DM**
President, Association of Coloproctology of Great Britain and Ireland (ACPGBI)
Consultant Colorectal Surgeon, Addenbrooke's Hospital
Cambridge University Hospitals NHS Foundation Trust
Cambridge, UK

My biggest contributions to colorectal surgery are diverse. In research, I have encouraged national and international collaboration in clinical research through the ACPGBI Delphi Research Program and Tripartite 2020 Vision. Quality improvement work is a major contribution. I have served as a leader of ACPGBI's IMPACT (Improving Management of Patients with Advanced Colorectal Tumors) initiative, a co-convenor of Pelican Cancer Foundation IMPACT National Educational Program, developed a national quality improvement (QI) program in colorectal cancer through the National Bowel Cancer Audit, and I am helping develop a national program for QI in inflammatory bowel disease (STRIVE). Support for trainees through direct supervision and mentoring is also a major contribution, and I am proud to serve as a role model for women aspiring to leadership roles in surgery. Professor Neil Mortensen, Ms. Asha Senapati, Professor Robert Steele, and Mr. John Abercrombie were my mentors.

I would tell my younger self to be kind to yourself—it is a marathon and not a sprint. There is always time for family and friends—they keep you on track. Embrace opportunities as they

arise. You never know what might come next. Believe in yourself as others do.

**Susan Galandiuk, MD**
Editor-in-Chief, Diseases of the Colon and Rectum
Professor of Surgery, Section of Colorectal Surgery
Director of the Price Institute of Surgical Research
University of Louisville School of Medicine
Louisville, KY

My biggest contribution to colon and rectal surgery is establishing a creditable university program in colon and rectal surgery with excellent young faculty as well as the Digestive Surgery Research Laboratory within the Price Institute at the University of Louisville. Throughout the past 30 years I have been very fortunate to have the opportunity to work in a very supportive environment, surrounded by very intelligent young students, residents, and research fellows. One of the great regrets was that I never had the opportunity to obtain an advanced degree myself. Because of this, it was my goal to be able to obtain this for others. I am most proud, through the support of our Department of Physiology, to have had a role in the careers of 15 PhD surgeon-scientists and another 5 PhD scientists.

My most important mentor was my mother, who as a young refugee from Eastern Europe was forced to drop out of medical school during the aftermath of World War II for economic reasons. She emigrated to the United States, married, and had a child. Until she died, I would call her every day, no matter where I was, and tell her of my concerns and successes. I know of no better mentor or friend. I attended medical school in the late 1970s and began residency in the early 1980s. These were unpleasant times for women wishing to pursue a surgical career. There were no friends, as I was in a pyramidal residency. There were few women role models. Dr. Sharon Grundfest was a general surgeon who had completed a colon and rectal fellowship with Dr. Victor Fazio several years earlier. She was very kind to me and even invited me to her home. I do not know whether she knows how much that kindness meant to me at the time. Dr. Victor Fazio was the mentor who single-handedly kept my eye focused on the goal of colorectal surgery. I owe him much. Once I left Cleveland Clinic, Dr. Hiram Polk, my husband, became my mentor and I discovered how demanding, and at the same time encouraging, a mentor can really be!

I would tell my younger self that no matter how bleak things appear, no matter how desperate things seem, do not get discouraged. Remember, it does not matter what state things are in at present, progress can always be made, and it is perseverance and integrity that brings this about.

**Angelita Haber-Gama, MD, PhD**
Past President, Brazilian Society of Coloproctology
Angelita & Joaquim Gama Institute
Professor of Surgery on the University of São Paulo, School of Medicine.
São Paulo, Brazil

I was the first woman to have a board certification as general surgeon and as colorectal surgeon in Brazil. In my opinion, my biggest contribution to colorectal surgery was developing and starting the Watch & Wait protocol for distal rectal cancer. All this was possible when I was a Professor of Surgery at the University of São Paulo, School of Medicine.

I had two main mentors in my career, Professor Alipio Correa Netto and Professor Arrigo Raia. Unfortunately, when I started my journey, there were no other women in this field that could have been my mentors.

I would tell my younger self to never give up if you believe in what you can do. Never take no for an answer. Work hard and you will fulfill your dreams.

