Achievement of low-density lipoprotein cholesterol goals in 18 countries outside of Western Europe: the International ChoLesterol management Practice Study (ICLPS)

Supplementary Appendix

Contents

Statistical analysis

Sample size calculation

The sample size was computed to ensure sufficient precision in the assessment of qualitative criteria, with stratification by country. Based on the assumption that approximately 528 centres in 19 countries would participate, and that approximately 10,120 patients would be enrolled (100−2000 per country), the precision in the assessment of qualitative criteria would range from ±9.80% in countries enrolling 100 patients, 50% of whom would achieve the LDL-C target, to ±1.31% in countries enrolling 2000 patients, 10% of whom would achieve the target.

SCORE (Systemic Coronary Risk Estimation) algorithm and risk stratification

The SCORE algorithm assesses 10-year risk of fatal cardiovascular disease, based on sex, age, smoking status, systolic blood pressure, and total serum cholesterol. In this study, pre-treatment total serum cholesterol values were used; consequently, not all patients could be classified according to risk level. Low-risk patients were those with a SCORE value <1% and moderate risk was a SCORE value ≥1% and <5%. Patients with a SCORE value ≥5% or with systolic blood pressure ≥180 mmHg and diastolic blood pressure ≥110 mmHg or with familial hypercholesterolemia per the Dutch Lipid Clinic Network algorithm (definite or probable) or with diabetes without target organ damage were classified in the high-risk group. The very-high-risk group included patients with a 10-year risk of fatal cardiovascular disease ≥10% or with at least one of the following conditions: documented coronary artery disease (CAD), cerebrovascular disease, or peripheral artery disease, type 2 diabetes with target organ damage, and history of chronic kidney disease (glomerular filtration rate <60 mL/min/1.73 m^2). Patients without a serious pathology classifying them as very high or high cardiovascular risk, and in whom the SCORE could not be calculated due to missing data (most commonly baseline LDL-C) were categorized as non-assessable.

Multivariable logistic regression model

A multivariable logistic regression model was developed to test the relationship between failure to achieve LDL-C targets and demographic, clinical, and treatment characteristics (sex, smoking status, familial hypercholesterolemia diagnosis, SCORE risk level,[1] history of chronic kidney disease, congestive heart failure, neurocognitive disorders, hypertension, diabetes, documented coronary artery disease [CAD], cerebrovascular disease, or peripheral artery disease, body mass index, waist circumference [International Diabetes Federation], blood pressure, LDL-C value at time of first diagnosis known (versus not known), statin dose, reported statin intolerance, aspirin, chronic medications).

Univariate analyses were used to determine which variables should be included in the multivariable analysis. Each variable with a univariate P-value <0.2 was included in the multivariable model. Terms with the highest P-value were sequentially removed from the model until all remaining variables had individual P-values <0.05.

Supplementary Table 1. List of ICLPS investigators and patient enrolment numbers

Region (no. of patients enrolled, %)	Country	No. patients enrolled	Principal Investigator / National Coordinator
Eastern Europe (n=846, 9.3%)	Russia	349	Yuri Karpov (Principal Investigator and National Coordinator), Russian Cardiology Research & Development Complex, Moscow, Russia
	Ukraine	497	Olena Mitchenko (National Coordinator), National scientific center: "M.D. Strazhesko institute of cardiology" MAS of Ukraine, Narodnogo Opolcheniya Kyiv, Ukraine
Asia (n=3546, 39.2%)	Bangladesh	499	Abdul Wadud Chowdhury (Principal Investigator and National Coordinator), Dhaka medical College Hospital, Dhaka, Bangladesh
	India	2013	Kaul Upendra (Principal Investigator and National Coordinator), Fortis Escorts Heart Institute & Research Centre, Fortis hospitals, New Delhi, India
	South Korea	1034	Kim Sung Rae (National Coordinator), Bucheon ST. Mary's Hospital, Wonmi-gu, Bucheon-si, Gyeonggi-do, Republic of Korea. Choi Sung-Hee (National Coordinator), Seoul National University Bundang Hospital, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
Africa (n=881, 9.7%)	Algeria	485	Abdelkrim Berrah (National Coordinator), Service de Médecine interne, CHU mohamed Lamine Debaghine Bab El Oued, 16000 Algiers, Algeria
	South Africa	396	Dirk Blom (Principal Investigator and National Coordinator), Lipid Laboratory, University of Cape Town, Cape Town, South Africa
Middle-East (n=1890, 20.9%	Israel	99	Yossi Azuri (Principal Investigator and National Coordinator), Maccabi health care Services, Tel Aviv, Israel
	Kuwait	150	Mohammed Zubaid (Principal Investigator and National Coordinator), Mubarak Hospital, Jabriya, Kuwait
	Oman	97	Khalid Al Rasahdi (Principal Investigator and National Coordinator), Sultan Qaboos University, Muscat, Oman
	Lebanon	200	Rabih Azar (Principal Investigator and National Coordinator), Hotel Dieu De France Hospital, Rue al Syrian, Ashrafieh, Beirut, Lebanon
	Saudi Arabia	231	Mohammed Balgaith (Principal Investigator and National Coordinator), Cardiology Center, National Guard Hospital, Riyadh, Saudi Arabia
	Turkey	830	Meral Kayıkçıoğlu (Principal Investigator and National Coordinator), Ege University Faculty of Medicine Department of Cardiology, Bornova, İzmir, Turkey

	United Arab Emirates	283	Wael Mahameed (National Coordinator), SKMC, Abu Dhabi, United Arab Emirates
Latin-America (n=1886, 20.8%)	Argentina	307	Carlos Alberto Cuneo (Principal Investigator and National Coordinator), Prevencion Cardiovascular Salta, Provincia de Salta, Argentina
	Brazil	499	Raul Santos (Principal Investigator and National Coordinator), Instituto Do Coração Do Hospital Das Clínicas Da Faculdade De Medicina Da Universidade De São Paulo, São Paulo, Brazil
	Colombia	454	Alvaro J Ruiz (National Coordinator), San Ignacio Hospital, Pontificia Universidad Javeriana, Bogotá, Colombia
	Mexico	626	Carlos A. Aguilar Salinas (Principal Investigator), Instituto Nacional de Nutricion Vasco de Quiroga 15, Mexico
Total population		9049	

Investigators who enrolled at least 1 patient

Algeria: Hadjissa Khadidja, Zebbar Nacerddine, Gouader Moussa, Senouci Fatima, Benissad Houria, Tazdait Rafik, Hamidouche Karima, Ayache Ahmed, Achaibou Rachid, Dahmane Saida, Benkhodja Mohamed Bachir, Louaifi Ali, Remili Rachid, Benbouabdellah Belkacem, Hadjkali Abdelhamid, Manseur Fahima, Bertal Sabra Amina, Methia Nadira, Kadour Fatima, Latreche Samia, Agrane Khadidja, Menzou Farouk, Kichou Brahim, Djellaoudji Azzouz, Khelil Saida, Ghemri Sofiane, Nibouche Djamel Eddine, Djeghri Nora, Belguedj Rinda, AbdelBaki Mourad, Kachenoura Aldjiia, Krim Messaad, Belkadi Zahoua, Henine Nora, Aoudia Yazid, Aouiche Samir, Yakhou Mohamed, Belhadj Fatima, Merdjana Karima, Ziani Samia, Benatmane Houria, Zellat Khiera, Faraoun Khadra, Douar Malika, Djafri Yasmina, Bouamrane Nadia, Cherief Fadila, Khellaf Hadda, Zidani Hocine, Baghous Houssem.

