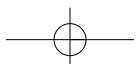
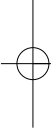
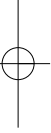


ESMO handbook of cancer prevention



ESMO handbook of cancer prevention

Edited by

Dirk Schrijvers
Antwerp, Belgium

Hans-Jörg Senn
St. Gallen, Switzerland

Håkan Mellstedt
Stockholm, Sweden

Branko Zakotnik
Ljubljana, Slovenia

informa
healthcare

© 2008 Informa UK Ltd

First published in the United Kingdom in 2008 by Informa Healthcare, Telephone House, 69–77 Paul Street, London EC2A 4LQ. Informa Healthcare is a trading division of Informa UK Ltd. Registered Office: 37/41 Mortimer Street, London W1T 3JH. Registered in England and Wales Number 1072954.

Tel.: +44 (0)20 7017 5000

Fax.: +44 (0)20 7017 6699

Website: www.informahealthcare.com

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission of the publisher or in accordance with the provisions of the Copyright, Designs and Patents Act 1988 or under the terms of any licence permitting limited copying issued by the Copyright Licensing Agency, 90 Tottenham Court Road, London W1P 0LP.

Although every effort has been made to ensure that all owners of copyright material have been acknowledged in this publication, we would be glad to acknowledge in subsequent reprints or editions any omissions brought to our attention.

Although every effort has been made to ensure that drug doses and other information are presented accurately in this publication, the ultimate responsibility rests with the prescribing physician. Neither the publishers nor the authors can be held responsible for errors or for any consequences arising from the use of information contained herein. For detailed prescribing information or instructions on the use of any product or procedure discussed herein, please consult the prescribing information or instructional material issued by the manufacturer.

A CIP record for this book is available from the British Library.
Library of Congress Cataloging-in-Publication Data

Data available on application

ISBN-10: 0 415 39085 0

ISBN-13: 978 0 415 39085 9

Distributed in North and South America by
Taylor & Francis
6000 Broken Sound Parkway, NW (Suite 300)
Boca Raton, FL 33487, USA

Within Continental USA

Tel: 1(800)272 7737; Fax: 1(800)374 3401

Outside Continental USA

Tel: (561)994 0555; Fax: (561)361 6018

E-mail: orders@crcpress.com

Distributed in the rest of the world by
Thomson Publishing Services
Cheriton House
North Way
Andover, Hampshire SP10 5BE, UK
Tel.: +44 (0)1264 332424
E-mail: tps.tandfsalesorder@thomson.com

Composition by C&M Digitals (P) Ltd, Chennai, India
Printed and bound in India by Replika Press Pvt. Ltd

Contents



Foreword	xi
<i>David J Kerr</i>	
1 Cancer epidemiology	1
Introduction	1
The burden of cancer worldwide and in Europe	3
Most frequent cancer types in Europe	6
Conclusion	9
2 Types of prevention: basic concepts	11
Introduction	11
Types of prevention	12
3 Methodologies in cancer prevention	19
Introduction	19
Cancer risk factors and risk assessment	19
Endpoints of cancer prevention	23
Cancer prevention programs and how to evaluate preventive programs	25
Conclusion	28

CANCER RISK FACTORS AND PREVENTIVE MEASURES

4 Obesity and exercising	31
Introduction	31
Cancer showing a definite association with obesity	31
Cancer showing a modest association with obesity	34
Cancer showing a negative association with obesity	35
Pathophysiology of obesity and cancer	35
Can anything be done about it?	35
Conclusion	37

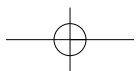
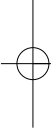
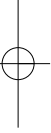
5	Hormones	39
	Introduction	39
	Breast cancer	39
	Endometrial cancer	41
	Prostate cancer	42
	Conclusion	43
6	Environment-related factors	45
	Introduction	45
	Outdoor air pollution	45
	Residential exposure to radon decay products	45
	Second-hand smoke	46
	Other sources of indoor air pollution	46
	Electromagnetic fields	46
	Residential asbestos exposure	47
	Persistent organochlorines	47
	Other pesticides	48
	Inorganic arsenic in drinking water	48
	Drinking water disinfection by-products	48
	Susceptibility to environmental pollutants	49
	Conclusion	49
7	Viral agents: hepatitis B and hepatocellular carcinoma	53
	Introduction	53
	Pathophysiology of infection and carcinogenesis	54
	Prevention of hepatitis B infection and hepatocellular carcinoma development	56
	Conclusion	58
8	Viral agents: human papillomavirus	61
	Introduction	61
	Risk factors	61
	Pathophysiology	61
	Epidemiology	62
	Overview of interventions	62
	Conclusion	65