**Tracy Hull, MD, FACS, FASCRS**
Immediate Past-President, American Society of Colon and Rectal Surgeons
Thomas and Sandra Sullivan Family Endowed Chair in Inflammatory Bowel Disease
Section Chief of Inflammatory Bowel Disease
First female colorectal staff surgeon at Cleveland Clinic
Department of Colon and Rectal Surgery
Cleveland Clinic
Cleveland, OH USA

I am the president of the American Society of Colon and Rectal Surgeons (ASCRS) for the 2019-2020 year. During this time, our executive council has decided to leave our management firm and become self-managed with a virtual office. Although we have an Executive Director, I still needed to spend hours on the transition and make a tremendous number of phone calls to aid in a smooth transition. In the area of patient care, I devoted a lot of energy promoting and studying pelvic floor issues (mostly for women) and helped bring that part of our specialty into the spotlight. I became the first female colorectal surgeon at Cleveland Clinic.

After general surgery training, my first mentors were Dr. Victor Fazio, Dr. Ian Lavery, and Dr. James Church. All three helped me in different ways by introducing me to people and helping me to get started in research. Dr. Richard Billingham was the first person to promote me into the ASCRS executive council. Dr. David Schoetz gave me constant and timely advice on many early morning phone calls. Dr. Steven Wexner promoted me and my career and introduced me to many influential people. All three of the following women were excellent role models in different ways: Dr. Patricia Roberts continues to give me advice and wise counseling, Dr. Heidi Nelson promoted me and gave me wise advice, and Dr. Patricia Neumann was a professor during my surgery training and has remained a role model throughout my career.

I would tell my younger self to take the time to publish earlier. That is how you get recognized and gain credibility. I had a niche (pelvic floor) but was too busy and it took nearly 10 years to start publishing. The only advantage was that, by the time I started to seriously publish, I had treated and operated on many complex pelvic floor patients and could really talk with authority. In my personal life, I wish I had been a better mother.

**Ann Lowry, MD**
Past President, American Society of Colon and Rectal Surgeons
Clinical Professor of Surgery, Division of Colon and Rectal Surgery
Department of Surgery, University of Minnesota
Minneapolis, MN

Overall, my contribution is service to the profession in multiple roles with ASCRS, RRC and Association of Program Directors for Colon and Rectal Surgery (APDCRS). I hope that I served as an example to show other women that it is possible to have a successful career in colorectal surgery and nationally within ASCRS while raising a family. In terms of research, the development of the fecal incontinence quality of life (FIQL) tool is likely my biggest contribution. Clinically, I have focused on the care of patients with pelvic floor disorders and rectovaginal fistulas.

Dr. Stanley Goldberg and Dr. David Rothenberger were my main mentors. As far as women, my mother. She was one of the first women to finish the internal medicine program at the University of Minnesota. She practiced medicine and taught while raising a family. I have several peer female mentors both inside and outside of surgery.

I would tell my younger self to choose a specialty in which you find joy. Be very clear about your priorities within that career and life. Know that there are many ways to be a good colorectal surgeon. Find good mentors to guide you and develop a good support

network. There will be setbacks and barriers along the way, but with hard work and resilience they can usually be overcome. Do not be afraid to speak your mind—your opinions have value.

**Gabriela Moeslein, MD**
Current General Secretary of ESCP (European Society of Coloproctology)
Current Chair of EHTG (European Hereditary Tumor Group)
Section Chief Surgical Center for Hereditary Tumors (ZHT), Ev. BETHESDA Khs,
Academic Hospital University of Düsseldorf
Düsseldorf, Germany

My biggest contribution is my dedication to the field and evolution of hereditary gastrointestinal cancer. I bumped into this because of a coincidence in life, which led me to Japan. At the end of my basic clinical formation in the 1980s, Professor Joji Utsunomiya offered me a Japanese stipend, just because I expressed my interest in pouch surgery. Pouch surgery developed into my passion: How can the procedure be improved for even better surgical results? He further taught me the passion of striving to improve—for the benefit of patient outcome—and this has remained the driver of my surgical journey. The other passion has been the evolution of risk assessment based on genetic predisposition—an amazing and still-evolving field of surgery: the balance between screening, chemoprevention, and required risk-reducing surgery. Whilst BRCA, the breast cancer gene, is now entirely dominated by gynecologists, the field of prophylactic surgery for other organs has been underrecognized and deserves much more individualized risk assessment. In light of increasingly available and less costly genetic testing opportunities, I realize that this field is still evolving, and I continue to be fascinated by the opportunities of having influence in these risk-assessing strategies.

