



Models of Child Health Appraised

(A Study of Primary Healthcare in 30 European countries)

# ISSUES AND OPPORTUNITIES IN PRIMARY HEALTH CARE FOR CHILDREN IN EUROPE



# ISSUES AND OPPORTUNITIES IN PRIMARY HEALTH CARE FOR CHILDREN IN EUROPE

The Final Summarised Results  
of the Models of Child Health  
Appraised (MOCHA) Project

EDITED BY

MITCH BLAIR, MICHAEL RIGBY,  
DENISE ALEXANDER  
*Imperial College London, UK*



The project was funded by the European Commission through the Horizon 2020 Framework under the grant agreement number: 634201. The sole responsibility for the content of this work lies with the authors. It does not necessarily reflect the opinion of the European Union. The European Commission is not responsible for any use that may be made of the information contained therein



United Kingdom – North America – Japan – India – Malaysia – China

Emerald Publishing Limited  
Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2019

Copyright © 2019 European Commission.



Except where otherwise noted, this work is licensed under a Creative Commons Attribution 4.0 Licence (CC BY 4.0).

Anyone may reproduce, distribute, translate and create derivative works of this book (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <https://creativecommons.org/licenses/by/4.0/>

#### **British Library Cataloguing in Publication Data**

A catalogue record for this book is available from the British Library

ISBN: 978-1-78973-354-9 (Print)

ISBN: 978-1-78973-351-8 (Online)

ISBN: 978-1-78973-353-2 (Epub)



The ebook edition of this title is Open Access and is freely available to read online.

**Open Access**



Certificate Number 1985  
ISO 14001

ISOQAR certified  
Management System,  
awarded to Emerald  
for adherence to  
Environmental  
standard  
ISO 14001:2004.



INVESTOR IN PEOPLE

# Contents

|  |             |
|--|-------------|
| List of Figures  | <i>ix</i>   |
| List of Tables   | <i>xiii</i> |
| List of Contributors   | <i>xvii</i> |
| Foreword   | <i>xix</i>  |
| <br>   |             |
| <b>Chapter 1 The MOCHA Project: Origins, Approach and Methods</b><br><i>Mitch Blair, Denise Alexander and Michael Rigby</i>  | <i>1</i>    |
| <br>   |             |
| <b>Chapter 2 Models of Primary Care and Appraisal Frameworks</b><br><i>Mitch Blair, Mariana Miranda Autran Sampaio,<br/>Michael Rigby and Denise Alexander</i>   | <i>13</i>   |
| <br>   |             |
| <b>Chapter 3 Listening to Young People</b><br><i>Kinga Zdunek, Manna Alma, Janine van Til,<br/>Karin Groothuis-Oudshoorn, Magda Boere-Boonekamp and<br/>Denise Alexander</i>                             | <i>55</i>   |
| <br>   |             |
| <b>Chapter 4 Child Centricity and Children's Rights</b><br><i>Kinga Zdunek, Michael Rigby, Shalmali Deshpande and<br/>Denise Alexander</i>   | <i>77</i>   |
| <br>   |             |
| <b>Chapter 5 Equity</b><br><i>Mitch Blair and Denise Alexander</i>   | <i>99</i>   |
| <br>   |             |
| <b>Chapter 6 The Limited Inclusion of Children in Health and<br/>Health-related Policy</b><br><i>Mitch Blair, Michael Rigby, Arjun Menon,<br/>Michael Mahgerefteh, Grit Kühne and Shalmali Deshpande</i> | <i>121</i>  |

