Contents

Acl	knowledgements	ix		
Co	Contributors			
We	Welcome to the Monograph from Minneapolis Russell Luepker			
	ngratulations! Dag Thelle	xiii		
	MONICA and the World Health Organization Derek Yach			
	AONICA: the European Contribution Philippe Busquin			
	Editor's Introduction Hugh Tunstall-Pedoe			
Glo	ossary, Abbreviations and Nicknames Hugh Tunstall-Pedoe	xviii		
Bad	Background, Development and Organization of MONICA			
1	Background to the WHO MONICA Project Hugh Tunstall-Pedoe	1		
2	MONICA Hypotheses and Study Design Hugh Tunstall-Pedoe	3		
3	Organization Chart of the WHO MONICA Project Hugh Tunstall-Pedoe	6		
4	Council of Principal Investigators (CPI) and MONICA Congresses and Symposia Marco Ferrario, Hugh Tunstall-Pedoe	7		
5	MONICA Steering Committee (MSC) Stephen Fortmann, Hugh Tunstall-Pedoe	9		
6	MONICA Management Centre (MMC) Hugh Tunstall-Pedoe, Shanthi Mendis	11		
7	MONICA Data Centre (MDC) Kari Kuulasmaa	13		
8	MONICA Quality Control Centres (MQCs) Hugh Tunstall-Pedoe	15		
9	MONICA Reference Centres (MRCs) Hugh Tunstall-Pedoe	18		
10	Recruitment of Populations Jaakko Tuomilehto, Zbyněk Píša, Hugh Tunstall-Pedoe	20		
11	Communications in MONICA Hugh Tunstall-Pedoe	22		
12	Quality Assurance Dale Williams, Kari Kuulasmaa	25		
13	Ethics and Confidentiality Alun Evans, Hugh Tunstall-Pedoe	26		
14	MONICA and the Prevention of Cardiovascular Disease Pekka Puska	28		
15	Reminiscences of MONICA's Rapporteur Hugh Tunstall-Pedoe	30		
Adı	ministrative Data	35		
16	Routine Mortality Data Annette Dobson	35		
17	Demographic Data Vladislav Moltchanov	36		
18	Health Services Michael Hobbs	37		
19	Other Documents Used in MONICA Hugh Tunstall-Pedoe	38		
Cor	Coronary-Event Registration and Coronary Care			
20	Registration of Coronary Events, Hot and Cold Pursuit Hugh Tunstall-Pedoe	41		
21	Coronary-Event Registration Record Form Hugh Tunstall-Pedoe	43		
22	Minnesota Coding of the Electrocardiogram (ECG) Hugh Tunstall-Pedoe	44		
23	Diagnosing Myocardial Infarction and Coronary Death Hugh Tunstall-Pedoe	46		
24	Acute Coronary Care Diego Vanuzzo	48		
25	Treatment Scores Hugh Tunstall-Pedoe	50		
Str	oke Registration	53		
26	Registration of Stroke Events Kjell Asplund	53		
27	Diagnosis of Stroke Kjell Asplund	54		
Pop	pulation Surveys	57		
28	Sampling Kari Kuulasmaa	57		
29	Recruitment and Response Rates Andrzej Pająk, Hermann Wolf	58		
30	Questionnaire Design and Contents Hanna Tolonen, Kari Kuulasmaa	59		
31	Smoking Alun Evans, Hugh Tunstall-Pedoe	61		
	The second secon			

33 34 35		
	Cholesterol Marco Ferrario	64
35	Height, Weight and Waist Circumference Susana Sans	66
		68
		100.00
Dat	ta Handling, Quality Assessment and Publication	71
36	Data Transfer, Checking and Management Esa Ruokokoski, Markku Mähönen	71
37	Event Rates, Case Fatality and Trends Hugh Tunstall-Pedoe	72
38	Population Prevalence and Trends Hanna Tolonen	74
39	Age Standardization Hanna Tolonen	75
40	Statistical Analysis—relating changes in risk factors and treatments to changes in event rates Annette Dobson	77
41	Preparation of Manuscripts and Presentations Kjell Asplund	78
42	Making Graphics for MONICA Hanna Tolonen	80
MO	NICA Optional Studies	83
43	Optional Studies—Beyond the Core Hugh Tunstall-Pedoe	83
44	MONICA Optional Study on Nutrition Daan Kromhout	85
45	MONICA Optional Study on Antioxidant Vitamins and Polyunsaturated Fatty Acids (PUFA) Hugh Tunstall-Pedoe	85
46	MONICA Optional Psychosocial Substudy (MOPSY) Aushra Shatchkute	86
47	MONICA Optional Study of Physical Activity (MOSPA) Deborah Jones	87