Argentina: Carlos Alberto Cuneo, Gabriel Dario Waisman, Jorge Roberto Aiub, Alejandro Hershson, Carol Kotliar, Julio Andres Vallejos, Juan Carlos Medrano, Alberto Juan Lorenzatti, Alfredo Lozada, Pablo Corral.

Bangladesh: Chowdhury Abdul Wadud, Haque Azizul, Chakraborti Rajashish, Hussain Md. Tofazzal, Reza Salim, Uddin Mir Jamal, Amin Mohammad Gaffar, Islam Abul Hasan Md. Waliul, Rahman Md. Toufiqur, Akter Mohammed Shamim, Khan Kaiser Nasrullah, Hossain Tanjina, Prasad Indrajit, Amin Ahsanul Haque, Ishaque S M, Habib Maruf Bin, Ali Hassan Kazi, Rabbani Raihan, Bhowmik Nirmalendu Bikash, Hassan Mohammad Nabiul.

Brazil: Dias Raul, Izar Maria Cristina, Saporito Wladimir, Cesena Fernando, Saraiva Jose, Maia Lilia, Ardito Wilma, Ayoub Jose, Manenti Euler, Fontana Hugo, Moraes João, Hissa Miguel, Pedrosa Hermelinda, Antunes Daniela, Lisboa Hugo, Oigman Willie, Silva Antonio, Lima Sonia, Isaia Carlos, Giraldez Viviane, Rossi Fabio.

Colombia: Puerta Carlos Felipe, Rincon Nelson Andres, Quintero Stella, Fandiño Alberto, Abaunza Leonidas, Jacome Andres Mauricio, Lenis Claudia Patricia, Lossa Claudia, Holguin Diego, Orozco Liliana, García Olga Lucia, Balaguera Jose Francisco, Cohen Luz Helena, Sotomayor Aristides, Jaramillo Carlos Francisco, Murillo Nelson, Lievano Manuel, Vesga Boris, Quintero Adalberto, Pantoja Dolly, Chacon Maria del Pilar, Lujan Dilcia Maria, Yepes Carlos Augusto, Lopez Claudia Tatiana, Yupanqui Hernan, Botero José Fernando, Yepes Emerson, Ibarra Jaime, Rueda Javier Enrique, Florez Jose Luis, Molina Dora, Coronel Julian.

India: Kaul Upendra, Krishnamurthy Deepak, Chandra Subash, Reddy Y Vijaya Chandra, Chopda Manoj, Sinha Sudhir Chandra, Kesavamurthy C B, Khan Idris Ahmed, Dave Tarun, Kawthekar Girish, Chopra Vijay Kumar, Kothari Dipesh, Kumar Ravi, Singh Kiran Pal, Ballani Piya, Modi K D, Sanyal Debmalya, Prabhu Mukhyaprana, Nagendar Jakka, Sharma Surender Kumar, Patnala Sreedevi, Shah Jayesh, Shah Siddharth, Roy Amitabha, Jain Gaurav, Sanghvi M D, Mutha Abhay, Dani Praveen, Madhavan R, Gupta JB, Bhattacharyya Paramartha, Somani Vinod, Rohatgi Gyanendra Mohan, Sanghvi Snehal, Vasudevan Sujit, Verma Sachin, Ganga Kiran, Gupta Rajeev, Verma Sanjay, Gangakhed Satish Kumar, Beswal Gaurav, J Ramdas, Mallikarjuna Rao KV, Vadavi Arun, Marya Rajesh, Mathew Joy, Rau Ram Mohan, Manu Sharma, Sonawane Sandeep, Ravindra Sethiya, Gandhi Sanjay, Mathew S, Kalanitthi A, Shah Ashok, Mahajan Sanjay, Pathak HS, Julka Sandeep, Gupta Sanjay, Nagre Santosh, Dhand Sunil, Bannerjee Abhijeet, T Madana Mohan, Haldar Susovan, George Abraham P, Agarwal Sanjay, Gheewala Nalin, Jain Pradeep Kumar, Tewari Ajoy K, Baldawa Vishnu, Kumar JS, Khanna Monica, Mathai Johnson, Rao Sanjay, Poddar Mahesh, Mane Rajendra, Sethia Ashok, Rao Visweswar, Perumal Nalla, Kumar J.Aman, Kongara Srikanth, Hari K, Tongaonkar Aniruddha, Gupta Sanjeev, Marda Mahesh, Jain Sunil, Sethi Kamal Kumar, Razzak MA, Rao Dayasagar, Dhar Pramod Kumar, Shah Devang.

Israel: Orlovsky Sophia, Chornia Larisa, Ciuraru George, Feldman Arie, Doctor Ruth, Eliyahu Vered, Radzinski Irena, Pomeranz Avishalom, Golzman Boris, Geva Adi.

Republic of Korea: Sung-Il Sohn, Sung-Hee Choi, Yong-Jin Kim, SeungJin Oh, Jin-Ho Shin, Bo-Hyun Kim, Woo-Keun Seo, Jae-Kwan Cha, Kyoung-Im Cho, Hye-Soon Kim, Jin-Won Kim, Sang-Chol Lee, Shin-Jae Kim, Sang Yong Kim, Jung-Rae Cho, JungSun Kim, Kyung-Mook Choi, SoonHee Lee, Kang-Wook Lee.

Kuwait: Zubaid Mohammed, Farrag Ebrahim, Saad Hisham, Abd Al Monem Amro, Hasan Ebrahim, Mekhaeil Medhat, Lashin Ebrahim.

Lebanon: Mouawad Walid, Keshishian Sahak, Amm Mireille, Andari Emile, Zind Romel, Ballout Hajar, Mohamad Malek, Moukheiber Sami, Abdel Massih Tony, Azar Rabih.

Mexico: César Gonzalo Calvo Vargas, Edmundo Bayram llamas, Esperanza Martinez Abundis, Gerardo Andres Baez Vargas, Pedro Mendoza Martinez, Rodrigo Navarrete Valencia, Bernardo Emilio Valenzuela Salazar, Francisco Javier Robledo Gutierrez, Alfredo Nacoud Askar, Carlos Alberto Aguilar Salinas, Sergio Zuñiga Guajardo, Maria Elena Cedano Limon, Roberto Bejarano Rodriguez, Lirio de Maria Delgado Garcia, Juan Carlos Villanueva Arias, Lucia Alejandra Castillo Vigna, José Gerardo Gonzalez Gonzalez, Martha Leticia López Velazco.

