

Study, and in which country the research was carried out	Sample size	Clinical diseases	Nature of intervention and whether it was tailored or fixed	HCP and setting	Training for HCP	HCP's involvement in the intervention	Measured outcomes	Effectiveness of the intervention
Abdelhamid <i>et al.</i> 2008  Sudan	Intervention = 60 Control = 40	Asthma	Tailored.  Individual counselling and education on the disease, non-drug therapy measures, pharmacotherapy, self-management and inhalation technique every two weeks during the follow-up period. The outcome measures were recorded at baseline enrolment and monitored during a follow-up of every two weeks for 22 weeks in both groups. No further information given.	Pharmacist at a teaching Hospital.	Trained, but no further information given.	Full intervention carried out by pharmacist: Face to face patient education and patient counselling. Suggesting treatment changes to physicians.	Frequency of acute attacks per week,  frequency of nocturnal symptoms per week,  frequency of using short acting inhaled beta2-agonist per week,  days of sickness per week,  rate of hospitalization,  peak expiratory flow rate,  inhaler technique and  patient knowledge about asthma and drug therapy.	Significant ( $p<0.05$ ) changes in control versus intervention group comprised:  Significant reduction in mean frequency of attacks per week  Significant decrease in the mean frequency of nocturnal symptoms  Significant reduction of beta2-agonist use  Significant mean reduction in the days of sickness/week  Significant decrease in rate of hospitalisation  Significant improvement in inhaler technique  Significant increase in asthma knowledge.  However, there was no significant difference in peak expiratory flow rate.
Adler <i>et al.</i> 2004  USA	Intervention = 268 Control = 265	Depression	Tailored.  Obtaining a thorough medication history, assessing a patient's medication regimen for drug-related problems, monitoring drug efficacy and toxicity, educating patients about depression and anti-depressants (ADs), encouraging patients to start and maintain AD therapy and facilitating communication with a patient's PCP. The protocol specified that pharmacists contact each patient a minimum of 9 times over 18 months (at 2, 4, 6, 8, and 12 weeks, also at 6, 9, 12, and 18 months). No further information given.	Doctoral level (Pharm.D.) clinical pharmacists with experience in academic medical centres.  Patients enrolled from primary care practices.	Trained to administer this protocol. No further information given.	Full intervention carried out by pharmacists: Patient assessment and continuous evaluation.	AD use rates at 6 months and  changes in severity of depression as assessed by a modification of the Beck Depression Inventory (BDI)	The intervention group had more patients on ADs at 3 ( $P=0.024$ ) and 6 ( $P=0.025$ ) months than the control group.  Outcomes in mBDI scores at 6 months favoured the intervention group, but the trend did not reach statistical significance ( $P=0.16$ ).

Al-Eidan <i>et al.</i> 2002  Northern Ireland	Intervention = 40 Control = 40	<i>H. pylori</i> positive gastritis, duodenitis, ulceration	Not clear the extent to which tailored.  Education and counselling regarding the disease, importance of eradication of the organism, the medicines to be taken and importance of compliance with the prescribed dosage regimen. Compliance diary chart and information leaflet. Intervention patients were also telephoned 3 days after the initiation of therapy to provide further counselling on the importance of medication compliance. No further information given.	Hospital pharmacist at a hospital endoscopy unit.	No information given.	Full intervention carried out by the hospital pharmacist: Face to face education and counselling. Conducting follow up telephone calls. Distributing information leaflet and compliance diary chart.	<i>H. pylori</i> eradication rate, adverse drug reaction (ADR) rate, compliance rate and clinical outcomes.	Eradication rate was significantly higher in the intervention group, and in the control group ( $P = 0.027$ ).  Increase in compliance in intervention group compared to control group ( $P < 0.01$ ).  No significant difference between group in reported ADRs ( $P=0.81$ ).  At the 1 month follow-up the severity scores for individual dyspeptic symptoms were much lower for the patients in whom <i>H. pylori</i> had been successfully eradicated, compared to the persistent patients. Significant difference in severity scores of epigastric discomfort, heartburn, nausea, vomiting and wind ( $P<0.001$ ). For all patients the scores for vomiting and nausea was reduced after <i>H. pylori</i> eradication therapy ( $P<0.001$ ), but had almost returned to baseline values at the 6-months follow-up for the persistent patients ( $P>0.05$ ).