		88
48	MONICA Optional Study on Drugs Eberhard Greiser, Katrin Janhsen MONICA Optional Study on Haemostatic Risk Factors John Yarnell, Evelyn McCrum, Alun Evans	89
49	MONICA Optional Study on Haemostatic Risk Factors John Iurnen, Everyn McCrum, Aun Evuns	89
MO	NICA Populations	91
50	Introduction to Population Pages Hugh Tunstall-Pedoe	91
51	Australia-Newcastle (AUS-NEW, AN) Annette Dobson	93
52	Australia-Perth (AUS-PER, AP) Michael Hobbs, Konrad Jamrozik	94
53	Belgium-Ghent/Charleroi (BEL-GCH, BE) Guy De Backer, Stefaan De Henauw, Marcel Kornitzer	95
54	Canada-Halifax (CAN-HAL, CA) Hermann Wolf, Ronald Gregor, Iqbal Bata	96
55	China-Beijing (CHN-BEI, CN) Zhaosu Wu	97
56	Czech Republic (CZE-CZE, CZ) Zdenka Škodová, Zbyněk Píša	98
	Denmark-Glostrup (DEN-GLO, DN) Marianne Schroll	99
57		
58	Finland (FIN-FIN, FI) Jaakko Tuomilehto	100
59	France-Country Coordinating Centre Pierre Ducimetière, Annie Bingham	102
60	France-Lille (FRA-LIL, FL) Philippe Amouyel	103
61		104
62	France-Toulouse (FRA-TOU, FT) Jean Ferrières	105
63	Germany-Augsburg (GER-AUG, GA) Ulrich Keil	106
64	Germany-Bremen (GER-BRE, GB) Eberhard Greiser, Katrin Janhsen	107
65	Germany-East Germany (GER-EGE, GE) Lothar Heinemann	108
66	Iceland (ICE-ICE, IC) Nikulás Sigfússon	109
67	Italy-Country Coordinating Centre Simona Giampaoli	110
68	Italy-Brianza (ITA-BRI, IT) Marco Ferrario, Giancarlo Cesana	111
69	Italy-Friuli (ITA-FRI, IF) Diego Vanuzzo, Lorenza Pilotto	112
70	Lithuania-Kaunas (LTU-KAU, LT) Juozas Bluzhas, Stase Domarkiene	113
71	New Zealand-Auckland (NEZ-AUC, NZ) Alistair Stewart	114
72	Poland-Tarnobrzeg Voivodship (POL-TAR, PT) Andrzej Pająk, Roman Topór-Mądry	115
73	Poland-Warsaw (POL-WAR, PW) Stefan Rywik	116
74	Russia-Moscow (RUS-MOS, RM) Vladislav Moltchanov, Hugh Tunstall-Pedoe, Svetlana Shalnova	117
75	Russia-Novosibirsk (RUS-NOV, RN) Sofia Malyutina, Yuri Nikitin	118
	Spain-Catalonia (SPA-CAT, SP) Susana Sans, Ignacio Balaguer-Vintró	
76		119
77	Sweden-Gothenburg (SWE-GOT, SG) Lars Wilhelmsen	120
20	Sweden-Northern Sweden (SWE-NSW, SN) Kjell Asplund	121
78	Switzerland (SWI-SWI, SW) Vincent Wietlisbach	122
79	United Kingdom-Belfast (UNK-BEL, UB) Alun Evans	132
79 80		123
79 80 81	United Kingdom-Glasgow (UNK-GLA, UG) Hugh Tunstall-Pedoe, Caroline Morrison	124
79 80 81 82	United Kingdom-Glasgow (UNK-GLA, UG) Hugh Tunstall-Pedoe, Caroline Morrison United States-Stanford (USA-STA, US) Stephen Fortmann	124 125
79 80 81	United Kingdom-Glasgow (UNK-GLA, UG) Hugh Tunstall-Pedoe, Caroline Morrison	124

MONICA Publications		129
85 1	MONICA Publications list	129
	Abstracts of MONICA Publications	131
87 1	MONICA Publications on the World Wide Web	146
88 1	MONICA Memo (list only: for text see CD-ROMs)	148
MONI	CA Graphics	157
89 1	MONICA Graphics Hugh Tunstall-Pedoe, Hanna Tolonen	157
((See below for listing)	
Appe	ndix	239
Index		241
CD-RC	DMs	244
Intro	duction to CD-ROMs Kari Kuulasmaa	244
CD-F	ROMs, in back cover, contain own contents and authorship credits	
List o	f MONICA Graphics	
	ulations, data collection and official mortality	158
GI	Populations outside Europe used in testing the MONICA hypotheses	159
G2	European populations used in testing the MONICA hypotheses	159
G3	Death rates from various causes: first three years of coronary-event registration	161
G4	Death rates from various causes: final three years of coronary-event registration	161
G5	Ranking of populations by proportion of all deaths from cardiovascular causes: first three years of coronary-event	
	registration	163