|   |     |
|---|-----|
| <b>Chapter 7 The Invisibility of Children in Data Systems</b>   |     |
| <i>Michael Rigby, Shalmali Deshpande, Daniela Luzi, Fabrizio Pecoraro, Oscar Tamburis, Iliara Rocco, Barbara Corso, Nadia Minicuci, Harshana Liyanage, Uy Hoang, Filipa Ferreira, Simon de Lusignan, Ekelechi MacPepple and Heather Gage</i>  | 129 |
| <b>Chapter 8 The Conundrum of Measuring Children’s Primary Health Care</b>  |     |
| <i>Iliara Rocco, Barbara Corso, Daniela Luzi, Fabrizio Pecoraro, Oscar Tamburis, Uy Hoang, Harshana Liyanage, Filipa Ferreira, Simon de Lusignan and Nadia Minicuci</i>   | 159 |
| <b>Chapter 9 Measurement Conundrums: Explaining Child Health Population Outcomes in MOCHA Countries</b>   |     |
| <i>Heather Gage and Ekelechi MacPepple</i>  | 179 |
| <b>Chapter 10 Services and Boundary Negotiations for Children with Complex Care Needs in Europe</b>   |     |
| <i>Maria Brenner, Miriam O’Shea, Anne Clancy, Stine Lundstroem Kamionka, Philip Larkin, Sapfo Lignou, Daniela Luzi, Elena Montañana Olaso, Manna Alma, Fabrizio Pecoraro, Rose Satherley, Oscar Tamburis, Keishia Taylor, Austin Warters, Ingrid Wolfe, Jay Berry, Colman Noctor and Carol Hilliard</i> | 199 |
| <b>Chapter 11 School Health Services</b>  |     |
| <i>Danielle Jansen, Johanna P. M. Vervoort, Annemieke Visser, Sijmen A. Reijneveld, Paul Kocken, Gaby de Lijster and Pierre-André Michaud</i>   | 219 |
| <b>Chapter 12 Primary Care for Adolescents</b>  |     |
| <i>Pierre-André Michaud, Johanna P.M. Vervoort and Danielle Jansen</i>  | 237 |
| <b>Chapter 13 Workforce and Professional Education</b>  |     |
| <i>Mitch Blair, Heather Gage, Ekelechi MacPepple, Pierre-André Michaud, Carol Hilliard, Anne Clancy, Eleanor Hollywood, Maria Brenner, Amina Al-Yassin and Catharina Nitsche</i>  | 247 |
| <b>Chapter 14 e-Health as the Enabler of Primary Care for Children</b>  |     |
| <i>Michael Rigby, Grit Kühne and Shalmali Deshpande</i>   | 283 |

|                   |  |     |
|-------------------|--|-----|
| <b>Chapter 15</b> | <b>Affiliate Contributors to Primary Care for Children</b>   |     |
|                   | <i>Denise Alexander, Uttara Kurup, Arjun Menon,<br/>Michael Mahgerefteh, Austin Warters, Michael Rigby and<br/>Mitch Blair</i>   | 303 |
| <b>Chapter 16</b> | <b>The Transferability of Primary Child<br/>Healthcare Systems</b>   |     |
|                   | <i>Paul Kocken, Eline Vlasblom, Gaby de Lijster, Helen Wells,<br/>Nicole van Kesteren, Renate van Zoonen, Kinga Zdunek,<br/>Sijmen A. Reijneveld, Mitch Blair and Denise Alexander</i> | 331 |
| <b>Chapter 17</b> | <b>National and Public Cultures as Determinants of<br/>Health Policy and Production</b>  |     |
|                   | <i>Kinga Zdunek, Mitch Blair and Denise Alexander</i>  | 345 |
| <b>Chapter 18</b> | <b>Bringing MOCHA Lessons to Your Service</b>  |     |
|                   | <i>Magda Boere-Boonekamp, Karin Groothuis-Oudshoorn,<br/>Tamara Schloemer, Peter Schröder-Bäck, Janine van Til,<br/>Kinga Zdunek and Paul Kocken</i>                                   | 359 |
| <b>Chapter 19</b> | <b>Evidence to Achieve an Optimal Model for<br/>Children’s Health in Europe</b>  |     |
|                   | <i>Mitch Blair, Michael Rigby and Denise Alexander</i>   | 371 |
|                   | Appendix 1: List of MOCHA Scientists   | 385 |
|                   | Appendix 2: List of MOCHA Country Agents   | 391 |
|                   | Index  | 393 |





# List of Figures

## Chapter 1

|             |   |    |
|-------------|---|----|
| Figure 1.1. | The Country Agent process. . . . .                          | 9  |
| Figure 1.2. | Integration of MOCHA project activities over 42 months. . . | 11 |

## Chapter 2

|             |                                  |    |
|-------------|----------------------------------|----|
| Figure 2.1. | The MOCHA working model. . . . . | 40 |
|-------------|----------------------------------|----|

