

Supplement 2. Medication Adherence Intervention Characteristics

Type of intervention	Clinical condition	Study	Description of intervention	Mode of Delivery	Number of sessions	Session Frequency	Total Minutes ^μ	Duration of Intervention
Blister packaging	Hypertension	Schneider et al., 2008 (110)	Blister packaging of lisinopril	Packaging	NA	NA	NA	NA
Case management	Depression/hypertension	Bogner and de Vries, 2008 (111)	Integrated care of depression and hypertension with care manager	F2F, phone	5	NS	120 minutes	4 weeks
	Depression	Katon et al., 2001 (140) Ludman et al., 2003 (141) Von Korff et al. 2003 (142)	Depression relapse prevention program including education, symptom monitoring, motivational enhancement, self-management and self-care instruction, and referral facilitation	F2F, phone, print, DVD	9	NS	>150 minutes	12 months
	Depression/diabetes	Bogner and de Vries, 2010 (95)	Integrated care of depression and diabetes with care manager	F2F, phone	5	NS	120 minutes	4 weeks
	Depression/diabetes	Bogner et al., 2012 (96)	Integrated care of depression and diabetes with care manager	F2F, phone	5 (3 F2F; 2 phone)	F2F every six weeks; phone NS	120 minutes	12 weeks
	Heart failure	Rich et al., 1996 (127)	Multidisciplinary intervention (inpatient and outpatient): heart failure teaching, medication review, home care visits and phone contact by nurse	F2F, print	NS	NS	NS	NS
	Hypertension	Rudd et al. 2009 (156)	Nurse management by phone, hypertension medication adjustment guided by automated	Phone	5	Per schedule	NS	4 months

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			home blood pressure monitors					
	Hypertension	Wakefield et al., 2011 (113)	2 intervention groups: Group 1: use of home telehealth device for blood pressure and glucose as well as education with nurse case management; Group 2: Similar to Group 1, with lower intensity of educational content	Telehealth device, phone, and written materials as needed	NS	Daily transmission of BP and blood glucose via telehealth device	NS	6 months
	Multiple or unspecific chronic conditions	Nietert et al., 2009 (159)	2 interventions Group 1: pharmacists phoned overdue patients with reminders and addressed barriers to adherence Group 2: Pharmacists faxed physicians with instructions to reach overdue patients	Telephone, fax	NS	NS	NS	NS
	Multiple or unspecific chronic conditions	Schnipper et al., 2006 (160)	Pharmacist reviewed medication regimen and provided counseling at hospital discharge and followed up with patient	F2F, phone	2	NS	NS	NS
	Multiple or unspecific chronic conditions	Taylor et al., 2003 (161)	Pharmacists reviewed medication regimen, provided education and recommendations, and monitored compliance during regularly scheduled office visits	F2F, print	>1 NS	NS	20-minute/visit	12 months
	Musculoskeletal	Rudd et al.,	Case management	F2F,	2	Every month	40	NS

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	diseases	2004 (112)	offering standard rheumatology care; a notebook containing Arthritis Foundation pamphlets written in plain language, examples of medicine calendars, and hospital map; two appointments with health educator	phone, print			minutes	
Case management preceded by intensive interdisciplinary assessment	Multiple or unspecific chronic conditions	Sledge et al., 2006 (162)	Comprehensive interdisciplinary medical and psychosocial assessment followed by followed by nurse-led ambulatory case management for 1 year	F2F, phone, print	> 13	Monthly phone	>180 minutes	1 year
Collaborative care	Depression	Capoccia et al., 2004 (143)	Pharmacist or pharmacy residents collaborated with primary care providers and psychiatrists; telephoned patients to address symptom and medication concerns, authorized medication refills, managed patient assistance programs, facilitated referrals, provided additional pharmacotherapy as needed	Phone	18	Every 1 to 2 weeks	270 minutes	12 months
	Depression	Katon et al., 1995 (144)	Patients received education on depression, antidepressants, and	F2F, print, video	4	Every 8 to 10 days	105 minutes	6 weeks

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			cognitive behavioral therapy; completed a doctor-patient questionnaire to give PCP and had two psychiatric visits; psychiatrists collaborated with PCP about regimens and adherence; PCPs received education on depression; case consultations, and case conferences					
	Depression	Katon et al., 1996 (145)	Multifaceted collaborative care intervention targeting the patient, PCP, and process of care. Included behavioral treatment to manage depression and counseling to improve adherence. Patients received education on depression, antidepressants, and depression management techniques	F2F, phone, print, videos	8	Every 2 to 12 weeks	>360 minutes	24 weeks
	Depression	Katon et al., 1999 (146) Katon et al., 2002 (147)	Multifaceted stepped intervention for depression persistence; patients received education, two scheduled visits with psychiatrist, additional visits as needed, brief telephone calls; psychiatrists helped	F2F, phone, print, DVD	>2	NS	75 minutes	NS