Oman: Khalid Al Rasahdi, Khalid Al Wali, Mustafa Al Hinai, Ali Mamari, Omayma Elshafaie, Mehar Ali.

Russia: Karpov Yuri, Ezhov Marat, Khaisheva Larisa, Lyamina Nadezhda, Viktorova Inna, Kosmacheva Elena, Khasanov Niyaz, Libis Roman, Tretyakova Tatyana, Koziolova Natalya, Eliseeva Liudmila, Napalkov Dmitriy, Karetnikova Victoriya, Boytsov Sergey.

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South Africa: Blom Dirk, Amod Aslam, Chelin Neville, Coetzee Kathleen, Corbett Clive, Fouche Leon, Fourie Nyda, Govind Uttam, Joshi Shaifali, Kapp Cornelia, Kotze Hester, Makan Hemant, Mahomed Akbar, Ngcakani Nomangesi Judith, Padayachee Trevenesan, Raal Frederick, Seedat Saadiya, Snyman Hans, Trokis Julien.

United Arab Emirates: Azan Binbrek, Ali Aslani, Yasser El Henawy, Arshad Rasheed, Mouna Mohamdioua Boukhanera, Guevarra Daffodills, Kais Ismail Mrabet, Fahad Baslaib, Vani Krishna, Jaison T M, Nooshin Bazargani, Hashemi Pour, Katherine Rose, Lalit Maheshwari.

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Supplementary Table 2. Physician characteristics, by country, overall and region (Middle-East and Latin-America)

	Oman N=6	Lebanon N=10	Saudi Arabia N=8	United Arab Emirates N=14	Israel N=10	Kuwait N=7	Turkey N=80	Argentina N=10	Brazil N=21	Colombia N=32	Mexico N=18	Algeria N=49	South Korea N=19	South Africa N=19	Russia N=14	Bangladesh N=20	India N=90	Ukraine N=25	Total N=452	Middle-East N=135	LATAM N=81
Age (years), mean (SD)	48.2 (6.8)	50.8 (9.2)	51.0 (8.7)	47.9 (12.3)	52.2 (9.8)	52.4 (2.2)	43.5 (8.5)	56.0 (6.7)	53.6 (9.2)	48.8 (8.1)	48.3 (10.9)	50.5 (7.0)	45.8 (3.8)	50.6 (8.4)	50.9 (8.2)	46.7 (5.3)	52.4 (9.9)	44.4 (10.0)	49.0 (9.3)	46.3 (9.4)	50.9 (9.2)
Men, n (%)	5 (83.3)	8 (80.0)	6 (75.0)	9 (64.3)	4 (40.0)	7 (100.0)	61 (76.3)	9 (90.0)	14 (66.7)	21 (65.6)	13 (72.2)	21 (42.9)	16 (84.2)	12 (63.2)	6 (42.9)	19 (95.0)	87 (96.7)	5 (20.0)	323 (71.5)	100 (74.1)	57 (70.4)
Medical specialty, n (%)																					
General practitioner/family physician	1 (16.7)	1 (10.0)	0	5 (35.7)	6 (60.0)	0	0	0	1 (4.8)	12 (37.5)	9 (50.0)	5 (10.2)	0	11 (57.9)	0	4 (20.0)	6 (6.7)	0	61 (13.5)	13 (9.6)	22 (27.2)
Cardiologist	1 (16.7)	6 (60.0)	6 (75.0)	9 (64.3)	0	5 (71.4)	39 (48.8)	5 (50.0)	13 (61.9)	7 (21.9)	2 (11.1)	30 (61.2)	9 (47.4)	1 (5.3)	10 (71.4)	7 (35.0)	18 (20.0)	15 (60.0)	183 (40.5)	66 (48.9)	27 (33.3)
Lipidologist	2 (33.3)	0	0	0	0	0	0	3 (30.0)	0	1 (3.1)	1 (5.6)	0	0	1 (5.3)	0	0	0	0	8 (1.8)	2 (1.5)	5 (6.2)
Endocrinologist	2 (33.3)	3 (30.0)	2 (25.0)	0	1 (10.0)	0	4 (5.0)	0	4 (19.0)	6 (18.8)	3 (16.7)	4 (8.2)	6 (31.6)	2 (10.5)	0	5 (25.0)	11 (12.2)	0	53 (11.7)	12 (8.9)	13 (16.0)
Internal medicine specialist	0	0	0	0	2 (20.0)	2 (28.6)	36 (45.0)	1 (10.0)	0	5 (15.6)	3 (16.7)	9 (18.4)	0	1 (5.3)	3 (21.4)	3 (15.0)	41 (45.6)	9 (36.0)	115 (25.4)	40 (29.6)	9 (11.1)
Other	0	0	0	0	1 (10.0)	0	0	0	2 (9.5)	0	0	0	4 (21.1)	2 (10.5)	0	1 (5.0)	9 (10.0)	1 (4.0)	20 (4.4)	1 (0.7)	2 (2.5)
Several specialties	0	0	0	0	0	0	1 (1.3)	1 (10.0)	1 (4.8)	1 (3.1)	0	1 (2.0)	0	1 (5.3)	1 (7.1)	0	5 (5.6)	0	12 (2.7)	1 (0.7)	3 (3.7)
Years of practice (years), mean (SD)	21.3 (4.7)	19.8 (7.5)	21.5 (9.1)	20.0 (11.0)	24.3 (11.9)	29.0 (2.9)	17.9 (8.7)	31.6 (6.7)	28.7 (9.7)	21.0 (8.7)	21.9 (9.9)	24.3 (7.1)	20.9 (4.2)	22.9 (8.3)	26.9 (7.8)	18.6 (7.0)	23.6 (10.5)	21.4 (8.7)	22.3 (9.2)	19.6 (9.2)	24.5 (9.8)
Type of practice[a], n (%)																					
Public hospital	6 (100.0)	4 (40.0)	8 (100.0)	6 (42.9)	1 (10.0)	7 (100.0)	68 (85.0)	1 (10.0)	11 (52.4)	2 (6.3)	5 (27.8)	33 (67.3)	18 (94.7)	3 (15.8)	13 (92.9)	9 (45.0)	16 (17.8)	25 (100.0)	236 (52.2)	100 (74.1)	19 (23.5)
Private hospital	1 (16.7)	7 (70.0)	0	8 (57.1)	1 (10.0)	1 (14.3)	15 (18.8)	9 (90.0)	14 (66.7)	19 (59.4)	11 (61.1)	5 (10.2)	1 (5.3)	6 (31.6)	1 (7.1)	11 (55.0)	81 (90.0)	0	191 (42.3)	33 (24.4)	53 (65.4)
Practice/Office	0	7 (70.0)	0	0	8 (80.0)	0	2 (2.5)	4 (40.0)	3 (14.3)	17 (53.1)	6 (33.3)	15 (30.6)	0	11 (57.9)	1 (7.1)	4 (20.0)	10 (11.1)	0	88 (19.5)	17 (12.6)	30 (37.0)
Urban	6 (100.0)	8 (80.0)	6 (75.0)	14 (100.0)	10 (100.0)	7 (100.0)	65 (81.3)	10 (100.0)	19 (90.5)	30 (93.8)	17 (94.4)	42 (85.7)	18 (94.7)	15 (78.9)	14 (100.0)	14 (70.0)	66 (73.3)	24 (96.0)	385 (85.2)	116 (85.9)	76 (93.8)
Rural	0	0	0	0	0	0	3 (3.8)	0	0	0	0	0	0	2 (10.5)	0	0	1 (1.1)	0	6 (1.3)	3 (2.2)	0
Suburban area	0	2 (20.0)	2 (25.0)	0	0	0	12 (15.0)	0	2 (9.5)	2 (6.3)	1 (5.6)	7 (14.3)	1 (5.3)	2 (10.5)	0 (0.0)	6 (30.0)	23 (25.6)	1 (4.0)	61 (13.5)	16 (11.9)	5 (6.2)
Patients consulted per day, mean (SD)	27.7 (14.2)	26.4 (10.8)	22.1 (12.6)	23.9 (11.1)	30.1 (12.6)	21.4 (3.8)	50.0 (27.1)	15.0 (6.3)	18.3 (11.5)	21.7 (10.4)	14.7 (6.6)	20.7 (9.6)	62.4 (17.2)	21.6 (10.7)	9.0 (5.0)	36.5 (14.4)	43.5 (22.2)	16.9 (13.6)	32.2 (22.6)	39.9 (25.1)	18.4 (9.9)