## Chapter 3

|             |   |    |
|-------------|---|----|
| Figure 3.1. | Respondents' opinions on the age at which a child should be able to do the activities mentioned in the 10 Questions, presented as cumulative percentages of respondents of the five countries together. . . . .                           | 63 |
| Figure 3.2. | Respondents' opinions on the age at which a child should be able to do the activities, averaged for the 10 questions, presented as cumulative percentages of respondents for each of the five countries. . . . .                          | 64 |
| Figure 3.3. | Percentage of agreement (summed percentage of respondents that agree and strongly agree) with the statements on autonomy-related attribute-items, indicated by the respondents of the five countries, based on their experiences. . . . . | 67 |

## Chapter 4

|             |   |    |
|-------------|---|----|
| Figure 4.1. | Child-centric health policy. . . . .  | 84 |
| Figure 4.2. | Child as the central actor in the process of shaping child health policy. . . . . | 86 |

## Chapter 6

|             |  |     |
|-------------|--|-----|
| Figure 6.1. | Overview on consideration of children and adolescents in national e-health strategies in Europe. . . . . | 126 |
|-------------|--|-----|

## Chapter 7

|             |  |     |
|-------------|--|-----|
| Figure 7.1. | Overview of child health indicators available through the HBSC portal. . . . . | 134 |
| Figure 7.2. | Overview of health indicators available through the Eurostat database. . . . . | 136 |
| Figure 7.3. | Example of the four levels of hierarchy for causes of mortality. . . . .       | 138 |

Figure 7.4. Overview of indicators available through World Bank Open Data database. . . . . 140

Figure 7.5. Distribution (*n*) of measures available in international databases by disease – total number of countries providing data for at Least One measure related to the specific disease. . . . . 148

Figure 7.6. Distribution (*n*) of measures provided by CAs by disease. Total number of CAs reporting at least one measure related to the specific disease. . . . . 150

**Chapter 8**

Figure 8.1. Path diagram of the relationships across the research questions. . . . . 169

Figure 8.2. Path diagram of the hypothesised SEM model (structural and measurement models). . . . . 170

Figure 8.3. Schematic diagram for the measures classification. . . . . 174

Figure 8.4. Flow of the compilation of metadata catalogue and semantic models to harmonise case definitions and facilitate comparison from different data sources. . . . . 176

**Chapter 10**

Figure 10.1. Model of key themes influencing the care of children with enduring mental health needs at the primary care interface. 212

Figure 10.2. An Example of UML use of case diagram: provision of screening services for children with autism. . . . . 213

**Chapter 12**

Figure 12.1. Countries with extensive policy on AHS. . . . . 240

**Chapter 13**

Figure 13.1. Skills and qualifications required to adequately treat and monitor vulnerable children. . . . . 261

Figure 13.2. Nursing training requirements to look after children with CCN. . . . . 275

Figure 13.3. Distribution of Child-related Content across the Different Modules in the Curriculum. . . . . 276

**Chapter 14**

Figure 14.1. Use of EHRs in delivery of primary care for children. . . . 285

Figure 14.2. Use of child public health EHRs in Europe. . . . . 286

Figure 14.3. Overview of countries with URIs to link children’s health records in the EU/EEA. . . . . 287

|                   |   |     |
|-------------------|---|-----|
| Figure 14.4.      | Overview on when the URI is issued.. . . . .  | 288 |
| Figure 14.5.      | Overview on national issuing process and URI function. . .  | 288 |
| Figure 14.6.      | If there is not a linked record between primary care services and school health services, what type of information is it policy to pass <i>from</i> the SHS practitioner <i>to</i> the primary care practitioner? . . . . . | 295 |
| Figure 14.7.      | Looking at communication in the other direction, from primary care to school health service professionals, what is the policy of information sharing <i>from</i> primary care <i>to</i> the school health service?. . . . . | 296 |
| Figure 14.8.      | If a pupil sustains an injury in school that needs urgent medical treatment, is the school able to supply to the urgent treatment centre: the child's tetanus immunisation status? . . . . .                                | 297 |
| Figure 14.9.      | According to the policy for record keeping in your country, can a child request to have sight of their medical records? . . . . .   | 297 |
| Figure 14.10.     | Countries where a child can specify that their parents <i>may not</i> see part of their medical records. . . . .  | 298 |
| <b>Chapter 15</b> |   |     |
| Figure 15.1.      | Training in the management and treatment of common illnesses in childhood. . . . .  | 307 |
| Figure 15.2.      | Conceptual framework behind the assessment framework. .   | 320 |
| Figure 15.3.      | Integration between primary health care/social care stipulated in legal/policy framework. . . . .   | 321 |
| <b>Chapter 16</b> |   |     |
| Figure 16.1.      | The PIET-T model with systematised criteria to determine transferability. . . . .   | 333 |
| <b>Chapter 18</b> |   |     |
| Figure 18.1.      | Adapted PIET-T model with systematised criteria to determine transferability with 'P' concretised for children's primary health care . . . . .  | 361 |
| Figure 18.2.      | Evidence usage in child health policy-making. . . . .   | 367 |
| Figure 18.3.      | Types of most effective format of recommendations. . . . .  | 369 |



