Supplementary Online Material

Collet T-H, Salamin S, Zimmerli L, Kerr EA, Clair C, Picard-Kossovsky M, Vittinghoff E, Battegay E, Gaspoz J-M, Cornuz J, Rodondi N. The quality of primary care in a country with universal healthcare coverage. *Journal of General Internal Medicine*.

Appendix Table 1. Detailed Data on Recommended Preventive Care and Chronic Care for Cardiovascular Risk Factors.

Appendix Table 2. Diagnostic criteria for Dyslipidemia, Hypertension and Diabetes.

References.

Appendix Table 1. Detailed Data on Recommended Preventive Care and Chronic Care for Cardiovascular Risk Factors

Preventive Care		Type *	Fct *	Mode *	Done no	Eligible no	Done † % (CI 95%)	Refused † no (%)
1	Systolic and diastolic blood pressure should be measured on patients otherwise presenting for care at least once each year	P	D	P	952	1002	95.0 (93.5-96.3)	
2	The medical record should include measurements of weight at least once	P	S	P	952	1002	95.0 (93.5-96.3)	
3	The medical record should include measurements of height at least once (during the 2 years review period or reported in the chart)	P	S	P	753	1002	75.1 (72.4-77.8)	
4	All patients should be screened for problem drinking with at least one of the following: use of a validated screening questionnaire (such as AUDIT, MAST or CAGE), quantity (e.g., drinks per day), binge drinking (e.g., more than 5 drinks in a day in the last month)	P	S	H	671	1002	67.0 (64.0-69.9)	
5	At risk (> 14 drinks per week for men < 65 years, > 7 drinks per week for others) or binge drinkers (> 4 drinks per occasion for men < 65 years, > 3 drinks for others) should be advised to decrease their drinking	C	T	C	102	132	77.3 (69.2-84.1)	
6	Smoking status should be documented at least once for all patients	P	S	H	789	1002	78.7 (76.1-81.2)	
7	There should be documentation that advice to quit smoking was given to all smokers at least once during the course of a year	P	T	C	165	230	71.7 (65.4-77.5)	
8	All smokers identified as attempting to quit should be offered at least one additional smoking cessation counseling visit or referral within 3 months	P	T	E	52	77	67.5 (55.9-77.8)	
9	All smokers attempting to quit who smoke more than 10 cigarettes a day should be offered pharmacotherapy except in the presence of serious medical precautions	P	T	M	37	77	48.1 (36.5-59.7)	
10	All patients who receive a smoking cessation intervention should have their abstinence status documented within 4 weeks of the completion of treatment	P	F	H	24	52	46.2 (32.2-60.5)	
11	All average-risk adults age 50 to 80 should be offered at least one of the following colon cancer screening tests: FOBT (if not done in the past 2 years), sigmoidoscopy (if not done in the past 5 years), colonoscopy (if not done in the past 10 years), double contrast barium enema (if not done in the past 5 years)	P	S	L	345	984	35.1 (32.1-38.1)	21 (2.1)
12	Women aged 50 to 70 should have had a screening mammography performed at least every 2 years (one in the review period)	P	S	L	125	310	40.3 (34.8-46.0)	5 (1.6)

13	All patients aged 65 and over should have been offered influenza vaccine annually or have documentation that they received it elsewhere	P	T	I	150	426	35.2 (30.7-40.0)	22 (5.2)
14	All patients under age 65 with any of the following conditions should have been offered influenza vaccination annually: living in a nursing home, chronic obstructive pulmonary disease, chronic cardiovascular disorders, renal failure, immunosuppression, diabetes mellitus, hemoglobinopathies (e.g., sickle cell)	P	T	I	81	276	29.3 (24.0-35.1)	10 (3.6)