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Al-Saffar <i>et al.</i> 2008 Kuwait	Intervention = 50,50 Control = 50	Depression	<p>Fixed</p> <p>Patient information leaflets (PILs) in English and Arabic for one intervention group.</p> <p>Intensive 10 and 15 minutes drug-related counselling sessions with a standardized counselling format, advising side effects, stressing adherence and persistence for the second intervention group.</p> <p>The counselling sessions were intended to help patients understand the nature of their depressive illness and to reinforce that taking medications in the way they were prescribed would be of benefit to them. Advice was also provided on the side effects and their management.</p> <p>Emphasis was placed on the need to continue taking medication unless otherwise advised by the doctor. Advice was also given to counselled patients not to make personal decisions to modify their therapy, nor to listen to advice from family or friends to change their therapy.</p> <p>No further information given.</p>	Senior pharmacist at an out-patients clinic at a psychiatric hospital.	Professionally trained. No further information given.	Conducting face to face counselling sessions.	<p>Recall of medicine name, strength, reason, dosage and how to manage missed doses,</p> <p>correct usage of medication and</p> <p>patient satisfaction with perceived information.</p>	<p>Counselling was significantly associated with a much higher recall of medicine name (<math>P=0.01</math>), how to manage missed doses (<math>P=0.007</math>), and correct use of medication (<math>P&lt;0.001</math>).</p> <p>Leaflet use was less strongly associated than counselling and was statistically significant for recall regarding correct use of medication (<math>P=0.009</math>).</p> <p>When these patients were asked about the source of the current information about the dispensed medicine, 94% of the counselling group patients and 79% of the leaflets group patients affirmed that they received an adequate amount of information about their medication, compared to 47% of the control group patients (<math>P = 0.001</math>).</p>
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Al-Saffar <i>et al.</i> 2005 Kuwait	Intervention = 100,100 Control = 100	Depression	<p>Not clear the extent to which tailored.</p> <p>Patient counselling regarding drug knowledge, understanding, adherence and patients' satisfaction and concerns with their medication, potential side-effects, drug interactions and contraindications. The pharmacist would comment on storage of medication. The importance of informing the doctor of any allergies or of other medications being taken, any precautionary measures relevant to a particular antidepressant, when patients should report side-effects to the doctor. To conclude the session, the pharmacist re-emphasised the benefit to the patient if they continued to take their medication exactly as directed. Patients were also encouraged to contact the counselling pharmacist again if they had any further worries or questions about their medication. And/or drug specific patient information leaflet (PIL) with simplified text. Follow up at clinics 2 and 5 months later. No further information given.</p>	Pharmacist at outpatient clinics.	Received feedback on interview technique from an educational psychologist.	Full intervention carried out by the pharmacist: Providing PILs, counselling patients in one intervention group	<p>Medication adherence, knowledge of medication, incidence of side-effects and</p> <p>satisfaction with the medication information they received.</p>	<p>Combining data from both follow-up clinics, adherence was associated with membership of the 'leaflet-only' group (OR=3.0, 1.7–5.3) particularly when patients had also been counselled (OR=5.5, 95% CI 3.2–9.6).</p> <p>No statistically significant evidence that membership of a treatment group had improved medication knowledge at the first follow up (OR=1.4, 95% confidence interval (CI) =0.6–3.7).</p> <p>At the time of the first follow-up clinic, 127 (84%) of patients had experienced an average of three side-effects. There was no statistical evidence that non-adherence was associated with the incidence of side effects (<math>P&gt;0.05</math>). Furthermore, the frequency of occurrence of each of the side-effects was independent of the class of antidepressant prescribed, except that sweats were experienced more frequently (32%versus 14%) by patients taking TCAs (<math>P=0.009</math>).</p> <p>None of the patients considered that a patient information leaflet was a bad idea. However, 15 thought that the leaflets could increase their anxiety about taking their medication, and only 48/114 (43%) believed that the information in the leaflet was totally adequate. Based on 60 responses, 53 (88%) patients felt more reassured about the safety and efficacy of their medication as a result of pharmacist counselling.</p>