# List of Tables

## Chapter 2

|            |   |    |
|------------|---|----|
| Table 2.1. | Mapping of models of provision in MOCHA countries. . . . .  | 17 |
| Table 2.2. | Dimensions of the conceptual general health frameworks. . . . .   | 32 |
| Table 2.3. | Dimensions of the primary health care conceptual frameworks. . . . .  | 35 |
| Table 2.4. | Structure of a model in terms of the MOCHA project. . . . .   | 42 |
| Table 2.5. | Primary care in a child centred ecological model and MOCHA. . . . .   | 45 |
| Table 2.6. | Life stage of a child and the MOCHA project (Broadly illustrated by school ages, which may have different parameters in different countries). . . . . | 48 |

## Chapter 3

|            |   |    |
|------------|---|----|
| Table 3.1. | Overview of number of children and number and type of interviews in each country. . . . .   | 59 |
| Table 3.2. | Percentage of agreement (summed percentage of respondents that agree and strongly agree) with the statements on autonomy-related attribute items, indicated by the respondents of the five countries. . . . . | 65 |

## Chapter 4

|            |   |    |
|------------|---|----|
| Table 4.1. | Timeline of increasing awareness and respect for the rights of a child in Europe. . . . . | 81 |
| Table 4.2. | Rights of children to primary health care. . . . .  | 91 |

## Chapter 5

|            |  |     |
|------------|--|-----|
| Table 5.1. | Levels of equality regarding entitlements to health care for three groups of migrant children compared to national children. (No data = no data were available). . . . . | 111 |
|------------|--|-----|

## Chapter 7

|            |   |     |
|------------|---|-----|
| Table 7.1. | Overview of child health indicators available on the WHO Health for All explorer. . . . . | 133 |
| Table 7.2. | Overview of child health indicators on the Eurostat database. . . . .                     | 137 |
| Table 7.3. | List of health indicators available through World Bank Open Data database. . . . .        | 141 |

*xiv* List of Tables

|                  |  |     |
|------------------|--|-----|
| Table 7.4.       | Distribution of measures by age ranges in international databases. . . . .   | 146 |
| Table 7.5.       | Distribution of measures by age ranges according to Country Agent responses. . . . .   | 147 |
| Table 7.6.       | National data on health expenditure and financing and for the MOCHA countries. . . . .   | 153 |
| <b>Chapter 8</b> |  |     |
| Table 8.1.       | Measures identified by WP-leader related to coordination and assumed values. . . . .   | 162 |
| Table 8.2.       | Measures identified by WP-leader related to coordination and attributed scores.. . . .   | 163 |
| Table 8.3.       | Scores assumed in the coordination measures by the MOCHA countries. . . . .  | 164 |
| Table 8.4.       | Kendall's correlation matrix ( $*p < 0.05$ ). . . . .  | 165 |
| Table 8.5.       | Countries distribution by e-coordination strength. . . . .   | 165 |
| Table 8.6.       | National expenditure on 'Governance and health system administration' by e-coordination strength (Euro Per Inhabitant, 2015). . . . .  | 166 |
| Table 8.7.       | Current health care expenditure by e-coordination strength (Euro Per Inhabitant, 2015).. . . . .   | 166 |
| Table 8.8.       | Decomposition of the effects estimated by the hypothesised SEM model. . . . .  | 171 |
| <b>Chapter 9</b> |  |     |
| Table 9.1.       | Financing and service delivery classifications. . . . .  | 183 |
| Table 9.2.       | PHAMEU scoring system for the strength of the countries' primary care system (Kringos et al., 2013). . . . .   | 185 |
| Table 9.3.       | Description of dependent and independent variables used in the analysis. . . . .   | 187 |
| Table 9.4.       | Summary descriptive statistics of quantitative variables included in the analysis for the 30 MOCHA countries, 2004–2016 ( $N = 390$ is complete data for all countries and all years). . . . . | 189 |
| Table 9.5.       | Values of quantitative variables by country – last year for which data were available. . . . .   | 190 |
| Table 9.6.       | Results of regression modelling. . . . .   | 192 |