On a more distanced view: early specialization in this field has allowed my acceptance in the arena of "big" abdominal surgeries, which is usually a closed shop for women, especially in Germany. Inadvertently, I have been "allowed" to proceed, even though it has taken some of my surgical colleagues decades to realize that I am not a geneticist. To date, I believe there are still very few surgeons knowledgeable about the specific indications for prophylactic surgery based on gene and gender in the field of gastrointestinal malignancies. My early international collaborations have been extremely useful to proceed in my home country and continue to be the platform in which to develop and execute collaborative studies and develop guidelines.

My first surgical mentor "adopted" me after spending my first surgical year in traumatology, while a department head tried to make me understand that surgery is not for women. He (and other members of his department) encouraged me to join them and promoted me, because they thought that I was manually skilled. My next major mentor was the Japanese Professor Utsunomiya, who opened up the world of pouch surgery for me. He confessed 20 years later that he initially thought that I was male because I had very short hair at that time. My next mentor was one of the most-feared German University professors, Professor Christian Herfarth from Heidelberg, who adopted me after Japan, despite the fact that I had not been surgically trained at an academic institution. If I had given him the opportunity, he would have been a true mentor here in Germany, but I left Heidelberg because my husband was unable to leave his work location and I was pregnant with our first child. This was the career choice I most regret, but have never regretted on a personal level. I had no other surgical mentors, but I remain strongly influenced by the early encounters. I had no female role models, unfortunately.

I am certain today that I could have done things in a much smarter way by being just a little more strategic. I guess I just did not care and decided to go the hard way. No regrets, honestly. However, if I can advise others today, just being a bit more conciliant can save a lot of time. Probably the German environment has been especially challenging—it is a very hierarchical system and having your own opinion and denying dependence is not smart. I do not think that I rejected mentoring—there were no opportunities for someone like me. I am certain that in an international environment some things would have been much more feasible—even breaking it down to available childcare opportunities. For the environment available at the time, reconciliation of family and professional career was possible only attributable to a very loyal partnership, for which I am grateful. Today, I would be happy to mentor women in surgery. The important thing is to follow your goals and not be discouraged by the many others who believe that you should be doing things differently. Always be your own measure but stay critical about your balance and remember to take care of your self once in a while.

**Heidi Nelson, MD, FACS**
Medical Director of the American College of Surgeons Cancer Programs
Emeritus, Chair Department of Surgery
Fred C. Andersen Professor of Surgery
Mayo Clinic
Rochester, MN

My contributions have focused on advancing the care of patients with colorectal cancer, through scientific efforts including clinical trials testing new technologies such as laparoscopic colectomy and generating new knowledge such as how microbiome may be the missing link in sporadic colon cancer. In addition to my national principal investigator role in the Clinical Outcomes of Surgical Therapy (COST) laparoscopic trial testing laparoscopic colectomy in cancer, I have had several leadership roles in National Cancer Institute (NCI) activities including Vice Chair of the North Central Cancer Treatment Group, Group Co-Chair of American College of Surgeons Oncology Group, Chair of two NCI study sections including, Subcommittee H (Cooperative Group Study Section), Clinical Oncology (CONC), leader of Mayo Clinic NCI Cancer Center GI Program. As Chair of Mayo's Department of Surgery and founder of the Mayo Microbiome Program, I collaboratively developed a body of work seeking to understand how diet contributes to colon cancer. In serving the American College of Surgeons Cancer Programs as Mayo Cancer Liaison Physician and now Director of the Cancer Programs, I focus on translating new knowledge into best practices and standards.