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Al Mazroui <i>et al.</i> 2009  United Arab Emirates	Intervention = 120 Control = 120	Type 2 diabetes	<p>Not clear the extent to which tailored.</p> <p>Education and counselling on illness and medication in a structured fashion, including discussion on risk of diabetes complications, proper dosage, side-effects and storage of medications, medication adherence, healthy lifestyle and management of diabetes mellitus signs and symptoms through self-monitoring. The educational advice was reinforced when patients came to the hospital pharmacy to collect their prescribed medicines on their monthly schedule. Patients were given an information leaflet to take home. No further information given.</p>	Research pharmacist at a military hospital, 400-bed facility	No information given.	Full intervention carried out by the pharmacist: Face to face patient educating. Distributing a printed leaflet with the education program.	<p>Medication knowledge, medication and life style advice adherence,</p> <p>health-related quality of life and</p> <p>10-year risk assessment.</p>	<p>Intervention vs. control overall medication knowledge, medication adherence and lifestyle adherence were significantly higher at the 12-month assessment (<math>P&lt;0.05</math>).</p> <p>The 10-year risk assessment value decreased (<math>P&lt;0.001</math>) and quality of life scores improved over time (<math>P&lt;0.001</math>) in the intervention group but remained unchanged in the control group.</p> <p>Other significant changes between intervention and control groups were shown in blood glucose levels, HbA1c levels and lipid profiles (<math>P&lt;0.001</math>), BMI (<math>P=0.04</math>) and in systolic and diastolic blood pressure (<math>P&lt;0.05</math>). These parameters are included in the 10-year risk assessment.</p>
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Alsabbagh <i>et al.</i> 2012 Canada	Intervention = 46 Control = 48	Cardiac complications. Patients in need of cardiac rehabilitation (CR)	<p>Tailored.</p> <p>Initially, the pharmacist telephoned all subjects in the intervention group and followed a specific set of probes to identify the barriers to optimal utilization or adherence with post-ACS or post-revascularization medications. These probes consisted of 4 questions asked during the initial interview, which are as follows: (1) Is there any medication you are not sure why it was prescribed to you? (2) Do you have any issues or problems with the medications you are taking? (3) Have you heard or read any negative information or "facts" about your drugs? and (4) Do you have any question about your doctor's recommendations? On the basis of this assessment, the pharmacist proposed the date of the next call within 1 to 2 weeks, according to the need to support medication adherence including education on side effects or intolerance, cost concerns, and drug interactions. The pharmacist contacted family physicians if warranted to address important issues. No further information given.</p>	Pharmacist.  Patients invited for CR was recruited.	No information given.	Full intervention carried out by the pharmacist: Delivering telephone-based CR. Patient assessment. Patient education and counselling.	Mean adherence to newly initiated cardiovascular medications, determined with medication possession ratio (MPR). MPR is the sum of day's supply for all claims during a defined period of time divided by the number of days elapsed during the period e.g. percentage of time a patient has access to medication (Fairman and Motheral, 2000).	No significant difference in optimal (MPR≥80%) adherence (P=0.44) between the groups.
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Aragones <i>et al.</i> 2010 USA	Intervention = 31 Control = 34	Colorectal cancer (CRC) (screening)	Fixed.  Spanish language educational video about CRC screening modalities, prevention, and risk factors, a brochure in Spanish and a one-page leaflet to hand to physician. No further information given.	Doctors at a primary care clinic.	No information given.	Recommending CRC screening according to guidelines according to leaflet handed to them by the patients.	CRC screening completion,  physician recommendation of any CRC screening test recommended in the guidelines and  patient adherence to physician CRC screening recommendation	Significantly greater overall screening completion rate after three months in the intervention group than in the control group (p=0.002).  Significant more patients in the interventions group than in the control group that adhered to physicians' screening recommendations (p=0.007).  No significant increase of received screening recommendations in the intervention group compared to the control group (p=0.08).