**Chapter 10**

|             |   |     |
|-------------|---|-----|
| Table 10.1. | Access to care for children with complex care needs. . . . .                  | 203 |
| Table 10.2. | Co-creation of care for children with complex care needs. . .                 | 206 |
| Table 10.3. | Effective integrated governance for children with complex care needs. . . . . | 208 |

**Chapter 11**

|             |  |     |
|-------------|--|-----|
| Table 11.1. | Essential indicators of access of SHS. . . . .                 | 224 |
| Table 11.2. | Essential indicators of workforce in school health services. . | 229 |

**Chapter 12**

|             |  |     |
|-------------|--|-----|
| Table 12.1. | Indicators of quality management for mental health services and sexual and reproductive health care for adolescents. . . | 242 |
|-------------|--|-----|

**Chapter 13**

|              |  |     |
|--------------|--|-----|
| Table 13.1.  | Healthcare expenditure and workforce data for the MOCHA countries. . . . .   | 249 |
| Table 13.2.  | Density of paediatricians by MOCHA typology of primary care for children. . . . .  | 251 |
| Table 13.3.  | Questions on workforce sent to Country Agents. . . . .   | 252 |
| Table 13.4.  | Primary care (PC) workforce configuration, summary of Country Agent responses. . . . .   | 254 |
| Table 13.5.  | Country Agent responses to questions on training of workforce for children in primary care.. . . .   | 256 |
| Table 13.6.  | A whole population approach: patient segments in child health. . . . .   | 260 |
| Table 13.7.  | Three representative countries. . . . .  | 262 |
| Table 13.8.  | Characteristics of the European medical schools' curricula analysed by MOCHA. . . . .  | 262 |
| Table 13.9.  | Mandatory courses related to health care of subgroups of vulnerable children in Bulgaria, Germany and Iceland. . . .                                 | 264 |
| Table 13.10. | Skills and qualifications to overcome challenges in adequate treatment of vulnerable children. . . . .   | 265 |
| Table 13.11. | A child health provider's required qualifications. . . . .   | 266 |
| Table 13.12. | Training in adolescent health delivered within various disciplines and important topics in primary care, across all participating countries. . . . . | 268 |

**Chapter 14**

|             |   |     |
|-------------|---|-----|
| Table 14.1. | Functionality and data exchange of child public health systems. . . . .   | 286 |
| Table 14.2. | Overview on organisational linkages electronic record data sharing. . . . .   | 290 |
| Table 14.3. | Overview on types of electronic health data exchanged. . .  | 291 |
| Table 14.4. | What is the policy in your country for health professionals of the school health service (SHS) in keeping their own health records? . . . . . | 293 |
| Table 14.5. | MOCHA countries with website accreditation process in place. . . . .  | 299 |
| Table 14.6. | MOCHA countries with apps accreditation process reported. . . . .   | 299 |

**Chapter 15**

|             |  |     |
|-------------|--|-----|
| Table 15.1. | Policy for provision of consulting rooms in pharmacies. . .  | 305 |
| Table 15.2. | Is there a policy that all children have access to a dentist free of charge? . . . . .               | 310 |
| Table 15.3. | Access for children with a disability or with a specific clinical risk. . . . .                      | 312 |
| Table 15.4. | Legal entitlement to social care for children with complex care needs in European countries. . . . . | 317 |

**Chapter 18**

|             |  |     |
|-------------|--|-----|
| Table 18.1. | Overview of the quality aspects with a high potential for improvement, presented for each of the five countries. . . . | 365 |
|-------------|--|-----|

**Chapter 19**

|             |  |     |
|-------------|--|-----|
| Table 19.1. | Total non-accidental deaths and Rate of Change in 20–24-year-olds (2006–2016) (GBD Study). . . . . | 374 |
|-------------|--|-----|