Diabetes		Type *	Fct *	Mode *	Done no	Eligible no	Done † % (CI 95%)	Less often ‡ no (%)
15	Patient < 75 years old with > 1 fasting blood sugar > 7.0 mmol/L (126 mg/dL) or postprandial blood sugar > 11.0 mmol/L (200 mg/dL) should have a diagnosis of diabetes noted in progress notes or problem list	C	D	L	241	249	96.8 (93.8-98.6)	
16	Patient with diabetes should have glycosylated hemoglobin at least twice a year	C	F	L	210	292	71.9 (66.4-77.0)	77 (26.4)
17	Patients with diabetes should have an annual eye and visual exam	C	F	P	163	292	55.8 (49.9-61.6)	69 (23.6)
18	Patients with diabetes should have total serum cholesterol and HDL cholesterol tests documented	C	F	L	285	292	97.6 (95.1-99.0)	
19	Patients with diabetes should have measurement of urine protein (annual) documented	C	F	L	190	292	65.1 (59.3-70.5)	0 (0.0)
20	Patients with diabetes should have an examination of their feet at least twice a year	C	F	P	147	292	50.3 (44.5-56.2)	54 (18.5)
21	Patients with diabetes should have measurement of blood pressure §	C	F	P	291	292	99.7 (98.1-100.0)	
22	Patients with diabetes should have a follow-up visit at least every six months	C	F	E	259	292	88.7 (84.5-92.1)	0 (0.0)
23	Patients taking insulin should monitor their glucose at home unless documented to be unable or unwilling	C	F	L	101	103	98.1 (93.2-99.8)	
24	Newly diagnosed (during the period review) diabetics should receive dietary and exercise counseling	C	T	C	57	58	98.3 (90.8-100.0)	
25	Type 2 diabetics who have failed dietary therapy (HbA1c ≥ 7% after 6 months) should receive oral hypoglycemic therapy ‖	C	T	M	67	75	89.3 (80.1-95.3)	
26	Type 2 diabetics who have failed oral hypoglycemics (HbA1c ≥ 7% with 2 oral drugs after 6 months) should be offered insulin ‖	C	T	M	54	75	72.0 (60.4-81.8)	

27	Diabetics with proteinuria (> 300 mg/24h) or microalbuminuria ¶ (albumin/ creatinin > 3 µg/µmol) should be offered an ACE inhibitor or an angiotensin receptor blocker # within 3 months of the notation of the proteinura unless contraindicated	C	T	M	85	96	88.5 (80.4-94.1)

Hypertension		Type *	Fct *	Mode *	Done no	Eligible no	Done † % (CI 95%)
28	All patients with blood pressures ≥ 140/90 mmHg, as determined on at least 3 separate visits should have a diagnosis of hypertension documented in the record	C	D	P	614	639	96.1 (94.3-97.5)
29	Treatment for hypertension should include lifestyle modification. The medical record should indicate counseling for at least 1 of the following interventions: weight reduction if obese, increased physical activity if sedentary, or a low sodium diet	C	T	C	485	753	64.4 (60.9-67.8)
30	Hypertensive patients should visit the provider at least once each year	C	F	E	751	753	99.7 (99.0-100.0)
31	Hypertensive patients with consistent average SBP > 140 or DBP > 90 mmHg over 6 months should have one of the following interventions recorded in the medical record: a change in dose or regimen of antihypertensives, or repeated education regarding lifestyle modifications	C	F	M	389	502	77.5 (73.6-81.1)

Dyslipidemia		Type *	Fct *	Mode *	Done no	Eligible no	Done † % (CI 95%)
32	Patients without preexisting coronary disease who are started on pharmacological treatment for hyperlipidemia should have had at least 2 measurements of their cholesterol (total or LDL) documented in the year before the start of pharmacological treatment	C	D	L	154	174	88.5 (82.8-92.8)
33	Persons under age 75 with preexisting heart disease who are not on pharmacological therapy for hyperlipidemia should have their total cholesterol, HDL, and LDL level documented at least once over 5 years	C	D	L	134	138	97.1 (92.7-99.2)