Armour <i>et al.</i> 2013 Australia	Intervention (three-visit) = 292 Control (four-visit) = 278	Asthma	Unclear to which extent it is tailored.  Three-visit service instead of four-visit service to evaluate the potential savings in resources. Service including patient assessment, counselling and education. Written referral to a primary care physician if patients did not have a written asthma action plan, had sub-optimal spirometry (below 80% predicted), required review of medications, and/or they had not had their asthma reviewed in the previous 6 months. Assisting patients to set goals and strategies. Visits at baseline, 1 month and 6 months both groups and an additional visit at 3 months for 4 visit group.	Pharmacists at pharmacies.	A manual of peer-reviewed resources and face-to-face training on risk assessment, pathophysiology of asthma, asthma medications, asthma guidelines, adherence assessment, patient education, goal setting, spirometry, and the service protocol during a 2-day workshop. At the end of the training, pharmacists completed an accreditation assessment administered by an external body (Australian Association of Consultant Pharmacy).	Full intervention carried out by the pharmacist: Patient assessment, face to face counselling and education. Assisting patients to set goals and strategies. Demonstration of inhaler technique. Referring to physician if needed.	Asthma on Quality of Life Questionnaire (IAQLQ)  Perceived Control of Asthma Questionnaire (PCAQ)  Consumer Asthma Knowledge Questionnaire (CQ)  Brief Medication Questionnaire (BMQ)  Asthma control was assessed at every visit using a symptom and activity tool and classified as "good," "fair," or "poor". Asthma control was also measured using the ACQ.  Inhaler technique	No significant difference in asthma control, inhaler technique, quality of life, perceived control, adherence, and asthma knowledge between the groups.

<p>Ascione <i>et al.</i> 1984</p> <p>USA</p>	<p>Intervention = 22, 23, 25, 23</p> <p>Control = 30</p>	<p>Cardio-vascular problems</p>	<p>Fixed.</p> <p>Oral instructions (standardized as much as possible) alone, oral instructions plus medication reminder calendar, oral instructions plus medication reminder package or oral instructions plus written medication information. When both oral instructions and written information was used, the pharmacist referred to the medication information sheet throughout the presentation. In the intervention involving the medication reminder calendar, the pharmacist presented the information orally in the standard format, answered questions where appropriate, and ended the visit by instructing the patient on use of the calendar. The pharmacist followed the same procedures in the intervention involving the medication reminder package as in the intervention involving the calendar. No further information given.</p>	<p>Clinical pharmacist at a University Family Practice Clinic</p>	<p>No information given.</p>	<p>Full intervention carried out by the pharmacist: Face to face delivery of oral instructions, provision of medication reminder calendars and packages and written information to patients.</p>	<p>Drug knowledge, attitude toward compliance and compliance behaviour.</p>	<p>Oral instructions alone or combined with medication reminder calendar were the most successful interventions in improving drug knowledge. However it was only significant on knowledge (<math>P&lt;0.01</math>) of side effects and action for missed dose (<math>P&lt;0.04</math>).</p> <p>The only strategy improving self-reported compliance was oral instructions combined with medication reminder package (<math>P&lt;0.02</math>).</p>
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Ashok Kumar <i>et al.</i> 2011  India	Intervention = 50 Control = 50	Hypertension	<p>Unclear to which extent it is tailored.</p> <p>At initial consultations, blood pressure, patient demographics, medical history, drug history, cardiac risk factors, lifestyle factors (weight, smoking, alcohol consumption, nature, work, physical activity levels) and attitudes towards drug treatment and understanding of hypertension and their drugs are assessed by using proforma and questionnaires. Counselling is provided only to the Experiment group and the BP readings of both the groups are reviewed at least once in a month for 4 months. As per JNC-6 classification, patients were categorised into different stages. No further information given.</p>	Pharmacist at an outpatient department of cardiology.	No information given.	Full intervention carried out by the pharmacist: Patient face to face counselling and education.	<p>Change in blood pressure (BP),</p> <p>Prevalence in smokers and alcoholics and medication adherence</p>	<p>After 4 months of intervention, systolic and diastolic levels were found to be reduced to a greater extent in the intervention group when compared to the control group (<math>P&lt;0.001</math>).</p> <p>The prevalence of smokers was found to be 30% (n=50) and 28% (n=50) in intervention and control group, respectively which after counselling depreciated to 16% and 22%, respectively. The percentage of alcoholics was 38% and 4% in intervention and control group, respectively which after counselling declined to 12% and 36%, respectively.</p> <p>The proportion of medication adherence was found to be greater in intervention group (80%) than the control group (40%)</p>