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			PCPs adjust dosages and medication; PCPs received immediate updates about patient progress					
	Depression	Pyne et al., 2011 (148)	Collaborative stepped care with HIV and mental health providers; included education, self-management instruction, and monitoring of depression and substance abuse symptoms; referral assistance	Phone for patient, electronic medical record for provider	>1 NS	Every 2 to 4 weeks	NS	NS
	Hyperlipidemia/ Hypertension/ Diabetes	Lin et al., 2006 (97)	Nurse-led collaborative care for depression to provide individualized management of depression care according to patient preference and treatment response	F2F, phone	16	NS	>240 minutes	12 months
	Hypertension	Carter et al., 2009 (114)	Collaboration between pharmacist and physician; pharmacist met with patients, assessed medications, made recommendations to physicians who signed off on therapy changes	F2F, phone	1.6	Every 3 months	NS	6 months
	Hypertension	Hunt et al., 2008 (115)	Co-located physician-pharmacist team-based care; pharmacist met with patients, assessed and optimized medication regimen, and discussed as	F2F	1-4	NS	NS	NS

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			needed with the PCP					
Decision Aids	Hyperlipidemia	Mann et al., 2010 (101)	Statin choice decision aid	F2F, print	1	NA	6 minutes	NA
	Hyperlipidemia	Weymiller et al., 2007 (102) Jones et al., 2009 (103)	Statin choice decision aid; research staff before visit; clinician during visit	F2F, print	1	NA	NS	NA
	Musculoskeletal diseases	Montori et al., 2011 (155)	Osteoporosis decision aid in addition to usual care	Print	1	NA	NA	6 months
Education (face-to-face with pharmacist)	Hypertension	Lee et al., 2006 (109)	Individualized medication education, blister packing of medications, regular visits with the pharmacist	F2F	7	Every 2 months	240 minutes	12 months
	Hypertension	Solomon et al., 1998 (116, 117)	Pharmacist visits with for education, assessment, and counseling	F2F, phone	5	NS	NS	6 months
	Hypertension	Vivian, 2002 (118)	Pharmacist visits for management of hypertension medication, education and counseling	F2F	6	NS	NS	6 months
Education + behavioral support (phone, computer, mail, and/or video)	Heart failure	Wu et al., 2012 (128)	2 intervention groups: Group 1: education and encouragement to have a positive attitude toward medication adherence; feedback of missed doses from MEMs information Group 2: received the same intervention without MEMs feedback	F2F, phone	4	Every other week	>150 minutes	2 months
	Hyperlipidemia	Guthrie, 2001 (104)	Education from physicians, 2 weeks of free statin, two phone	Phone, mail	5	Per schedule	NS	6 months

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			reminders, and four reminder postcards					
	Hyperlipidemia	Johnson et al., 2006 (105)	Mailed individualized computer-generated intervention and manual for lipid-lowering medication adherence	Computer; mail	3	NS	NS	6 months
	Hyperlipidemia /Hypertension	Powell and Edgren, 1995 (106)	Mailed educational videotapes to improve adherence	Mail	1	NA	30 minute	NA
	Hyperlipidemia	Schectman et al., 1994 (107)	Initial clinic visit followed by phone calls for education and support	Phone	5	NS	NS	28 days
	Hyperlipidemia	Stacy et al., 2009 (108)	Tailored behavioral support delivered via an interactive voice recognition system and tailored printed mailed materials	Phone, mail, print	3	NS	NS	6 months
	Hypertension	Bosworth et al., 2005 (121)	Nurse delivered behavioral and educational intervention by phone	Phone	12	Every 2 month	NS	24 months
	Hypertension	Bosworth et al., 2008 (119, 120)	Integrated care of depression and hypertension with care manager	Phone	12	Every 2 month	NS	24 months
	Hypertension	Friedman et al., 1996 (122)	Interactive computer-based telecommunications system that conversed with patients in homes	Phone	24	Weekly	96 minutes	6 months
	Hypertension	Johnson et al., 2006 (123)	Mailed individualized computer-generated intervention and manual	Computer; mail	3	Every 3 months	NA	6 months

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			for hypertension					
	Hypertension	Ogedegbe et al., 2012 (124)	Patient education enhanced with positive-affect induction and self-affirmation	F2F, Phone, written material	1 F2F, 5 phone calls	Every 2 months	NS	12 months
	Myocardial infarction	Smith et al., 2008 (131)	Two mailings to patients encouraging beta-blocker adherence; mailing to primary care providers	Mail written material	2	2 mailings separated by 2 months	NS	2 months
Education + social support	Hypertension /diabetes	Pearce et al., 2008 (98)	Nurse-delivered cardiovascular risk education with patient's social support person, quarterly educational newsletters	F2F	1	NA	30 minutes	NA
Health coaching	Diabetes	Wolever et al., 2010 (99)	Master's level staff provide health coaching link to patient values	Telephone	14	9 weekly; then 4 biweekly and 1 monthly	420 minutes	20 weeks
Multicomponent interventions	Glaucoma	Okeke et al. 2009 (153)	Educational video, discussion of barriers and strategies with study coordinator, reminder phone calls, use of a dosing aid	F2F, phone, video, dosing aid device	10	NS	NS	3 months
	Heart failure	Murray et al., 2007 (129)	Pharmacist-delivered verbal and written instructions, medication labeling with icons	F2F, print	NS	NS	NS	9 months
Patient access to medical records	Heart failure	Ross et al., 2004 (126)	Access to online medical record, educational guide for heart failure, and messaging system with nursing staff	Computer	NS	NS	NS	12 months
Pharmacist or	Asthma or	Weinberger	Pharmacists given access	F2F, print	> 1,	Every month	NS	NS

