# Contents

*List of Contributors* vii

**Introduction** 1
Stephen Honeybul

## Part I General Ethics

1 *Introduction to Ethics and Ethical Theory* 3
Ian Kerridge

2 *Models and Methods in Ethics* 12
Cara Sedney

3 *The Concept and Implementation of Values-Based Medicine (VsBM) in Neurosurgery* 20
Ahmed Ammar, Tiit Mathiesen, and Stephen Honeybul

4 *The Three Functions of Consent in Neurosurgery* 29
Cameron Stewart and Ian Kerridge

5 *Withholding and Withdrawing Medical Treatment: Legal, Ethical, and Practical Considerations* 39
Cameron Stewart, Tiit Mathiesen, Ahmed Ammar, and Stephen Honeybul

6 *Surgical Training* 54
Magnus Tisell and Naci Balak

7 *The Aging Surgeon* 64
Stephen Honeybul and Gene Bolles

8 *Healthcare Economics* 73
Naci Balak and Magnus Tisell

9 *Patient Data, Ownership, Storage, and Social Media* 85
David Cote and Timothy Smith

## Part II Neurosurgery-Specific Bioethics

10 *A Historical Overview of Ethics in Neurosurgery* 95
Cara Sedney

11 *Evidence-Based Neurosurgery: Principles, Applicability, and Challenges* 101
Ignatius Esene

12 *Ethical Challenges of Neurosurgical Care for Brain Tumour Patients* 112
Marike Broekman, Alexander Hulsbergen, Timothy Smith, David Cote, and Jannick Brennum

13 *Severe Traumatic Brain Injury* 121
Stephen Honeybul, Kwok Ming Ho, Grant Gillett, and Ignatius Esene

14 *‘Malignant’ Middle Cerebral Artery Infarction* 134
Stephen Honeybul, Volker Puetz, Lars-Peder Pallesen, and Grant Gillett

15 *Aneurysmal Subarachnoid Haemorrhage* 145
Stephen Honeybul and Albert Chiu

16 *Paediatric Neurosurgery* 154
Naci Balak, Ulrika Sandvik, and Stephen Honeybul

17 *Spinal Neurosurgery* 168
Cara Sedney
18 Ethical Challenges in Psychosurgery: A New Start or More of the Same? 175
    Paul A. Komesaroff and Jeffrey V. Rosenfeld

19 Brain Death and Organ Donation 193
    George Skowronski and Ian Kerridge

Part III Future Developments

20 Ethical Aspects of Innovation in Neurosurgery 205
    Mario Ammirati, Jeffrey V. Rosenfeld, Alexander Hulsbergen, and Marike Broekman

21 Stem Cells and Brain Repair: Ethical Considerations 214
    Ivar Mendez

22 Brain-Machine Interface Technology in Neurosurgery 224
    Jeffrey V. Rosenfeld and Marike Broekman

23 International Neurosurgery 234
    Ann Mansur and Mark Bernstein

24 Live Televised Surgery 245
    Eiichi Ishikawa, Nobuyuki Sakai, Stephen Honeybul, and Akira Matsumura

Index 254