G6	Populations by proportion of all deaths from cardiovascular causes: final three years of coronary-event	
	registration	163
G7	Populations using different methods of identifying non-fatal cases for coronary-event registration	165
G8	Years of coronary-event registration in different populations	165
G9	Years of stroke registration in different populations	167
G10	Timing of risk factor surveys in different populations	167
G11	Periods used for testing the MONICA coronary-care (treatment or second) hypothesis	169
Coro	nary events: incidence, case fatality and mortality rates	170
G12	Coronary-event rates: first three years of registration	171
G13	Coronary-event rates: final three years of registration	171
G14	Coronary-event rates by calendar year of registration	173
G15	Average annual change in coronary-event rates	173
G16	Case fatality for coronary events: first three years of registration	175
G17	Case fatality for coronary events: final three years of registration	175
G18	Average annual change in case fatality	177
G19	Populations ranked by ten-year average MONICA coronary heart disease (CHD) mortality rates showing official unvalidated rates	177
G20	Populations ranked by average annual change in MONICA CHD mortality rates, showing unvalidated (from	
	routine mortality reporting) trend equivalents	179
G21	Change in coronary end points, by population, against coronary-event quality score	179
G22	Average annual change in MONICA coronary heart disease (CHD) mortality rates	181
G23	Changes in MONICA coronary heart disease (CHD) mortality rates divided between changes in coronary-event	
	rates and changes in case fatality	181
G24	Spot maps of changes in coronary end points in men	183
G25	Spot maps of changes in coronary end points in women	183
Strok	ses: incidence, case fatality and mortality rates	184
G26	Overall stroke rates: first three years and final three years of registration	185
G27	Overall stroke rates by calendar year of registration	185

CONTENTS

G28	Stroke case fatality: first three and final three years of registration	187
G29	Average annual change in stroke-event rates and in case fatality	187
G30	Stroke mortality rates: first three years and final three years of registration	189
G31	Changes in stroke mortality rates divided between changes in stroke-event rates and changes in case fatality	189
G32	Spot maps of changes in stroke end points in men	191
G33	Spot maps of changes in stroke end points in women	191
G34	Change in stroke end points, by population, against stroke-event quality scores	193
G35	Event rates and case fatality: subarachnoid haemorrhage	193
Risk	factors: daily cigarette smoking	194
G36	Prevalence of daily cigarette smokers in the initial risk-factor survey	195
G37	Prevalence of daily cigarette smokers in the final risk-factor survey	195
G38	Ten-year change in prevalence of daily cigarettes smokers	197
G39	Spot maps of population changes in prevalence of daily cigarette smoking	197
Risk	factors: systolic blood pressure	198
G40	Average systolic blood pressure in the initial risk-factor survey	199
G41	Average systolic blood pressure in the final risk-factor survey	199
G42	Ten-year change in average systolic blood pressure	201
G43	Spot maps of population changes in average systolic blood pressure	201
Risk f	factors: total blood cholesterol	202
G44	Average blood cholesterol concentration in the initial risk-factor survey	203
G45	Average blood cholesterol concentration in the final risk-factor survey	203
G46	Ten-year change in average blood cholesterol concentration	205