9 Cigarette smoking and smoking cessation	67
Epidemiology	67
The basis of smoking-related carcinogenesis	68
Effectiveness of interventions to reduce the burden of smoking	69
Approaches for smoking cessation	70
Conclusion	70
10 Alcohol	73
Introduction	73
Cancer risk	73
Genetic susceptibility	76
Alcohol prevention	76
Conclusion	78
11 Nutrition	85
Introduction	85
Relationship between nutrition and cancer	85
Nutritional aspects in cancer development	86
Nutritional recommendations in cancer prevention	90
12 Work-related risk factors	91
Introduction	91
Causes of work-related cancers	92
Work-related protection measurements	95
Conclusion	96
13 Drug-related cancers	97
Introduction	97
Carcinogenic risk of prescription drugs	98
Carcinogenic risk of non-prescription drugs and food supplements	100
Prevention of cancer development due to carcinogenic drugs	101
Conclusion	102
14 Radiation	103
Introduction	103
Ionizing radiation	103
Non-ionizing radiation	105

ROLE OF PREVENTION AND EARLY DETECTION

15 Breast cancer: chemoprevention and screening	111
Chemoprevention of breast cancer	111
Mammography screening for breast cancer	114
Magnetic resonance imaging in breast cancer screening	118
16 Cervical cancer	121
Epidemiology	121
Risk factors	122
Pathophysiology	122
Screening in cervical cancer	123
Prevention, including human papillomavirus vaccination	123
Conclusion	126
17 Colorectal cancer	127
Epidemiology	127
Colorectal cancer prevention	127
Colorectal screening	131
Chemoprevention	133
Conclusion	135
18 Prostate cancer prevention	137
Introduction	137
Prostate cancer chemoprevention: clinical trials	140
Conclusion	143
19 Lung cancer screening	145
Epidemiology	145
Lung cancer screening	145
Overdiagnosis	148
Stage shift and mortality reduction	149
Current position statements	149
20 Hereditary cancer syndromes: general principles on the role of prevention and screening	151
Introduction	151
Prevention in hereditary cancer	151

21	Hereditary cancer syndromes: role of prevention and screening	153
	Introduction	153
	Hereditary breast and ovarian cancer syndrome	153
	Hereditary colon cancer syndrome: familial adenomatous polyposis and hereditary non-polyposis colorectal cancer	156
	Conclusion	161
22	Recommendations	163
	Governmental organizations	163
	Scientific organizations	164
	Professional healthcare providers	164
	Public	164
	Conclusion	165
	Index	167



Foreword

A foreword is a curious entity: first read, last written and usually by someone whose involvement in the preparation of the book has been fairly minimal. Such is the case with this book, but I am nonetheless delighted to be able to introduce it here and to commend authors and editors on the first-rate job they have done. This ESMO *Handbook of Cancer Prevention* follows hard on the heels of the ESMO *Handbook of Principles of Translational Research* and constitutes the fourth volume of a series that has been particularly well received by the oncology community. Part of that reception has been due, I have no doubt, to the quality of the handbooks themselves, but I also feel that the careful choice of subjects – oncologic emergencies, advanced cancer care, translational research, and now cancer prevention – has played a significant part too.

Do we need, at this point in time, to ask why ESMO, an organization for medical oncology has commissioned a book on cancer prevention? I hope not, and I am sure that anyone who takes even a little time with this book will soon come to see why oncologists must take a part in cancer prevention, not just in areas such as the administration of aromatase inhibitors but also in tobacco control, nutrition, and the working environment. Oncologists have the potential to be a large and important group of activists for cancer prevention measures, and faced, as we are daily, with the failure of cancer prevention we have more incentives than many others to see them implemented. Seen in this light, this handbook is both timely and necessary, and it is my sincere hope that you will find it both a practical tool and guide to thinking about this vital subject.

David J Kerr
ESMO President-Elect