My first role models for life were my mother and grandmother who showed me that professional doors could swing open if you picked the right door. In regard to professional mentors, there are too many to name, but three colleagues stand out as uniquely impactful and durable. I was introduced to Dr. Valerie Rusch by my medical school counselor when she was training in cardiothoracic surgery and I was discovering my passion for surgery. Her national leadership and our ongoing interactions have continued to inspire me. Dr. William Fletcher taught me a lot about cancer, courage, and systematic thinking. He was a life-long supporter and friend. Dr. Roger Dozois, a dear friend and colleague, took a chance on me and helped me navigate being the first woman in the Department of Surgery at the Mayo Clinic while making me a better person, surgeon, and leader.

I would tell my younger self, know your values, find your true north, and identify a confidante who can nudge you onto the right path when you go "off-road" during your journey. Find things that are outside of surgery that connect you with other people and build a solid network of colleagues and friends. Have faith that things will work out; accept the opportunities that will come your way; have some fun along the way; and demonstrate grace for things that do not go well or as planned.

**Anna Martling, MD**

Professor of Surgery at Karolinska Institutet

Senior Consultant Colorectal Surgeon at Karolinska University Hospital

Stockholm, Sweden

My biggest contribution to colorectal surgery has been through research. I have been Head of the research group at Karolinska Institutet since 2008 and responsible for the research field of colorectal surgery with special focus on clinical, translational, and epidemiologic studies on colorectal cancer. A special interest has been radiotherapy, aspirin, timing of surgery, and development of new surgical techniques. One of the most important contributions scientifically is perhaps the scientific evaluation of the Total Mesorectal Excision (TME) project in Stockholm, which significantly reduced the rate of local recurrences and cancer-specific mortality based on targeted surgical efforts.[1] The excellent results of the TME project led to broad implementation of the new technique in Sweden and internationally. In more recent years, I have been working with the introduction of the hyperthermic intraperitoneal chemotherapy (HIPEC) program for patients with peritoneal carcinomatosis in the Stockholm region. This has led to the introduction of the Watch and Wait program (organ preserving) for patients with rectal cancer on a national level. Furthermore, I have been the principal investigator of Stockholm III, a randomized controlled trial evaluating a new and improved radiotherapy regimen in patients with rectal cancer, demonstrating that the new developed regimen can reduce the rate of postoperative complications with more than 40% with similar oncological results.[2] The results have already had a great impact and changed the treatment of rectal cancer in Sweden and also, to some extent, internationally. I am currently the initiator and principal investigator of ALASCCA, a Nordic randomized, double blinded, multicenter, placebo-controlled trial investigating the use of adjuvant aspirin in PIK3CA mutants. In parallel with the study, a unique Nordic research platform consisting of genetics, RNA, protein expression linked to clinical data in 3,500 patients with colorectal cancer is being built up. Clinically, I have focused on patients with locally advanced colorectal cancer, HIPEC, and, more recently, organ preserving and Watch and Wait regimens. On the international arena, I served as Chairman for the Program Committee in the European Society of Coloproctology (ESCP) between 2015 and 2018.

My mentors were Dr. Torbjörn Holm, Dr. Lars Påhlman, and Dr. Bengt Glimelius.

I would tell my younger self that one has to find balance in life and stand by one's priorities. If you want to make a career, then you have to be prepared to work hard, which means that you also have to take help to make life go together. I once got good advice myself from an older colleague - state your goals to yourself and others, it is the only way to reach them. And when the opportunity comes—take it. You were asked because someone believes you can do it. It seems simple, perhaps, but I have seen too many women say no because they believe they are not competent enough. The most important thing when choosing a path in your professional life is that it should be fun and interesting, but equally important is that you have to be happy with your professional environment!

**Sthela Murad Regadas, MD**

President, Brazilian Society of Coloproctology

Associate Professor of Surgery

Head, Pelvic Floor Unit

School of Medicine, Federal University of Ceara, Brazil

San Carlos Hospital

Ceara, Brazil

My biggest contribution to colorectal surgery has been clinically through advancing the study of pelvic floor disease. I have dedicated myself to the study of pathophysiology, diagnosis, and treatment of patients with pelvic floor dysfunctions. I serve as the Head of the pelvic floor unit. Our pelvic floor group has been working on research on pelvic floor dysfunctions, a growing area in our specialty that still needs new knowledge.