# List of Contributors

|                                  |   |
|----------------------------------|---|
| <i>Denise Alexander</i>          | Imperial College London, UK   |
| <i>Manna Alma</i>                | University Medical Center Groningen, Netherlands                            |
| <i>Amina Al-Yassin</i>           | Imperial College London, UK   |
| <i>Jay Berry</i>                 | Boston Children's Hospital, USA   |
| <i>Mitch Blair</i>               | Imperial College London, UK   |
| <i>Magda Boere-Boonekamp</i>     | University of Twente, Netherlands   |
| <i>Maria Brenner</i>             | Trinity College Dublin, Ireland   |
| <i>Anne Clancy</i>               | University of Tromsø, Norway  |
| <i>Barbara Corso</i>             | CNR Neuroscience Institute (IN), Padova, Italy                              |
| <i>Shalmali Deshpande</i>        | Imperial College London, UK   |
| <i>Filipa Ferreira</i>           | University of Surrey, UK  |
| <i>Heather Gage</i>              | University of Surrey, UK  |
| <i>Karin Groothuis-Oudshoorn</i> | University of Twente, Netherlands   |
| <i>Carol Hilliard</i>            | Our Lady's Children's Hospital, Crumlin, Dublin                             |
| <i>Eleanor Hollywood</i>         | Trinity College Dublin, Ireland   |
| <i>Uy Hoang</i>                  | University of Surrey, UK  |
| <i>Danielle Jansen</i>           | University Medical Center Groningen, Netherlands                            |
| <i>Stine Lundstroem</i>          | University of Southern Denmark, Denmark                                     |
| <i>Kamionka</i>                  |   |
| <i>Nicole van Kesteren</i>       | TNO (Netherlands Organisation for Applied Scientific Research), Netherlands |
| <i>Paul Kocken</i>               | TNO (Netherlands Organisation for Applied Scientific Research), Netherlands |
| <i>Grit Kühne</i>                | Imperial College London, UK   |
| <i>Uttara Kurup</i>              | Imperial College London, UK   |
| <i>Philip Larkin</i>             | Université de Lausanne, Switzerland, <i>previously</i>                      |
| <i>Sapfo Lignou</i>              | King's College London, UK   |
| <i>Gaby de Lijster</i>           | TNO (Netherlands Organisation for Applied Scientific Research), Netherlands |
| <i>Harshana Liyanage</i>         | University of Surrey, UK  |
| <i>Simon de Lusignan</i>         | University of Surrey, UK  |

*xviii* List of Contributors

|                               |   |
|-------------------------------|---|
| <i>Daniela Luzzi</i>          | CNR Institute for Research on Population and Social Policies (IRPPS), Rome, Italy |
| <i>Ekelechi MacPepple</i>     | University of Surrey, UK  |
| <i>Michael Mahgerefteh</i>    | Imperial College London, UK   |
| <i>Arjun Menon</i>            | Imperial College London, UK   |
| <i>Pierre-André Michaud</i>   | University Hospital of Lausanne, Switzerland                                      |
| <i>Nadia Minicuci</i>         | CNR Neuroscience Institute (IN), Padova, Italy                                    |
| <i>Elena Montañana Olaso</i>  | Trinity College Dublin, Ireland   |
| <i>Miriam O'Shea</i>          | Trinity College Dublin, Ireland   |
| <i>Catharina Nitsche</i>      | Imperial College London, UK   |
| <i>Colman Noctor</i>          | Trinity College Dublin, Ireland   |
| <i>Fabrizio Pecoraro</i>      | CNR Institute for Research on Population and Social Policies (IRPPS), Rome, Italy |
| <i>Sijmen A. Reijneveld</i>   | University Medical Center Groningen, Netherlands                                  |
| <i>Michael Rigby</i>          | Imperial College London, UK   |
| <i>Ilaria Rocco</i>           | CNR Neuroscience Institute (IN), Padova, Italy                                    |
| <i>Mariana Miranda</i>        | Imperial College London, UK   |
| <i>Autran Sampaio</i>         |   |
| <i>Rose Satherley</i>         | King's College London, UK   |
| <i>Tamara Schloemer</i>       | Maastricht University, Netherlands  |
| <i>Peter Schröder-Bäck</i>    | Maastricht University, Netherlands  |
| <i>Oscar Tamburis</i>         | CNR Institute for Research on Population and Social Policies (IRPPS), Rome, Italy |
| <i>Keishia Taylor</i>         | Trinity College Dublin, Ireland   |
| <i>Janine van Til</i>         | University of Twente, Netherlands   |
| <i>Johanna P. M. Vervoort</i> | University Medical Center Groningen, Netherlands                                  |
| <i>Annemieke Visser</i>       | University Medical Center Groningen, Netherlands                                  |
| <i>Eline Vlasblom</i>         | TNO (Netherlands Organisation for Applied Scientific Research), Netherlands       |
| <i>Austin Warters</i>         | Trinity College Dublin, Ireland   |
| <i>Helen Wells</i>            | Keele University, UK  |
| <i>Ingrid Wolfe</i>           | King's College London, UK   |
| <i>Kinga Zdunek</i>           | Medical University of Lublin, Poland  |
| <i>Renate van Zoonen</i>      | TNO (Netherlands Organisation for Applied Scientific Research), Netherlands       |