	Oman N=6	Lebanon N=10	Saudi Arabia N=8	United Arab Emirates N=14	Israel N=10	Kuwait N=7	Turkey N=80	Argentina N=10	Brazil N=21	Colombia N=32	Mexico N=18	Algeria N=49	South Korea N=19	South Africa N=19	Russia N=14	Bangladesh N=20	India N=90	Ukraine N=25	Total N=452	Middle-East N=135	LATAM N=81
With dyslipidaemia and/or on LLT	20.4 (17.3)	12.3 (5.3)	14.9 (6.7)	12.4 (8.7)	9.2 (7.6)	14.9 (2.9)	11.3 (7.0)	8.3 (3.1)	10.0 (8.3)	9.5 (5.3)	5.4 (2.6)	9.5 (6.3)	29.2 (14.0)	6.5 (3.4)	6.0 (4.2)	16.4 (9.9)	17.3 (10.8)	10.8 (8.1)	12.4 (9.5)	12.2 (7.8)	8.6 (5.9)
Adherence to guidelines for lipid disorders, n (%)	5 (83.3)	10 (100.0)	8 (100.0)	14 (100.0)	10 (100.0)	7 (100.0)	76 (95.0)	10 (100.0)	21 (100.0)	31 (96.9)	16 (88.9)	48 (100.0)	19 (100.0)	19 (100.0)	14 (100.0)	18 (90.0)	82 (91.1)	25 (100.0)	433 (96.0)	130 (96.3)	78 (96.3)
ESC/EAS[2]	4 (80.0)	7 (70.0)	5 (62.5)	10 (71.4)	8 (80.0)	6 (85.7)	73 (96.1)	8 (80.0)	6 (28.6)	9 (29.0)	7 (43.8)	47 (97.9)	6 (31.6)	11 (57.9)	13 (92.9)	6 (33.3)	28 (34.1)	22 (88.0)	276 (63.7)	113 (86.9)	30 (38.5)
ACC/AHA[3]	3 (60.0)	6 (60.0)	4 (50.0)	11 (78.6)	1 (10.0)	1 (14.3)	41 (53.9)	5 (50.0)	11 (52.4)	23 (74.2)	9 (56.3)	13 (27.1)	13 (68.4)	6 (31.6)	5 (35.7)	15 (83.3)	57 (69.5)	7 (28.0)	231 (53.3)	67 (51.5)	48 (61.5)
Other international guidelines	1 (20.0)	0	1 (12.5)	0	0	0	3 (3.9)	2 (20.0)	1 (4.8)	0	1 (6.3)	3 (6.3)	3 (15.8)	1 (5.3)	0	0	6 (7.3)	1 (4.0)	23 (5.3)	5 (3.8)	4 (5.1)
Local/national guidelines	0	1 (10.0)	0	0	2 (20.0)	0	6 (7.9)	3 (30.0)	11 (52.4)	6 (19.4)	0	0	4 (21.1)	8 (42.1)	14 (100.0)	1 (5.6)	4 (4.9)	12 (48.0)	72 (16.6)	9 (6.9)	20 (25.6)
Definition of statin intolerance, n (%)																					
Intolerance to 1 statin	1 (16.7)	1 (10.0)	2 (25.0)	5 (35.7)	0	0	27 (33.8)	1 (10.0)	5 (23.8)	9 (29.0)	8 (44.4)	11 (22.4)	10 (52.6)	3 (15.8)	1 (7.1)	6 (30.0)	31 (34.4)	4 (16.0)	125 (27.7)	36 (26.7)	23 (28.8)
Intolerance to 2 statins	4 (66.7)	4 (40.0)	5 (62.5)	7 (50.0)	4 (40.0)	6 (85.7)	37 (46.3)	3 (30.0)	10 (47.6)	15 (48.4)	7 (38.9)	20 (40.8)	7 (36.8)	9 (47.4)	8 (57.1)	12 (60.0)	50 (55.6)	2 (8.0)	210 (46.6)	67 (49.6)	35 (43.8)
Intolerance to ≥3 statins	1 (16.7)	5 (50.0)	1 (12.5)	2 (14.3)	6 (60.0)	1 (14.3)	16 (20.0)	6 (60.0)	6 (28.6)	7 (22.6)	3 (16.7)	18 (36.7)	2 (10.5)	7 (36.8)	5 (35.7)	2 (10.0)	9 (10.0)	19 (76.0)	116 (25.7)	32 (23.7)	22 (27.5)

ACC, American College of Cardiology; EAS, European Atherosclerosis Society; ESC, European Society of Cardiology; LLT, lipid-lowering therapy; SD, standard deviation;

[a] Categories are not mutually exclusive.

The most common specializations were cardiology (40.5%), internal medicine (25.4%), 13.5% general/family practice, and endocrinology (11.7%). Overall, 52.2% were in public hospitals, 42.3% in private hospitals, and 19.5% in offices; 85.2% of practices were urban.

