Contents

Foreword
Preface
Introduction

1 The global cancer burden
1.1 The burden and prevention of premature deaths from noncommunicable diseases, including cancer: a global perspective
1.2 Global trends in cancer incidence and mortality
1.3 Transitions in human development and the global cancer burden

Known causes of human cancer by organ site

2 Causes of cancer, including hazardous circumstances
2.1 Tobacco products
Massive and still growing causes of cancer worldwide
2.2 Infectious agents
Missed opportunities for prevention
2.3 Alcohol consumption
A leading risk factor for cancer
2.4 Sunlight and ultraviolet radiation
Affecting skin cancer incidence in many countries
2.5 Ionizing radiation and radiofrequency electromagnetic fields
Further clarification of particular risks
2.6 Diet and nutrition
Understanding which factors are critical
2.7 Physical activity, sedentary behaviour, and obesity
Established and emerging modifiable risk factors
2.8 Dietary carcinogens
A continuing concern in various contexts
2.9 Contamination of air, water, soil, and food
The challenge is to characterize specific risks
2.10 Occupation
The need for continuing vigilance
2.11 Pharmaceutical drugs
A current focus on hormones

World Cancer Research Fund International/
American Institute for Cancer Research

3 Biological processes in cancer development
3.1 Sporadic cancer
Tumorigenesis in the absence of an established or avoidable cause
3.2 Genomics
Susceptibility and somatic patterns
3.3 Gene–environment interactions
The preventive implications are still not clear
3.4 DNA repair and genetic instability
Endogenous and exogenous sources of damage and hereditary syndromes
3.5 Inflammation
Playing a pivotal role in cancer pathogenesis
3.6 Reproductive and hormonal factors
Important contributors to several cancer sites
3.7 Metabolic change and metabolomics
Emerging approaches and new insights
3.8 Epigenetics
Potential in diagnostics, therapy, and prevention
3.9 Immune function
From the tumour microenvironment to therapeutic targeting
3.10 The microbiome
Its influence on tumorigenesis and therapy
3.11 Identifying carcinogens from 10 key characteristics
A new approach based on mechanisms

The IARC Handbooks of Cancer Prevention

4 Inequalities that affect cancer prevention
4.1 Inequalities between and within countries
Impact on cancer prevention
4.2 Socioeconomic factors and cancer prevention in Africa
Cervical cancer as an example
4.3 Cancer in urban and rural communities in China
Patterns reflect social dynamics
4.4 Socioeconomic factors and cancer prevention in India
Diverse interventions are needed
4.5 Variations in implementation of cancer screening in European countries
Striving for best practice

4.6 Disparities in cancer prevention services in the USA
A long-standing, persistent cause of inequity

4.7 Cancer in Indigenous populations
Focusing on inequalities that are sometimes invisible

Towards the World Code Against Cancer

5 Preventing particular tumour types
A guide to the epidemiology data in Section 5: Preventing particular tumour types

5.1 Lung cancer
Continues to be the leading cause of cancer death

5.2 Head and neck cancer
New etiological insights

5.3 Oesophageal cancer
A tale of two malignancies

5.4 Stomach cancer
Still one of the main cancer types worldwide

5.5 Colorectal cancer
Decreasing disparities and promoting prevention are policy priorities

5.6 Liver cancer
An infectious disease for many communities

5.7 Pancreatic cancer
Many risk factors too poorly characterized to enable prevention

5.8 Skin cancer
A focus on primary prevention

5.9 Breast cancer
Multiple, often complex, risk factors

5.10 Cervical cancer
Successes in some communities to be extended worldwide

5.11 Endometrial cancer
Prevention through control of obesity

5.12 Ovarian cancer
Complicated etiology and very few preventive options

5.13 Prostate cancer
Challenges for prevention, detection, and treatment

5.14 Testicular cancer
New inroads into early diagnosis

5.15 Bladder cancer
A genotoxic causal agent recognized

5.16 Kidney cancer
Multiple risk factors but currently limited preventive strategies

5.17 Brain cancer
Increasing attention on the immune response

5.18 Thyroid cancer
The challenge of overdiagnosis

5.19 Non-Hodgkin lymphoma
Complex etiology, including the role of immune function

5.20 Leukaemias
Understanding pathogenesis through similarities and differences

WHO Report on Cancer: Setting priorities, investing wisely and providing care for all

6 The basis for, and outcomes from, prevention strategies
Tobacco cessation: the WHO perspective

6.1 Changing behaviour
The need for sustainable implementation

6.2 Improving diet and nutrition, physical activity, and body weight
From evidence to practice

6.3 Vaccination
The prospect of eliminating some cancer types

6.4 Preventive therapy
Certain interventions clearly established

6.5 Managing people with high and moderate genetic risk
Genomic tools to promote effective cancer risk reduction

6.6 Screening
From biology to public health

6.7 Circulating DNA and other biomarkers for early diagnosis
Great potential, but challenges recognized

6.8 Governmental action to control carcinogen exposure
Multiple options covering diverse scenarios

6.9 Prevention strategies common to noncommunicable diseases
Focus on tobacco, alcohol, obesity, and physical inactivity

Contributors
Disclosures of interests
Sources
Subject index