# Foreword

When I reflect back on the last 35 years of clinical practice as a paediatrician, I am very aware of the considerable changes to children's health which have occurred in my country and in Europe. Many diseases I saw as a student and young trainee have all but disappeared through the development and administration of new vaccines or the introduction of novel technological discoveries such as artificial surfactant, home ventilation and new drugs for cancer treatment. These have resulted in improved survival of so many children and young people who would have otherwise suffered premature death from the myriad of different congenital or acquired conditions. At the same time, I am all too cognisant of the effects of the degree of social change both in terms of the changing nature of family structure and stability, of unacceptable levels of poverty and inequity, environmental challenges such as nutrition, housing and pollution, the effects of national and international conflict leading to unprecedented movement of families between continents and of the huge changes in the speed and breadth of communication and social media. In parallel, there are increased levels of mental health disorder, obesity, neurodevelopmental issues such as specific learning difficulties, ADHD and autism and the sheer complexity of multimorbidity of twenty-first-century children and young people.

How do we ensure that we keep up to date and that clinical care remains relevant and effective in such circumstances? Clearly, clinical practice not only depends on the capacity and competence of well-trained practitioners but also depends on the context of a country or region's health care system and this, in turn, has its own historical, cultural, political and economic origins. And in any country, primary care is the first port of call, where the great majority of prevention, diagnosis and treatment are carried out.

It is the attention to both the clinical and the wider aspects of primary child health care which was the focus and purpose of the Models of Child Health Appraised (MOCHA) project, funded by the European Union's Horizon 2020 programme from 2015 to 2018. MOCHA set out to describe the organisation of primary care for children and young people in all 28 EU and two EEA countries in Europe. We originally set out to answer which systems work best and how might we use such knowledge to improve the delivery of primary care for this population; it also allowed us a unique view of the current situation in Europe and how we might shape the next era. As a multidisciplinary international research team of over 80 individuals, we wanted to explore this from multiple perspectives and this is reflected in the fact that we drew expertise from many different professional and scientific disciplines: paediatrics, school and adolescent specialists, public health and family practice, nursing, social science and care, political science, economics, health management, informatics, epidemiology, statistics and even criminology.

Michael, Denise and I have worked with each other for at least two decades on a number of European projects and for MOCHA – this itself is a story, to be told elsewhere, of the slow evolution of European child public health projects. In MOCHA, we were most ably supported by our project manager, Christine Chow. My respect for and gratitude to them all is immeasurable. This core team, along with the committed group of co-worker scientists slowly growing in number and influence over this period, very much bonded as a ‘family’ over the last four years, and together we have been on a fascinating voyage of discovery, challenge and mutual learning. In another aspect of development, eight babies were born to members of the MOCHA family over that time!

It has been an extraordinarily rich experience for me personally and I am sure this is the same for many of those involved. We have had many challenges. It was frustrating and disappointing that we were unable to find robust and readily available routine data to inform so many of our appraisal processes, an important discovery in itself. However, we gained enormously from the insights of children in a number of countries who told us what they thought about the services offered, and especially and uniquely, from the detailed answers from the country agents in each country and from the extensive literature and other reviews carried out by the MOCHA scientists. This book is the culmination of that joint learning which I know will help us all to take the next steps in further improving the outcomes for millions of children and young people in Europe.

**Professor Mitch Blair – Principle Investigator, MOCHA.  
Imperial College, London, UK**