Supplementary Table 3. Characteristics of the study population, by cardiovascular risk level (calculated using SCORE[1])

Variable	Total (n=9049)	Risk level				
		Low (n=70)	Moderate (n=411)	High (n=2621)	Very high (n=4842)	Not assessable[a] (n=1105)
Age (years), mean (SD)	60.2 (11.7)	37.6 (5.7)	51.8 (10.3)	57.5 (11.3)	63.3 (10.7)	57.6 (12.4)
Men, n (%)	4975 (55.0)	8 (11.4)	171 (41.6)	1152 (44.0)	3136 (64.8)	508 (46.0)
Presenting characteristics						
BMI, N	8876	70	401	2589	4740	1076
kg/m^2, Mean (SD)	28.4 (5.2)	26.8 (4.5)	27.6 (4.9)	28.8 (5.5)	28.4 (5.0)	27.9 (5.1)
25 to <30 kg/m^2, n (%)	3750 (42.2)	25 (35.7)	181 (45.1)	1117 (43.1)	1954 (41.2)	473 (44.0)
≥30 kg/m^2, n (%)	2851 (32.1)	16 (22.9)	104 (25.9)	874 (33.8)	1570 (33.1)	287 (26.7)
Waist circumference N	7752	61	343	2253	4150	945
Mean (SD), cm	96.4 (15.7)	89.4 (17.4)	93.5 (14.2)	96.5 (16.4)	97.8 (14.4)	91.8 (18.7)
≥80 cm in women and ≥94 cm in men, n (%)	5776 (74.5)	43/61 (70.5)	239 (69.7)	1781 (79.1)	3075 (74.1)	638 (67.5)
Metabolic syndrome (ATP III), n (%)	4127/8963 (46.0)	25/70 (35.7)	123/407 (30.2)	1312/2598 (50.5)	2349/4798 (49.0)	318/1090 (29.2)
Regular alcohol consumption[b], n (%)	858 (9.5)	3 (4.3)	51 (12.4)	224 (8.5)	492 (10.2)	88 (8.0)
Current smoker[c], n or n/N (%)	1124/9048 (12.4)	6 (8.6)	44 (10.7)	215 (8.2)	756/4841 (15.6)	103 (9.3)
Physical inactivity[e], n (%)	4454 (49.2)	38 (54.3)	189 (46.0)	1235 (47.1)	2501 (51.7)	491 (44.4)
Heart rate, N	8829	70	410	2537	4723	1089
Beats/min, mean (SD)	74.8 (10.1)	76.3 (8.8)	74.5 (10.0)	77.0 (8.9)	73.6 (10.7)	74.8 (9.1)
Arcus cornealis[e], n (%)	467 (5.2)	0	8 (1.9)	112 (4.3)	313 (6.5)	34 (3.1)
Tendinous xanthomata[e], n (%)	202 (2.2)	1 (1.4)	1 (0.2)	45 (1.7)	144 (3.0)	11 (1.0)
Risk factor, n (%)						
SBP ≥140 mmHg and/or DBP ≥90 mmHg	3069/9013 (34.1)	15/70 (21.4)	85/411 (20.7)	884/2609 (33.9)	1734/4827 (35.9)	351/1096 (32.0)
Diabetes mellitus (type 1 or 2)	4916/9046 (54.3)	0	0	2289 (87.3)	2627/4839 (54.3)	0

Variable	Total (n=9049)	Risk level				
		Low (n=70)	Moderate (n=411)	High (n=2621)	Very high (n=4842)	Not assessable[a] (n=1105)
Diabetes mellitus type 2 (in overall population), n/N (%)	4704/9043 (52.0)	0	0	2186 (83.4)	2518/4837 (52.1)	0
Dyslipidaemia (diagnosis or history) (physician defined)	7874/9032 (87.2)	64 (91.4)	388 (94.4)	2408/2617 (92.0)	4063/4831 (84.1)	951/1103 (86.2)
Hypertension (diagnosed/history of)	6473 (71.5)	30 (42.9)	190 (46.2)	1696 (64.7)	3876 (80.0)	681 (61.6)
Previous atherosclerotic CVD	3782/9019 (41.9)	0	0	0	3782/4838 (78.2)	0
Family history of CAD[f]	2230 (24.6)	11 (15.7)	118 (28.7)	524 (20.0)	1329 (27.4)	248 (22.4)
Familial hypercholesterolaemia[g]	211/3249 (6.5)	0	0	69/949 (7.3)	142/1816 (7.8)	0
Medical history, n (%)						
ACS (documented)	3320/9048 (36.7)	0	0	0	3320 (68.6)	0
Stroke (any)	567 (6.3)	0	0	0	567 (11.7)	0
Peripheral artery disease	430 (4.8)	0	0	0	430/4840 (8.9)	0
Congestive heart failure	796 (8.8)	1 (1.4)	7 (1.7)	41 (1.6)	717 (14.8)	30 (2.7)
Chronic kidney disease (GFR <60 mL/min/1.73 m^2)	922 (10.2)	1 (1.4)	12 (2.9)	61 (2.3)	821 (17.0)	27 (2.4)
Neurocognitive disorder	291 (3.2)	0	10 (2.4)	44 (1.7)	224 (4.6)	13 (1.2)
Chronic obstructive pulmonary disease, n (%)	319 (3.5)	0	7 (1.7)	50 (1.9)	239 (4.9)	23 (2.1)
Cancer	298 (3.3)	0	11 (2.7)	71 (2.7)	187 (3.9)	29 (2.6)
Time since diagnosis of dyslipidaemia (years), median (IQR)	4.0 (2.0;8.0)	1.0 (1.0;5.0)	3.0 (1.0;5.5)	4.0 (2.0;7.0)	5.0 (2.0;10.0)	4.0 (2.0;7.0)
Cause of dyslipidaemia, n (%)						
Secondary[h]	5193/9031 (57.5)	39 (55.7)	188 (45.7)	1675/2619 (64.0)	2726/4826 (56.5)	565 (51.1)
Primary/FH[i]	1175/9031 (13.0)	9 (12.9)	100 (24.3)	334/2619 (12.8)	573/4826 (11.9)	159 (14.4)

Variable	Total (n=9049)	Risk level				
		Low (n=70)	Moderate (n=411)	High (n=2621)	Very high (n=4842)	Not assessable[a] (n=1105)
Lipid values at enrolment						
LDL-C, mmol/L (n=9049)	2.6 (1.3)	3.1 (1.4)	3.1 (1.5)	2.7 (1.3)	2.4 (1.2)	3.0 (1.3)
Total cholesterol, mmol/L (n=8807)	4.5 (1.2)	5.2 (1.6)	4.9 (1.1)	4.6 (1.2)	4.3 (1.2)	4.9 (1.2)
HDL-C, mmol/L (n=8768)	1.2 (0.4)	1.2 (0.3)	1.3 (0.4)	1.2 (0.4)	1.2 (0.4)	1.3 (0.4)
Triglycerides, mmol/L (n=8827) median (IQR)	1.5 (1.1;2.1)	1.8 (1.3;2.4)	1.5 (1.2;2.1)	1.6 (1.2;2.2)	1.5 (1.1;2.0)	1.5 (1.1;2.1)
Mixed dyslipidaemia[j], n/N (%)	2136/7695 (27.8)	NA	91/405 (22.5)	661/2564 (25.8)	1384/4726 (29.3)	NA
Fasting glucose, mmol/L (n=5734)	8.4 (12.1)	5.1 (1.1)	6.6 (7.6)	9.2 (14.2)	8.6 (11.9)	6.6 (7.7)
Serum creatinine, µmol/L (n=5875) median (IQR)	79.6 (64.0; 97.2)	63.6 (53.0; 79.6)	70.7 (61.9; 88.4)	70.7 (61.9; 88.4)	81.6 (70.7; 101.7)	2.5 (61.9; 88.4)

Data presented as n (%), mean (SD), or median (interquartile range).