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Aslani <i>et al.</i> 2010  Australia	Intervention = 72 Control = 70	Dyslipidemia	<p>Tailored.</p> <p>Individual counselling based a questionnaire, with focus on adherence and medicine related issues. Intervention group patients attended the pharmacy at baseline (when recruited into the study) and approximately every 3 months. At each visit, total blood cholesterol levels (non-fasting) were measured by pharmacists using cholesterol testing. Patients completed the multi-part questionnaire, with the help of the pharmacist. No further information given. The questionnaire included</p> <ul style="list-style-type: none"> <li>-Brief Medication Questionnaire (BMQ)</li> <li>-Medication Adherence Report Scale (MARS),</li> <li>-modified version of Barriers to Medication Use Questionnaire (BMU)</li> <li>-SF12 Quality of Life questionnaire,</li> <li>-21 item food frequency checklist and exercise survey devised for the study,</li> <li>-demographics.</li> </ul>	Community pharmacists at pharmacies in six divisions of general practice.	All pharmacists received training in study conduct, and given continuing professional education on ischaemic heart disease and lipid management. Intervention pharmacists were also trained on the intervention.	Full intervention carried out by the pharmacist: Patient counselling. Appropriate interventions were devised and recorded on data sheets.	Mean cholesterol levels, medication adherence and lifestyle measures.	<p>There was no significant difference in mean cholesterol readings between the intervention and control groups across the study period (<math>P&gt;0.05</math>).</p> <p>Intervention patients were less likely to take less than the prescribed dose after the first time interval, and more liable to alter the dose of their medicine recommended by their general practitioner (<math>P&lt;0.05</math>).</p> <p>The change in exercise was significantly greater than for the control group over the study period (<math>P&lt;0.05</math>). The overall consumption of skim milk was significantly different between the two groups across the study period (<math>P&lt;0.05</math>).</p>
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Beaucage <i>et al.</i> 2006 Canada	Intervention = 126 Control = 129	Infections (antibiotic treated)	<p>Tailored.</p> <p>PTFI patients received a telephone call from a pharmacist on day 3 of their antibiotic treatment. The pharmacist documented the patient's general condition, checked on the presence of adverse effects and on the patient's understanding of the dosage, stressed the importance of adherence to treatment, and offered encouragement. Patients were invited to ask questions and to contact their pharmacist again if needed. If a patient could not be reached by day 3 of treatment, further telephone calls were made until the patient was reached or until day 5. No further information given.</p>	<p>Pharmacist investigators.</p> <p>Community Pharmacies.</p>	No information given.	Full intervention carried out by the pharmacist: Patient recruitment, telephone follow-up calls and patient evaluation.	<p>The number of infectious symptoms,</p> <p>infection severity and adherence.</p> <p>the number and management of DRPs,</p> <p>patient satisfaction, and incremental direct costs</p>	<p>PTFI patients reported a larger reduction in the number of infectious symptoms than did UPI patients</p> <p>No significant change in infection severity scores between the groups.</p> <p>High, but no difference in, mean adherence to antibiotic treatment between the groups (P=0.803).</p> <p>DRPs were identified in 53% (n = 67) of PTFI patients and 8% (n = 10) of UPI patients (p &lt; 0.001).</p> <p>The mean ± S.D. scores for the friendly-explanation domain (p=0.2) and the managing-therapy domain (p=0.4) were very high. The mean PTFI score was slightly higher than the mean UPI score for the item evaluating the professionalism of the pharmacy staff and for the way the pharmacist answered questions.</p> <p>Assuming that no pharmaceutical advice was reimbursed, each intervention would cost \$5.11 per patient. If all pharmaceutical advices were reimbursed at \$17.23 each, each intervention would cost \$2.65. In current practice, only recognized advices are reimbursed; the intervention would therefore cost \$3.74.</p>