In terms of mentors, several women have taught me during my academic training as a doctor, resident, and even today during. There are many that I respect and admire. I very much appreciate women who are strong and carry out their projects, make their choices, and do not give up despite the difficulties they may encounter as women. There are many around the world.

I recommend to colorectal surgeons that they do not give up when encountering difficulties - be persistent, strong, hard-working, and resistant. You will find your place that way. You will be able to become a great colorectal surgeon, a strong and gentle woman simultaneously, and still have time to create your family.

**Patricia Roberts, MD, FACS, FASCRS**

Past President, American Society of Colon and Rectal Surgeons

Past President American Board of Colorectal Surgery

Chair Emeritus, Department of Surgery, Lahey Hospital and Medical Center

Professor of Surgery, Tufts University School of Medicine

Burlington, MA

My biggest contribution to colorectal surgery is training and teaching more than 70 colorectal fellows and hundreds of general surgery residents (with ongoing mentorship and advising many colorectal and general surgeons). I have also held leadership positions in a number of colorectal organizations (including the ASCRS as President, Treasurer, and Chair of 8 committees) and the ABCRS as President and Chair of the Exam Committee, and have worked on projects to develop technical skills with the Operative Competency Committee of Colorectal Objective Structured Assessment of Technical Skills (COSATS).

My first mentor was Dr. Erwin Hirsch, Chief of Surgery at Boston City Hospital, where I did my general surgery training. Dr. David Schoetz, who I have known since I was a third-year medical student, is the individual who got me interested in colon and rectal surgery. He has been a great friend, mentor, and colleague for more than 40 years. Dr. Herand Abcarian has been a strong supporter throughout my career. Dr. Bob Fry appointed me to the awards committee when a member could not make it to the meeting, which was the start of my participation on a number of committees in ASCRS. Dr. David Rothenberger appointed me as his program chair when he was president. I may still be the only program chair to not attend the meeting because I was in labor with my third child during the meeting.

There were very few women in surgery when I trained in general surgery (1981–1986) and colorectal surgery (1986–1988). In fact, when Dr. Ann Lowry organized the first women colorectal surgeons' lunch at ASCRS (I believe in 1988), we had only one table, and a lot of room at the table! I belong to the Society of Women Surgical Chairs, began around 2014, originally just a few of us and now up to 20+. This group has been a great source of support, advice, etc.

Dr. Barbara Bass, Dr. Julie Freischlag, and Dr. Jo Buyske have given me great advice over the years.

The single piece of advice I would tell my younger self is that you can "do it all" but not at the same time, so slow down, enjoy the journey, and realize it is ok to say "no" from time to time.

**Ms. Asha Senapati, PhD, FRCS, MBBS**

Consultant Colorectal Surgeon, St Mark's Hospital

Consultant Colorectal Surgeon, Queen Alexandra Hospital, Portsmouth

Chairman, Bowel Disease Research Foundation

President, St Mark's Association

Member, Board of Examiners for the Intercollegiate Examinations

London, UK

I have started a Pilonidal Centre in Portsmouth and at St Mark's Hospital and have promoted evidence-based management of the disease to reduce failure and recurrence. I was involved with the PROlapse Surgery PErineal or Rectopexy (PROSPER) trial for rectal prolapse. I was involved with initiating flexible sigmoidoscopy in the outpatient setting. I have led the management of advanced proctology in my hospital. I have taken a lead in the management of surgical emergencies. I conducted a national audit of complicated diverticular disease. I have also served as a mentor to several strong women surgeons, a great privilege.

My mentors were Sir Hugh Lockhart Mummery, Sir Barry Jackson, Professor John Nicholls, Professor John Northover, Mr. James Thomson, and Miss Jenny Ackroyd, who is a vascular surgeon and colleague and who was very supportive and was a significant role model in pursuing a career in surgery.

The single piece of advice I would tell my younger self is that you can achieve a career in colorectal surgery if you set your heart on it. The specialty needs your dedication and commitment. Women and men have a role in taking our specialty forward, so do not be deterred by the negative experience of others—your contribution will be valued.