ACS, acute coronary syndrome; ATP, Adult Treatment Panel; BMI, body mass index; CAD, coronary artery disease; CVD, cardiovascular disease; DBP, diastolic blood pressure; FH, familial hypercholesterolaemia; GFR, glomerular filtration rate; HDL-C, high-density lipoprotein cholesterol; HR, heart rate; HRT, hormone replacement therapy; IQR, interquartile range; LDL-C, low-density lipoprotein cholesterol; NA, not available; SBP, systolic blood pressure; SCORE, Systemic Coronary Risk Estimation; SD, standard deviation.

[a] Patients without a serious pathology classifying them as very high or high cardiovascular risk, and in whom the SCORE could not be calculated due to missing data.

[b] Consumption ≥3 times a week.

[c] Individuals who smoked tobacco or who quit smoking during past year.

[d] Subject is not regularly involved in moderate (walking/cycling/gardening) or strenuous exercise (jogging/football/vigorous swimming) for ≥4 hours each week.

[e] Physician defined.

[f] Coronary and/or vascular disease <55 years of age in male and <60 years in female first-degree relatives.

[g] Dutch Lipid Clinics criteria: definite or probable.

[h] Excessive intake of alcohol or saturated fats or carbohydrates; medication side-effects; another medical condition such as poorly controlled diabetes mellitus, obesity, medications, obstructive liver disease, kidney disease, multiple myeloma, or hypothyroidism.

[i] Physician defined (with/without genetic test).

[j] Total serum triglycerides ≥1.7 mmol/L (150 mg/dL) and LDL-C >target (before starting LLT).

Supplementary Table 4. Lipid laboratory values, overall and by cardiovascular risk level (calculated using SCORE[1]) at time of first diagnosis, before starting lipid-lowering therapy

Variable	Total (n=9049)	Risk level				
		Low (n=70)	Moderate (n=411)	High (n=2621)	Very high (n=4842)	Not assessable [a] (n=1105)
LDL-C (N)	3249	64	377	949	1816	43
Mean (SD), mmol/L	3.9 (1.4)	4.1 (1.0)	4.2 (1.0)	4.0 (1.7)	3.7 (1.3)	4.0 (1.3)
Total cholesterol (N)	3380	70	411	988	1906	5
Mean (SD), mmol/L	6.0 (1.5)	6.2 (1.2)	6.3 (1.2)	6.0 (1.6)	5.8 (1.5)	6.1 (1.0)
HDL-C (N)	3089	67	379	913	1708	22
Mean (SD), mmol/L	1.2 (0.4)	1.2 (0.5)	1.2 (0.4)	1.2 (0.4)	1.2 (0.4)	1.2 (0.5)
Triglycerides (N)	3274	66	398	970	1820	20
Median (IQR), mol/L	1.9 (1.3;2.6)	2.0 (1.4;2.8)	1.9 (1.3;2.7)	1.9 (1.4;2.7)	1.9 (1.3;2.6)	2.0 (1.5;2.8)

LDL-C, low-density lipoprotein cholesterol; SD, standard deviation; HDL-C, high-density lipoprotein cholesterol; IQR, interquartile range; SCORE, Systemic Coronary Risk Estimation.

[a] Patients without a serious pathology classifying them as very high or high cardiovascular risk, and in whom the SCORE could not be calculated due to missing data.

Supplementary Table 5. Selected antithrombotic and other cardiovascular therapies, overall and by cardiovascular risk level

Variable, n (%)	Total (n=9049)	Risk level				
		Low (n=70)	Moderate (n=411)	High (n=2621)	Very high (n=4842)	Not assessable[a] (n=1105)
Antithrombotic therapy						
Aspirin	4721 (52.2)	8 (11.4)	84 (20.4)	828 (31.6)	3493 (72.1)	308 (27.9)
Other antiplatelet	1609 (17.8)	4 (5.7)	26 (6.3)	149 (5.7)	1370 (28.3)	60 (5.4)
Oral anticoagulant	441 (4.9)	0	8 (1.9)	53 (2.0)	348 (7.2)	32 (2.9)
None	3318 (36.7)	58 (82.9)	298 (72.5)	1580 (60.3)	664 (13.7)	718 (65.0)
Other cardiovascular therapy						
ACE inhibitor	2262 (25.0)	5 (7.1)	51 (12.4)	374 (14.3)	1689 (34.9)	143 (12.9)
ARB	3187 (35.2)	14 (20.0)	101 (24.6)	943 (36.0)	1813 (37.4)	316 (28.6)
Diuretic	2206 (24.4)	9 (12.9)	50 (12.2)	456 (17.4)	1508 (31.1)	183 (16.6)
Beta-blocker	3380 (37.4)	11 (15.7)	68 (16.5)	445 (17.0)	2630 (54.3)	226 (20.5)
Calcium channel blocker	2198 (24.3)	9 (12.9)	67 (16.3)	495 (18.9)	1410 (29.1)	217 (19.6)
Other antihypertensive	427 (4.7)	1 (1.4)	7 (1.7)	81 (3.1)	297 (6.1)	41 (3.7)
None	1998 (22.1)	39 (55.7)	200 (48.7)	959 (36.6)	356 (7.4)	444 (40.2)

ACE, angiotensin-converting enzyme; ARB, angiotensin II receptor blocker; SCORE, Systemic Coronary Risk Estimation.

[a] Patients without a serious pathology classifying them as very high or high cardiovascular risk, and in whom the SCORE could not be calculated due to missing data.

Supplementary Table 6. Change in lipid values after starting LLT (after first diagnosis of dyslipidaemia)

Variable	Total	Risk level				
		Low	Moderate	High	Very high	Not assessable[a]
LDL-C, N	3249	64	377	949	1816	43
% change from diagnosis						
Mean (SD)	−26.9 (64.0)	−19.7 (34.9)	−27.0 (25.5)	−27.5 (29.6)	−27.0 (81.7)	−23.8 (27.3)
Median (IQR)	–33.6 (–48.9; –11.9)	–28.4 (–39.7; –7.9)	–30.6 (–45.1; –13.5)	–31.5 (–47.1; –111.1)	–36.0 (–51.1; –12.2)	–21.2 (–48.7; –0.2)
HDL-C (N)	3035	67	374	892	1681	21
% change from diagnosis, mean±SD	6.9 (35.6)	5.7 (31.0)	5.1 (21.2)	5.9 (33.6)	7.8 (39.2)	12.7 (37.8)

LDL-C, low-density lipoprotein cholesterol; IQR, interquartile range; HDL-C, high-density lipoprotein cholesterol; LLT, lipid-lowering therapy; NA, not available; SD, standard deviation.