G47	Spot maps of population changes in average blood cholesterol concentration	205
Risk f	factors: obesity, body mass index	206
G48	Average body mass index (BMI) in the initial risk-factor survey	207
G49	Average body mass index (BMI) in the final risk-factor survey	207
G50	Ten-year change in average body mass index (BMI)	209
G51	Spot maps of population changes in average body mass index (BMI)	209
Risk f	actors: risk-factor score	210
G52	Average coronary risk-factor score in the initial risk-factor survey	211
G53	Average coronary risk-factor score in the final risk-factor survey	211
G54	Ten-year change in average coronary risk-factor score	213
G55	Spot maps of population changes in average coronary risk-factor score	213
Risk f	actors: risk-factor quality scores	214
G56	Scatter plots by population of change in risk factors against their quality scores	215
Eight	evidence-based treatments in coronary care	216
G57	Change in beta blocker use before myocardial infarction	217
G58	Change in beta blocker use during myocardial infarction	217
G59	Change in antiplatelet (aspirin) use before myocardial infarction	219
G60	Change in antiplatelet (aspirin) use during myocardial infarction	219
G61	Change in angiotensin converting enzyme (ACE) inhibitor use before myocardial infarction	221
G62	Change in angiotensin converting enzyme (ACE) inhibitor use during myocardial infarction	221
G63	Change in coronary artery revascularization (bypass graft or angioplasty) before myocardial infarction	223
G64	Change in thrombolytic drug use during myocardial infarction	223
G65	Change in Equivalent Treatment Score	225
G66	Populations ranked by change in Equivalent Treatment Score	225
G67	Scatter plot of change in Equivalent Treatment Score against the acute coronary care quality score	227
G68	Spot maps of population changes in Equivalent Treatment Score	227
	theses: coronary disease and coronary risk factors	228
G69	First MONICA hypothesis: change in coronary-event rates against change in coronary risk-factor score, full	
(270	registration period	229
G70	First MONICA hypothesis: change in coronary-event rates against change in coronary risk-factor score, lagged registration period	229

G71	First MONICA hypothesis: change in coronary-event rates against change in individual coronary risk factors, full coronary-event registration period	231
G72	First MONICA hypothesis: change in coronary-event rates against change in individual coronary risk factors, lagged coronary-event registration period	231
Нуро	theses: stroke and stroke risk factors	232
G73	First MONICA stroke hypothesis: change in stroke-event rates against change in stroke risk-factor score, full stroke-event registration period	233
G74	First MONICA stroke hypothesis: change in stroke-event rates against change in stroke risk-factor score, lagged stroke-event registration period	233
G75	Change in stroke-event rates against change in individual stroke risk factors, full stroke-event registration period	235
G76	Change in stroke-event rates against change in individual stroke risk factors, lagged stroke-event registration period	235
Нуро	theses: coronary care	236
G77a	Second MONICA hypothesis: change in case fatality against change in Equivalent	
	Treatment Score	237
G77b	Second MONICA hypothesis: change in coronary-event rates against change in Equivalent Treatment Score	237
G77c	Second MONICA hypothesis: change in MONICA coronary heart disease (CHD) mortality rates against change in	
	Equivalent Treatment Score	237