Cardiovascular disease **		Type *	Fct *	Mode *	Done no	Eligible no	Done † % (CI 95%)
34	Patients with a diagnosis of CAD who do not have contraindications to aspirin should receive daily aspirin	C	T	M	144	152	94.7 (89.9-97.7)
35	Patients discharged after an acute myocardial infarction should be on a beta-blocker (unless they have contraindications to betablockers)	C	T	M	49	60	81.7 (69.6-90.5)
36	Patient with a documented history of stroke or TIA without a known cardiac source should be on daily antiplatelet treatment, unless a contraindication is documented	C	T	M	66	74	89.2 (79.8-95.2)
37	Patients with a diagnosis of heart failure who have an ejection fraction of < 40% and no contraindications should be receiving an ACE inhibitor or angiotensin-receptor blocker #	C	T	M	42	47	89.4 (76.9-96.5)

Indicators were derived from MyGlynn *et al.*[1]. We did not include preventive care RAND indicators that were not applicable to our local settings, to information that is usually not collected in medical charts in Switzerland, or to our target population (primary care adults aged 50-80 years): Immunizations for rubella, tetanus/diphtheria, pneumococcus, Mantoux test (all reported in immunization cards that belong to patients in Switzerland, with no copy in the medical charts), at risk behaviour for STDs, Pap smear performed by gynecologists in Switzerland, hearing disorder, seat-belt usage.

Abbreviations: ACE = angiotensin-converting enzyme; BMI = body mass index; CAD = coronary artery disease; CHF = congestive heart failure; CVD = cardiovascular disease; DBP = diastolic blood pressure; FOBT = fecal occult blood test; HDL = high-density lipoprotein; LDL = low-density lipoprotein; N/A = not applicable; TIA = transient ischemic attack

* Classification based on McGlynn *et al.*[1]: **Type:** P = preventive; C = chronic. **Function**: S = screening; D = diagnosis; T = treatment; F = follow-up. **Modality**: H = history; P = physical examination; C = counseling; E = encounter or other intervention; M = medication; L = laboratory or radiology; I = immunization.

† When care was refused by eligible patients, it was counted as provided care to measure physician-initiated health care. When care was provided less frequently than specified (i.e. once a year instead of twice a year, or only once instead of annually), it was counted as unprovided care to measure physician adherence to recommendations.

‡ Less often: care provided once a year or once in two years, instead of twice a year. If annual care is recommended, care provided only once in two years.

§ "at every visit" wasn't mentioned in our question as opposed to the original RAND indicator

|| Explicit value of HbA1c was added to those questions

¶ Microalbuminuria was added according to American Diabetes Association guidelines[2]

Angiotensin-receptor blocker was added according to Joint National Committee 7th guidelines[3]

** When care was contra-indicated, the patient was not counted as eligible, thus reducing the denominator.

Appendix Table 2. Diagnostic criteria for Dyslipidemia, Hypertension and Diabetes *

Condition	Diagnostic criteria (at least one criteria)
Dyslipidemia	1. At least 1 prescription for a lipid-lowering agent 2. Outpatient diagnosis of dyslipidemia or hypercholesterolemia with a previous LDL cholesterol value ≥ risk-appropriate cut-point value, as defined by NCEP ATP III
Hypertension	1. At least 1 prescription for an antihypertensive medication plus an outpatient diagnosis of hypertension 2. At least 2 outpatient diagnoses of hypertension 3. At least 1 prescription for an antihypertensive medication plus 1 or more elevated outpatient blood pressure readings (≥140 mmHg systolic or ≥90 mmHg diastolic) 4. At least 1 outpatient diagnosis of hypertension plus at least 1 blood pressure reading of ≥140 mmHg systolic or ≥90 mmHg diastolic
Diabetes	1. At least 1 prescription of insulin or an oral hypoglycemic agent 2. At least 2 outpatient diagnoses of diabetes mellitus 3. One outpatient diagnosis of diabetes mellitus plus HbA1c ≥7% 4. At least 1 hospital discharge with a primary diabetes mellitus-related diagnosis 5. At least 2 fasting glycemia ≥7.0 mmol/l 6. At least 2 times 2-hour plasma glucose ≥11.0 mmol/l during an oral glucose tolerance test

* Adapted from Rodondi N, *et al*[4]

References

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3. Chobanian AV, Bakris GL, Black HR, et al. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. JAMA 2003;289:2560-72.
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