

Table of Contents

- From the Editors 3
- Author Disclosures 4
- Acknowledgments 5

Chapter 1 - Fundamentals of breast diseases detection, intervention and therapy

- Fundamentals of breast diseases detection, intervention and therapy
N. Duchesne, MD; S. Duchesne, Ph.D. 7
- Improving patient care through interdisciplinary breast cancer management
Barbara Rabinowitz, Ph.D. 9
- Breast Care - Terminology / *N. Duchesne, MD; S. Duchesne, Ph.D.* 13
- Breast mammography / *A. R. M. Wilson, MD* 18
- Breast sonography / *Thomas Stavros, MD* 22
- Breast MRI / *Steven E. Harms, MD.* 28
- Breast biopsies / *Steve H. Parker, MD.* 33
- Breast cancer surgery / *Philip Z. Israel, MD* 37
- Breast cancer radiation oncology / *Robert R. Kuske, Jr., MD* 38
- Breast cancer systemic therapy / *Joseph Ragaz, MD* 41
- **Self-Evaluation** 43

Chapter 2 - Advanced concepts in breast diseases detection

- Introduction / *N. Duchesne, MD - S. Duchesne, Ph.D.* 45
- Mammographic screening program set-up and performance indicators
Nancy A. T. Wadden, MD. 46
- Strategies for optimising breast screening recall / *A. R. M. Wilson, MD.* 48
- New screening detection technologies: advantages in applications influencing recall and detection rates / *A. R. M. Wilson, MD.* 51
- Indications for Doppler U/S Imaging /
A. Thomas Stavros, MD 53
- Sonographic evaluation of regional lymph nodes in patients with BIRADS 4 or 5 nodules / *A. Thomas Stavros, MD* 56
- Sonographic evaluation of nipple discharge / *Thomas A. Stavros, MD* 59

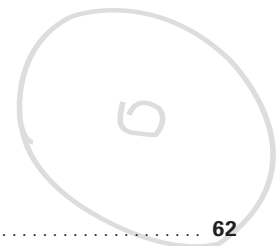
- Sonographic evaluation of breast cysts that are not simple
A. Thomas Stavros, MD 62
- Interpretation of MRI and computer-aided detection / *Elizabeth A. Morris, MD* 65
- **Self-Evaluation** 68

Chapter 3 - Advanced concepts in breast diseases intervention

- Introduction / *N. Duchesne, MD; S. Duchesne, Ph.D.* 71
- An interpretation of core biopsy material: Maximizing the yield and avoiding error / *Michael D. Lagios, MD* 72
- Adequate sampling for difficult cases in stereotactic-guided breast biopsies / *Philippe Sébag, MD* 73
- Prognostic features of breast carcinoma from stereotactic biopsy material
Michael D. Lagios, MD. 74
- Ultrasound targeting in difficult cases / *Nathalie Duchesne, MD.* 82
- Concepts of MR-Guided breast biopsies / *Steven E. Harms, MD; Sally S. Harms, MD* 85
- Lymph Node Imaging and Intervention / *Nancy A. T. Wadden, MD, FRCPC* 88
- The Sentinel Lymph Node Biopsy in Breast Cancer / *Naim Otaky, MD* 89
- Defining micrometastasis and interpretation of sentinel lymph node biopsy
Michael D. Lagios, MD. 95
- **Self-Evaluation** 97

Chapter 4 - Advanced concepts in breast diseases therapy

- Introduction / *N. Duchesne, MD; S. Duchesne, Ph.D.* 99
- Breast cancer biology: is the outcome predetermined? / *Philip Z. Israel, MD.* 100
- Breast pathology: tumor sizing / *Michael D. Lagios, MD* 101
- Surgical perspective on neoadjuvant chemotherapy / *Philip Z. Israel, MD* 103
- Energy therapies / *Nathalie Duchesne, MD* 104
- Accelerated partial breast irradiation: A potential paradigm shift in the local therapy of breast cancer / *Robert R. Kuske, Jr., MD* 107
- Brachytherapy techniques / *Robert R. Kuske, Jr., MD* 108
- Consensus statement: Optimal selection of brachytherapy technique
Robert R. Kuske, Jr., MD; Coral A. Quiet, MD 112
- Electronic brachytherapy / *Philip Z. Israel, MD* 114