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physician access to patient adherence data	COPD	et al., 2002 (139)	to patient-specific data symptom, adherence, and health care utilization data; trained to access and interpret patient-specific information and educated about reactive airway disease; given incentives for high utilization of patient-specific data. Patients given peak-flow monitors, instructions about its use, and monthly calls to obtain peak flow results		number NS			
	Asthma or COPD	Williams et al., 2010 (138)	Physicians received electronic adherence data for their patients	Computer	> 1 NS	Every 2 weeks	NS	NS
Reminders	Heart failure	Fulmer et al., 1999 (130)	Video and phone reminder	Phone, videophone	30	Every day	Approx 120 minutes	6 weeks
	Depression	Hoffman et al., 2003 (152)	Mail-based letters sent to providers listing patients who were prescribed antidepressants and found nonadherent through pharmacy claims; letters sent to nonadherent patients with general information about medication adherence	Print, mail	6	Every month	NS	6 months
Risk communication	Hypertension	Powers et al., 2011 (125)	Personalized risk communication about coronary heart disease and stroke	F2F	1	Once	NS	Once

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Self-management	Asthma	Bender et al., 2010 (132)	Interactive-voice-response phone calls to monitor symptoms and encourage adherence	Phone	2-3	NS	Approx 10 to 15 minutes	10 weeks
	Asthma	Berg et al., 1997 (133)	Sessions on asthma education, self-management behaviors, relaxation techniques, problem-solving skills	F2F	6	NS	720 minutes	7 weeks
	Asthma	Janson et al., 2003 (134)	Asthma education, skills for correct medication inhalation and peak-flow meter use; peak-flow data reported to patients; written asthma action plan; patients maintained daily diary of symptoms, peak flow, and medication use	F2F	5	NS	150 minutes	7 weeks
	Asthma	Janson et al., 2009 (135)	Individualized self-management education; patients maintained daily diary of symptoms, peak flow, and medication use	F2F	5	Every 2 to 4 weeks	150 minutes	14 weeks
	Asthma	Schaffer and Tian, 2004 (136)	4 interventions Group 1: 30-minute audiotape story following a protagonist through asthma diagnosis and care Group 2: educational booklet Group 3: audiotape alone Group 4: educational booklet alone	Audio or book	1	NA	30 to 60 minutes	NS
Shared or	Asthma	Wilson et al.,	2 interventions	F2F,	5	NS	210	9 months

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clinical decision making		2010 (137)	Group 1: shared decision-making model Group 2: clinical decision-making model	phone			minutes	
Telephone counseling, care management and monitoring	Diabetes	Grant et al., 2003 (100)	Pharmacist administered tailored education regarding medication use; appointment referrals; adherence summary given to primary care provider	Phone; electronic	1	NA	NS	NS
	Depression	Rickles et al., 2005 (149)	Pharmacists called patients to discuss adherence, treatment goals, education, symptoms, adverse effects, and other concerns; recommendations made as needed	Phone	3	NS	45 minutes	3 months
	Depression	Simon et al., 2006 (150)	Care managers assessed symptoms, adherence, side-effects, reviewed algorithm for change in treatment, provide motivational enhancement; crisis intervention and care coordination as needed	Phone	3	Every 1 to 2 months	60 minutes	3 months
	Depression	Simon et al., 2004 (151)	2 interventions Group 1: Care managers used scripted monitoring enhancement interventions during periodic telephone contacts. Care manager	Phone	Telephone care management: minimum 4 contacts Telephone	Every 1 to 2 months	Telephone care management: 30-40 minutes Telephone	6 months

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			consulted with physicians as needed. Group 2: 8 telephone psychotherapy sessions in addition to telephone care management		psychotherapy: 8 sessions		ne psychotherapy: 10-15 minutes	
	Multiple sclerosis (MS)	Berger et al., 2005 (154)	Software-based counseling intervention to contact patients (depending on stage of readiness and importance of continuing the medicine); call center staff used Web-based software to guide them through motivational interviewing based counseling sessions	Phone	6 to 12	Every 2 to 4 weeks	NS	3 months
	Musculoskeletal diseases	Solomon et al., 2012 (158)	Telephone based counseling using motivational interviewing, in addition to mailed education materials	Phone, mailings	10	NS	Median time per session: 14 minutes	1 year
Virtual clinic	Musculoskeletal diseases	Waalens et al., 2009 (157)	Patients received care from a physician assistant under the supervision of a physician.	F2F, phones, print	varied	Every month	5-minute call	NS

Abbreviations: DVD: digital video disk; F2F: face to face; HIV: human immunodeficiency virus; NA: not applicable; NS: not specified; PCP: primary care provider; MEMS: medication event monitoring system; approx: approximately

^μTotal Minutes is the sum of time used to deliver sessions from all sessions