**Hagit Tulchinsky, MD**

President, Israeli Society of Colon and Rectal Surgery

Director, The Colon and Rectum Surgery Unit

General Surgery Division, Tel Aviv Medical Center

Chair, Israel Society of Colon and Rectal Surgery

Tel Aviv, Israel

I was the founder and, together with the gastroenterologist that serves as the head of our Inflammatory Bowel Disease (IBD) unit, still run a comprehensive pouch clinic that was unique in Israel and worldwide for many years. This specially designed outpatient clinic facilitates follow-up and management and provides more efficient and beneficial care to patients with IBD. It also provides an excellent environment for closer teamwork between colorectal surgeons and gastroenterologists. Moreover, the multidisciplinary approach enables a high-quality research integrating clinical, laboratory, and interventional work.

My mentor was a colorectal surgeon, Professor A. Deutch. I had no women role models or mentors.

I would you tell my younger self that it *is* possible to have a successful career in colorectal surgery and still have time to build and maintain a family and friends that, at the end of the day, will give you all the support you need. Finding the balance between your personal and professional life is achievable and of utmost importance. Be very clear about the career you want to build for yourself and always aim high. No doubt there will be difficulties along the way, but with persistence they can usually be overcome. It is possible to achieve all the targets you set for yourself, but you need to be willing to work hard. You need to create a pleasant working environment and have a good working relationship with your colleagues to enjoy work, otherwise you will find it difficult to continue with what you are doing for many years.

**Miss Carolynne Vaizey, MD, MBChB, FRCS, FCS (SA)**

Chairman of Surgery, St Mark's Hospital

Lead Surgeon for Intestinal Failure at St Mark's

Honorary Senior Lecturer at Imperial College

Director of the Physiology Unit, St Mark's Hospital

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In the 1980s there were no women surgeons who I considered as role models in South Africa, where I trained up to the senior registrar level before returning to England to specialize. I will, however, be eternally inspired by a neurologist, Professor Frances Ames, who was head of neurology in Cape Town where I did my undergraduate training. She was as strong a woman as I have ever encountered. A widowed mother of 4 sons, she was a neurologist, psychiatrist, and human rights activist. She was best known for leading the medical ethics inquiry into the death of anti-apartheid activist Steve Biko, battling for 8 years to establish the truth despite huge pressures to drop the case and being prepared to mortgage her house to pay the costs. More personal to my career was that I was a student in her unit when I was asked to clerk in a young prisoner. During my time on her unit, Professor Ames diagnosed him as having Thallium poisoning. Horrified as I was by this revelation, I knew that she was strong enough to resist all pressures and expose this government crime. Despite spending part of her childhood in an orphanage, she was the first woman to get a Doctor of Medicine degree at the University of Cape Town. She headed the Neurology Department at Groote Schuur Hospital before retiring in 1985, then continued to lecture at the secure psychiatric unit, Valkenberg, until 6 weeks before her death from leukemia in 2002. Well ahead of her time, she studied the effects of cannabis and was a proponent of its therapeutic benefits. In 1994, she testified at the Truth and Reconciliation Commission about her work on the "Biko doctors" medical ethics inquiry and 5 years later Nelson Mandela awarded her with the Star of South Africa, the country's highest civilian award, in recognition of her work on behalf of human rights. This truly great woman and mother was never made a full Professor. She and many others believe that this was because she was a woman. Professor Frances Ames, as the female head of neurology, proved to me that women can do anything a man can do in medicine except perhaps receive the recognition a man would. She was truly inspirational. She alone made me realize it just might be possible for me to do surgery.

The single piece of advice I would tell my younger self is that it is easy to be a woman in surgery, but it is almost impossible to be a mother in surgery. Without the help of my extraordinary mother, I could never have realized my dream.

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Life works in interesting ways. It was 20 years ago that I was a practicing transplant pathologist, trained at one of the most prestigious transplant centers in the world. I was involved in highly innovative research in the field of bowel transplant. One afternoon I got a call from a colleague offering me a job to establish a transplant lab at the Cleveland Clinic in Florida. At that time, Cleveland Clinic Florida was a small, 70-bed hospital, across from a beautiful beach. Off I went and here I am 20 years later. I switched my field of research from transplanted bowel to native bowel!. I believe my biggest contribution to the field of colorectal surgery has been to act as a bridge between the worlds of pathology and surgery. The surgeon-pathologist relationship has always been a tricky one, characterized by some moments of mutual mistrust. Collaboration between surgeons and pathologists is critical to achieve optimal patient outcomes. I have tried wholeheartedly to build trust with my surgical colleagues, for the most part through education regarding important pathologic concepts related to the pathology of colorectal cancer. I have also contributed to disseminating the