- Hormonal neoadjuvant and adjuvant therapy of breast cancer
Joseph Ragaz, MD 115
- Tailoring therapy based on tumor biological profile and patient characteristics / *Joseph Ragaz, MD, FRCPC* 117
- **Self-Evaluation** 122

Chapter 5 - High Risk Lesions

- Introduction / *N. Duchesne, MD; S. Duchesne, Ph.D* 123
- Mammographic presentation of high risk lesions / *Nancy A. T. Wadden, MD, FRCPC* 124
- Sonographic Presentation of High-Risk Lesions / *Tom Stavros, MD, FACR* 127
- Morphologic risk markers: Atypical hyperplasias, radial scars, columnar alteration, and apocrine atypia / *Michael D. Lagios, MD* 129
- Update on Lobular Neoplasia (Atypical Lobular Hyperplasia and Lobular Carcinoma in Situ). Current Controversies in Diagnosis and Management
Michael D. Lagios 131
- Variables impacting upgrades of ADH and lobular neoplasia (alh, lciis) to DCIS / Invasion following open biopsy: Defining the problem in current perspective
Michael D. Lagios, MD 133
- The percutaneous diagnosis of atypical hyperplasia and LCIS - excise or follow?
Steve H. Parker, MD 138
- Radiological-pathological correlation after minimally invasive breast biopsy: When is biopsy vs. follow-up recommended?
Michael Lagios, MD; Nathalie Duchesne, MD 139
- **Self-Evaluation** 143

Chapter 6 - In-situ management

- Introduction / *N. Duchesne, MD; S. Duchesne, Ph.D* 145
- The impact of pathology practice on outcomeApplication to ductal carcinoma in situ / *Michael D. Lagios, MD* 146
- Duct carcinoma in situ: Defining prognostic factors for local control and their impact on outcome / *Michael D. Lagios, MD* 151
- DCIS mammographic assessment / *Philippe Sébag, MD* 163
- Sonography of DCIS / *A. Thomas Stavros, MD* 165
- DCIS MRI assessment / *Elizabeth A. Morris, MD* 168
- Conservative vs non-conservative surgery / *Philip Z. Israel, MD* 169
- Conventional treatment of DCIS: Is partial breast irradiation an option?
Robert R. Kuske, Jr, MD 170
- **Self-Evaluation** 174

Chapter 7 - Invasive carcinoma management

- Introduction / *N. Duchesne, MD; S. Duchesne, Ph.D* 175
- Mammographic assessment of invasive breast cancer / *Nancy A. T. Wadden, MD* 176
- Sonographic hard and soft findings of breast carcinoma / *Thomas A. Stavros, MD* 177
- The use of breast MRI for treatment planning
Steven E. Harms, MD; Sally S. Harms, MD 182
- Update on biologicals and cost benefit of adjuvant HER2 targeted biologicals and cost benefit of adjuvant HER2 targeted therapy / *Joseph Ragaz, MD* 186
- Pathologic assessment of the breast post neoadjuvant therapy: Prognostic features and outcome / *Michael D. Lagios, MD* 188
- Male Breast Cancer / *A. R. M. Wilson, MD* 190
- **Self-Evaluation** 191

Chapter 8 - High Risk Patients Management

- Risk assessment and genetic predisposition / *Debasish Tripathy, MD* 193
- Breast MRI in high risk patients / *Steven E. Harms, MD* 194
- Impact of Biologicals in Breast Cancer: HER2/NEU deciphered
Joseph Ragaz, MD, FRCPC 197

Chapter 9 - Index

- **Self-Evaluation Answer Sheet** 201
- **Index by author** 202
- **Index by title** 204
- **Common abbreviations** 206

From the Editors

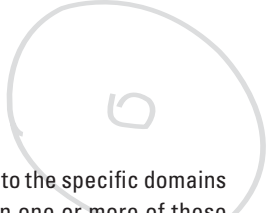
Courageous, tenacious, willing to fight for their lives, women with breast cancer deserve that we help them to the best of our abilities. This includes talking to one another, sharing experiences, breaking old, traditional barriers between specialties, domains where we believe we are the sole experts and from where solutions must emerge. Breast cancer trespasses boundaries with morbid glee, and quickly makes a fool of one that believes she or he has found a magic wand that can eliminate all of its numerous incarnations.