[a] Patients without a serious pathology classifying them as very high or high cardiovascular risk, and in whom the SCORE could not be calculated due to missing data.

[b] Total serum triglycerides ≥1.7 mmol/L (150 mg/dL) and LDL-C>target (before starting LLT).

Supplementary Table 7. Achievement of target LDL-C levels according to use of high- or low-risk country SCORE chart: sensitivity analysis

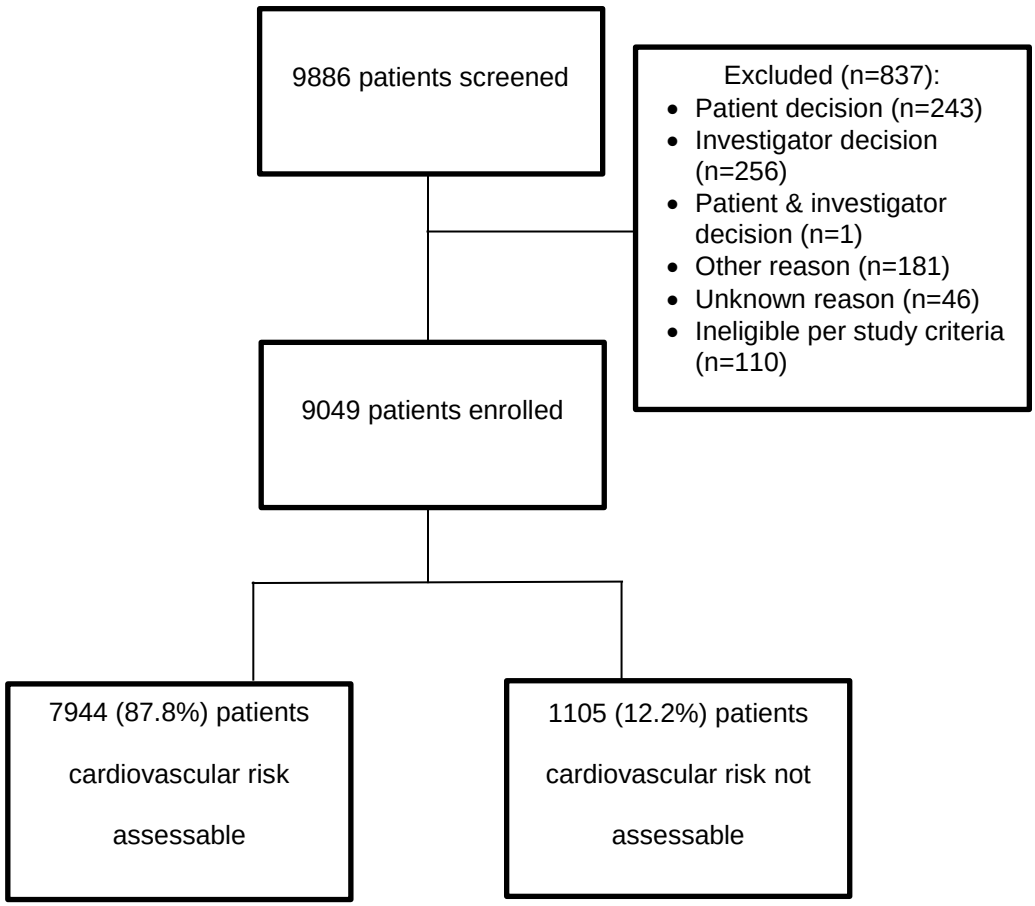
Risk level	High risk[a]	High or low risk[b]
Low	0.8%	1.2%
Moderate	4.5%	5.7%
High	29.0%	28.4%
Very high	53.5%	52.3%
Non-assessable	12.2%	12.3%
Overall population	**39.9%**	**40.6%**

LDL-C, low-density lipoprotein cholesterol.

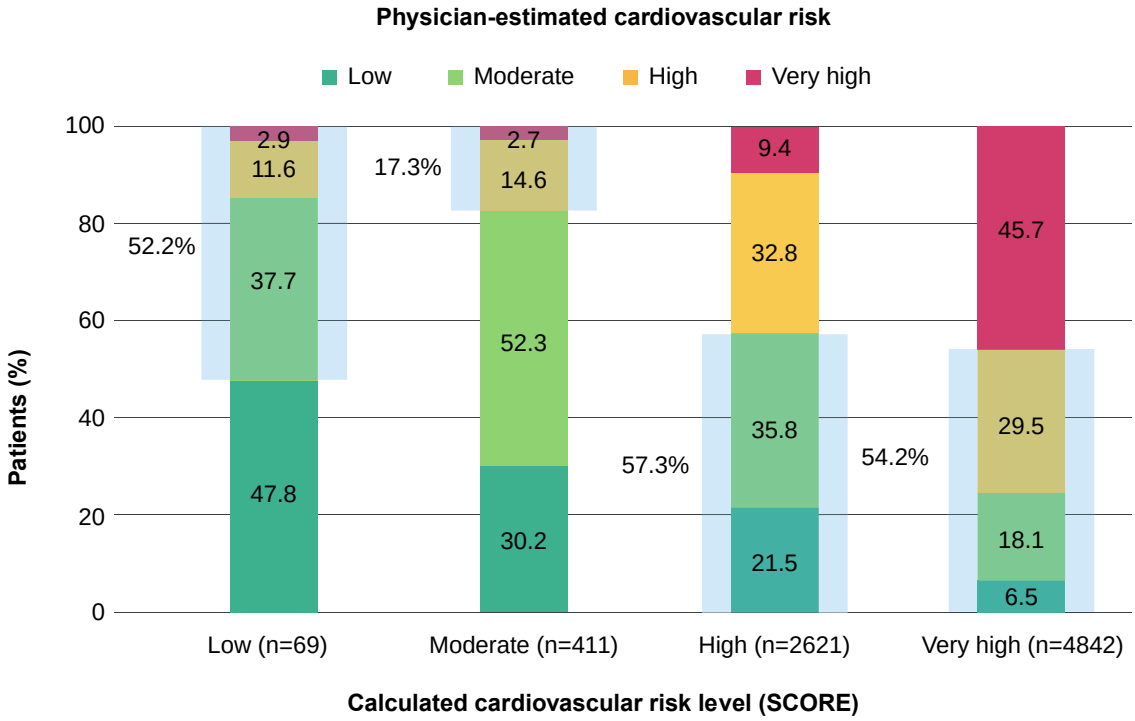
[a] Proportions by risk level, when all countries were considered at high risk (criteria for high-risk SCORE chart used).

[b] Proportions by risk level, when countries with ischaemic heart disease and cerebrovascular disease death rates below 184 deaths per 100,000[4] were considered at low risk (criteria for low-risk SCORE chart used) (i.e. Israel, South Korea, Algeria, Brazil, South Africa, UAE, Colombia, Mexico and Argentina) and all other countries were considered at high cardiovascular risk.