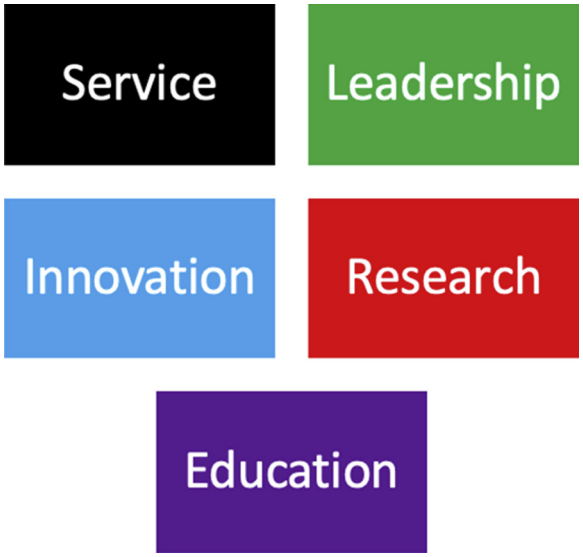


**Fig 1.** Areas of contributions discussed by the interviewees.

crucial role of the multidisciplinary team along with many renowned surgeons, radiologists, oncologists, and radiation oncologists.

My first mentor when I came to the United States from my native Argentina was a brilliant, compassionate neuropathologist - Dr. Sydney Schochet. He "adopted" me and my broken English, and he became not only an academic role model but also an invaluable support during my first year in this country. In Miami, Dr. Saul Suster taught me how to write a paper, how to collect data, apply for institutional review board approval, and submit a manuscript for publication. I was extremely fortunate to train with Dr. Juan Rosai during my fellowship at Memorial Sloan-Kettering Hospital in New York. Dr. Rosai had the rare virtue of putting into words what he was seeing under a microscope lens. Throughout my "colorectal" years, pathologists from the United Kingdom, including Professor Phil Quirke and Professor Najib Haboubi, have had a great influence on me. I should also mention two of the many surgeons who have patiently taught me important concepts of colorectal surgery, Professor Bill Heald and Professor Steve Wexner. Finally, how could I not mention Professor Angelita Habr-Gamma, her mentorship goes beyond medicine and spills into all aspects of life.

The one thing I would tell my younger self is to look more inside and pay less attention to the opinions of the outside world!

## Analysis

Analysis of the responses to our first question regarding significant contributions to the field of colorectal surgery by our interviewees, distinguishes six distinct areas of involvement: Service, innovation, research, education, quality improvement, and leadership (Fig 1). In actuality, most of the participants have freely shared significant expertise in several of these spheres concomitantly.

Interesting to note, but perhaps expected, male mentors at work outnumbered women by more than three times. Only two participants had only women mentors. Finally, common themes dominated the "advice I would give my younger self question." These included, as predicted, a more balanced work and life time (Fig 2). Also presented with the same frequency as work and life balance was the importance of resilience, self-confidence, and focus.


**Fig 2.** "What would you tell your younger self?" theme.

## Discussion

Perhaps surprising to some readers, medicine and surgery have always been a "woman's thing." There is documentation of women surgeons that date back more than 5,000 y. Excavation of ruins from the Assyrian civilization discovered gravesites of female healers who had been buried with their surgical instruments.[3] There is a long dynasty of female physicians in human history and across eminent ancient societies. Numerous examples of distinguished women doctors can be found in the Egyptian, Greek, and Roman civilizations. The Sais Medical School in ancient Egypt was created exclusively for women medical students and directed by Presehet, a notable Egyptian female physician and surgeon. During the Middle Ages, and more prominently in Anglo-Saxon territories, women healers discovered and created the field of herbal medicine.[3] Some of the medicinal potions used by the "cunning" women still have a place in today's pharmaceutical inventory, including ergot and belladonna. Despite these achievements, the contributions of women to the fields of medicine and surgery have not always been recognized.