Only through uniting across disciplines will we find the root causes for this disease and reduce its incidence; find the earliest possible biomarkers and offer prophylactic treatments to those at highest risk; treat those unfortunate enough to be at a later disease stage. Breast cancer should become a mere nuisance of life, something that gets treated like the common ailment. Better yet, our children should dream of a world without breast cancer, just like our parents dreamt of a world without polio or tuberculosis, a dream now well underway to become reality.

The Breast Book is a small effort in that direction, an interdisciplinary guide written by the dedicated group of speakers from successive editions of *The Breast Course™* since 2005. We thank them for providing such superb and succinct material on topics that are often thorny and controversial, keeping them up to date with passing years.

Our immediate objectives for The Breast Book are twofold: first, it is meant to serve as material to accompany the lectures given at *The Breast Course™*; second, it is to serve as reference material when you go back to your respective clinics. Too often do we see conference material sitting on shelves, never to be opened a second time. Our hope is that, because of its format and due to its informational content, you will be using The Breast Book almost routinely.

The Breast Book is organized in 8 chapters, following an interdisciplinary approach to understanding breast diseases. The opening chapter stresses the importance of fundamental knowledge of the various disciplines of pathology, radiology, surgery, radiation oncology and medical oncology, necessary to optimize your practice in any one of those particular fields. We encourage all physicians to read through these chapters to gain a better understanding of all disciplines involved in breast care.



Chapters 2 to 4 contain more advanced information particular to the specific domains of detection, intervention, and therapy. Readers interested in one or more of these specialties should find the necessary information to handle less frequent problems and optimize their practice with the latest information.

Chapters 5 to 7 are addressing special issues at the forefront of breast cancer. First, understanding and addressing high-risk lesions are the topics of chapter 5. Chapter 6 is an overview of the difficulties and challenges associated with ductal carcinoma in-situ, and Chapter 7 addresses invasive carcinoma. Finally, Chapter 8 discusses assessment and prevention in at-risk women.

In the long term, by virtue of its current take on the state-of-the-art in each discipline, and due to its format, we hope that The Breast Book will be reference material that you will use as a foundation for interdisciplinary care of breast diseases.

Enjoy your reading.

Nathalie Duchesne, MD, FRCP (C)
Editor-in-Chief

Simon Duchesne, Ph.D.
Associate Editor

Author Disclosures



Author	Type of affiliation / Financial interest	Name of Corporate Organization
Nathalie Duchesne, MD	Consultant	SenoRx
	Stock Shareholder	
	Consultant	Advanced Research Technologies
Simon Duchesne, Ph.D.	N/D	
Steven Harms, MD	Consultant	Aurora Imaging
	Stock Shareholder	
Philip Z. Israel, MD	Consultant	Xoft SenoRx
Robert Kuske, MD	Consultant	Nucletron Cianna Medical
Michael Lagios, MD	Consultant	Ethicon EndoSurgery Intact Medical
Elizabeth Morris, MD	Honorarium	General Electric Berlex
Naim Otaky, MD	N/D	
Steve Parker, MD	Stock Shareholder	Johnson and Johnson SenoRx

Joseph Ragaz, MD	N/D	
Philippe Sebag, MD	N/D	
A. Thomas Stavros, MD	Consultant	SenoRx
	Stock Shareholder	
	Consultant	Medipattern Mirabel
	Honorarium	Ethicon Endosurgery SenoRx Toshiba Philips
Robin Wilson, MD	N/D	
Nancy Wadden, MD	N/D	

Acknowledgments

We are indebted profoundly to our growing body of past and present authors who have put in time and energy, some in difficult personal situations, to contribute outstanding enduring material to *The Breast Book*: Steven and Sally Harms, Philip Z. Israel, Robert Kuske, Michael Lagios, Elizabeth Morris, Naim Otaky, Steve Parker, Coral Quiet, Barbara Rabinowitz, Joseph Ragaz, Philippe Sébag, Tom Stavros, Debu Tripathy, Robin Wilson, and Nancy Wadden

We thank Lynn Maynard, Geneviève Breton and the whole team at Triomphe for their dedication in turning disparate material into a real book worth reading. It would not be possible to do all this without constant support from our partners and families.

Finally, as always, we must acknowledge the thousands of women that have lived through breast cancer: they provide us with the strength to go forward.

N.D. and S.D.