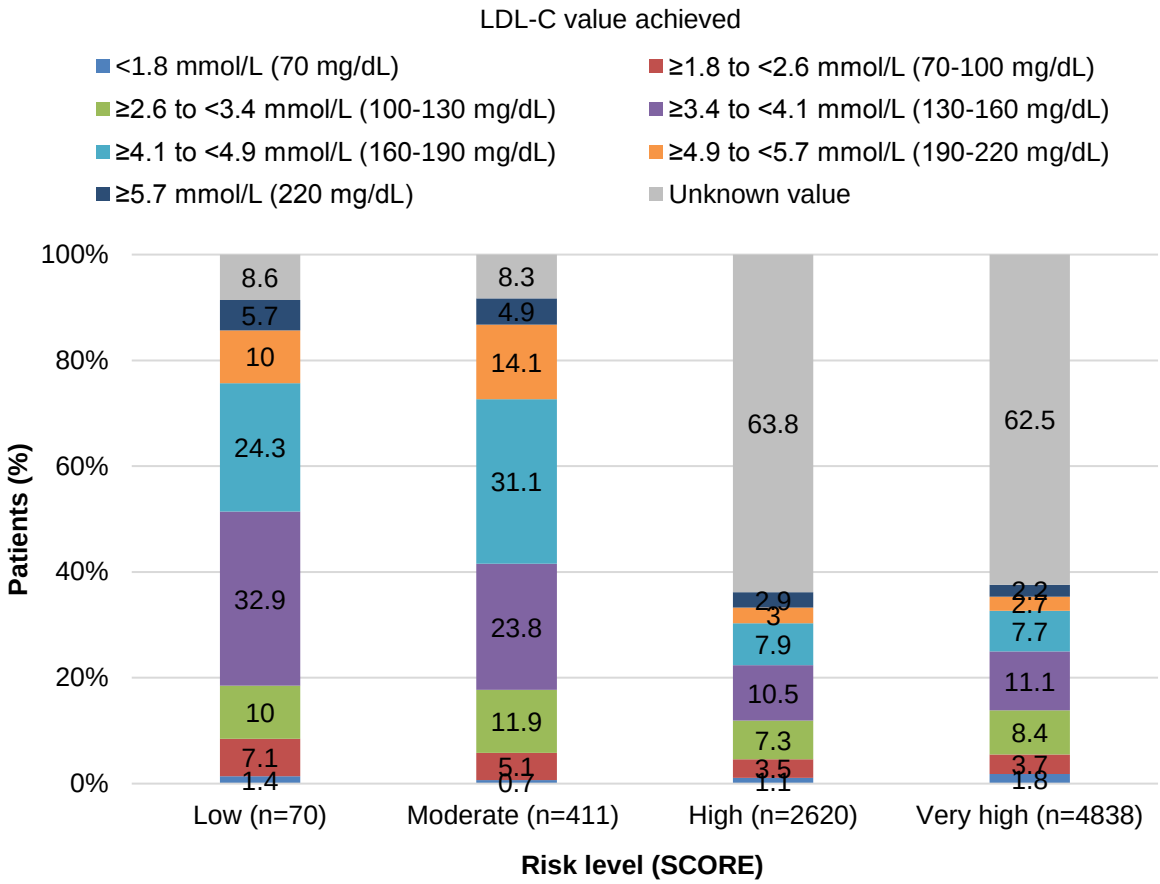
Supplementary Figure 1. Patient flow chart



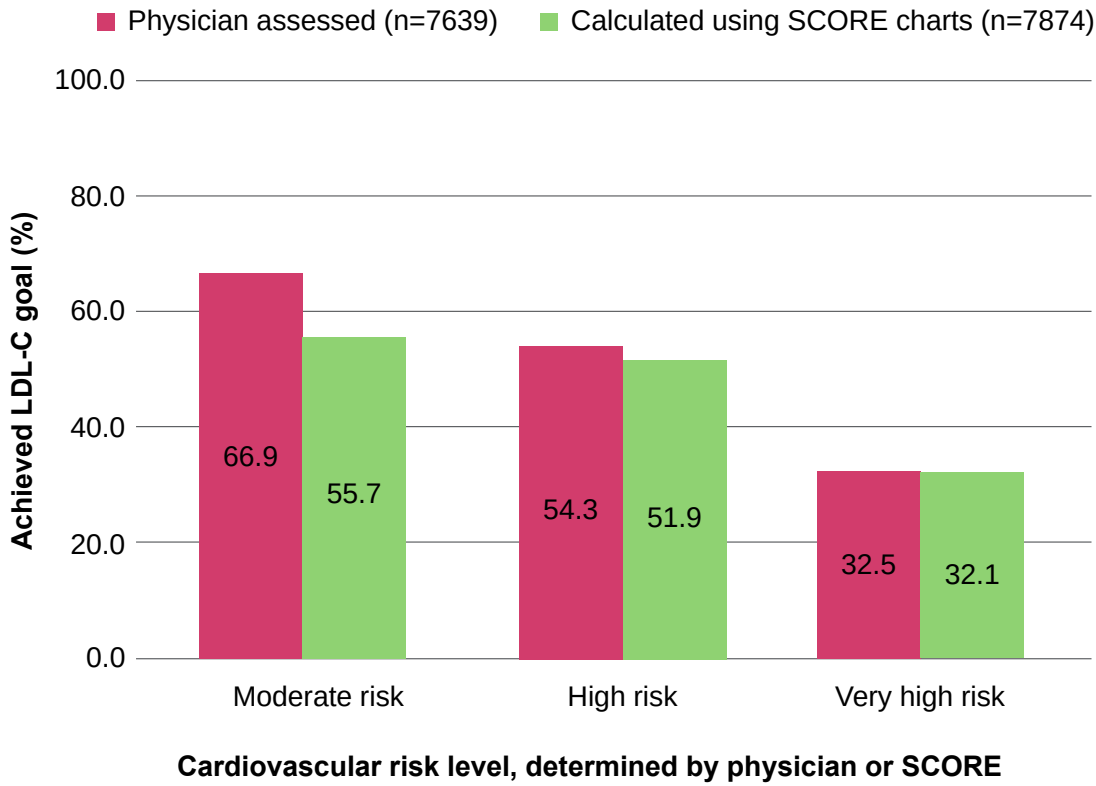
Supplementary Figure 2 Physician-estimated assessment of patient cardiovascular risk versus calculated risk (calculated using SCORE[1]) (weighted Kappa 0.22 (95% confidence interval 0.21−0.23). Physician-estimated risk was unknown in 1 patient.



Supplementary Figure 3. Low-density lipoprotein cholesterol value at time of first diagnosis, before starting lipid-lowering treatment, overall and according to cardiovascular risk level (calculated using Systemic Coronary Risk Estimation, SCORE[1])



Supplementary Figure 4. Patients who achieved the 2011 ESC/EAS LDL-C goals,[2] according to physician-estimated or calculated cardiovascular risk level (calculated using SCORE1). EAS, European Atherosclerosis Society; ESC, European Society of Cardiology; LDL-C, low-density lipoprotein cholesterol; SCORE, Systemic Coronary Risk Estimation.



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