The path of women in medicine has been one fraught with many obstacles and sacrifices. It was not until the beginning of the last century that females were finally allowed to enter medical school, and even then women were not welcomed into the surgical specialties. Miranda Stewart, also known as Dr. James Barry, the "beardless" doctor, was a brilliant military British surgeon who disguised herself as a man her entire life to fulfill her dream of becoming a surgeon. It was only discovered that Dr. Barry was actually a woman after an autopsy was performed after her death.[4] Who, then, could have predicted that in 2020 women would represent more than half of all medical students in the United States?[5] As per a recent publication by Arora et al,[6] women currently make up 20.6% of US surgeons and 40.1% of all general surgery residents and fellows. Women who pursue a career in surgery are resilient. In a study by Carter et al,[7] with surgical residents as study subjects, the authors found no difference in attrition, time to complete surgery, and practice patterns between sexes,

demonstrating that women have the same ability as men to cope with the strenuous demands of surgical training.

Sadly, there has been a lag in the prevalence of women in leadership positions in colorectal surgery. However, progress has been made. When the senior author of this report was in training, there were no women in leadership in colorectal surgery in the United States as society presidents, department or division or section chairs, or residency or fellowship program directors. Professor Habr-Gama, in Brazil, was the sole exception. A common theme among the women leaders featured in this report were that their role models were often other women in their families and more men than women at work. Although there were a few exceptions, this finding logically seems attributable to the lack of female role models at work during the earlier careers of these now-accomplished women leaders. Thankfully, as the number and percentage of women in medical schools has increased, the downstream effect of more women choosing careers in surgery and, ultimately, in colorectal surgery has increased. Accordingly, it is our individual and collective responsibility to continue to promote and encourage the active engagement of women in leadership in colorectal surgery. The number of women in leadership continues to increase. Many women are responsible for chairing departments, divisions, and sections of colorectal surgery, being residency or fellowship program directors, and journal editors. Strides are being made every day. As an example, all three committees of the recently formed American College of Surgeons Commission on Cancer National Accreditation Program (ACS CoC NAPRC) are women: Dr. Tracy Hull, Dr. Elizabeth Wick, and Dr. Virginia Shaffer. Furthermore, women have been presidents of the colorectal surgery societies in the United States, United Kingdom, Brazil, Malaysia, Israel, and in other countries and regions. Women, including many of the authors and featured physicians and surgeons in this report, have been appropriately recognized for their significant contributions with honorary fellowships in surgical societies around the world. We appreciate the time and effort the women highlighted in this article volunteered to us to share their stories with you—the readers. We are optimistic that their reflections on their careers will stimulate current and future generations of women to pursue careers as leaders in colorectal surgery. We also apologize to the many other women leaders in colorectal surgery who, because of space limitations, were not included here. We recognize you and thank you for your hard work. Lastly, we also hope that this report will be a resource to male colorectal surgeons in their roles as mentors, colleagues, and collaborators with women in colorectal surgery. Although these extraordinary women have made great strides, there is still much work to be done advancing women in colorectal surgery.

Limitations of our study include that there remains much to be done and many topics to explore to help cultivate more women leaders in colorectal surgery. Themes including discrepancy in remuneration, faculty promotions, work and life balance, wellness, maternity leave, and inherent biases in publications and presentations. Unfortunately, these subjects are beyond the scope of this report. In addition, there are many “rising star” women in colorectal surgery who were not selected for interview for this article. Perhaps a subsequent edition could include evaluation of that younger group of women in colorectal surgery. Lastly, the methodology of the study was designed to celebrate the accomplishments and acknowledge that these successes occurred despite many challenges. Future studies could certainly be constructed with statistically sound methodology.

In conclusion, the rise of women as leaders influencing colorectal surgery has been remarkable. The impressive accomplishments of the internationally renowned thought leaders celebrated in this report is the proverbial “tip of the iceberg.” Their individual and collective dedication, devotion, efforts, and energy have paved the way for current and future generations of women leaders to follow and to expand upon. Thanks to the women featured in here and to others (for whom space did not permit including). The glimmer of hope of advancement in the past has become the bright beacon of success beckoning other women to follow.

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