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Bejes <i>et al.</i> 1992  USA	Intervention = 36, 143 Control = 129	Colorectal cancer (CRC) (screening)	Fixed.  Structured information and information sheet, or structured information sheet plus reminder letter signed by the physician. At each visit patients received information on CRC, with emphasis on the potential benefits of the screening tests. They were then offered flexible sigmoidoscopy and fecal occult blood testing. Patients in intervention group 2 received identical information plus a recall letter via mail 2- 3 weeks later. The letter, signed by the physician, reiterated the information presented during the office visit. No information given of how often the patients visited their physician. No further information given.	Doctor at a family practice clinic in a moderate- sized midwestern community	Training session in which information on CRC and the two screening tests were reviewed	Providing structured information about CRC, handing out information sheet, and offering screening tests and in addition sending a reminder letter to patients in the second intervention group.	Compliance to physician screening recommendations	No significant difference between the intervention groups in patients completing sigmoidoscopy or faecal blood test.  Significantly more patients in the intervention groups completed sigmoidoscopy and faecal blood tests compared to control ( $P < 0.05$ for both tests)
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<p>Blenkinsopp <i>et al.</i> 2000</p> <p>England</p>	<p>Intervention = 167 Control = 115</p>	<p>Hypertension</p>	<p>Tailored.</p> <p>Recommendations and counselling using a questionnaire. Findings from patient interviews and from previous research were used to construct a brief questioning protocol for use by pharmacists. The intervention was intended to enable the pharmacist to encourage the patient to disclose and discuss their own agenda on treatment for hypertension. Based on the patients' answers, the pharmacist could give verbal information, give written information, speak to patient's GP or refer the patient to its GP. Both by telephone and face to face meetings. Patients were asked by the pharmacist to self-report their adherence using Horne's Medication Adherence Report Scale (MARS).</p>	<p>Community pharmacists at 20 community pharmacy sites</p>	<p>One-day workshop on hypertension plus distance learning programmes on hypertension and on patient compliance at Centre for Pharmacy Postgraduate Education, Manchester, UK) plus distance learning programmes on hypertension and on patient compliance (Centre for Pharmacy Postgraduate Education, Manchester, UK). Pharmacists were required successfully to complete the latter, including the associated assessment, prior to the start of the study</p>	<p>Full intervention carried out by the pharmacist: Recruiting of patients. Telephone and face to face questioning and consulting regarding their medications.</p>	<p>Blood pressure control, adherence (self-reported and prescription collection data) and patient satisfaction</p>	<p>Significant more patients in the intervention group achieved controlled BP and increased their adherence (both self-reported and measured with prescription collection data), compared to the control group (<math>P &lt; 0.05</math>).</p> <p>An increased level of satisfaction was recorded by intervention patients in the post-study questionnaire on several aspects of pharmacy services. The difference was statistically significant for six statements.</p> <p>The mean prescription collection rate was significantly higher among intervention group patients than controls (5.38 and 4.99, respectively, p value not given).</p>
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Bouvy <i>et al.</i> 2003  Netherlands	Intervention = 74 Control = 78	Heart failure	<p>Tailored.</p> <p>A computerized medication history was used to discuss drug use, reasons for noncompliance— such as possible adverse drug reactions and difficulties to integrate medication use in daily life—to reinforce medication compliance. A short report of this interview was forwarded to the GP. Pharmacists then contacted patients on a monthly basis for a maximum of 6 months. No further information given.</p>	Community pharmacists.  7 hospitals in the Netherlands	Pharmacists received interview training, but no further information given.	Conducting structured patient interviews, patient consulting and making follow-up calls on a monthly basis for a maximum of 6 months.	<p>Compliance (MEMS), number of rehospitalisation's and quality of life which were assessed both with a generic instrument (Dartmouth COOP Functional Assessment Charts/WONCA) and a specific heart failure instrument (MHFQ).</p>	<p>Patients in the intervention group had 140/7656 days without use of loop diuretics compared with 337/ 6196 days in the usual care group (RR 0.33 [CI 95% 0.24–0.38]). Two consecutive days without use of diuretics occurred 18/7656 days in the intervention group compared with 46/6196 days in the usual care group (RR 0.32 [CI 95% 0.19–0.55])</p> <p>No significant difference in readmission or deaths between the groups at 6 months (P&gt;0 .05).</p> <p>The improvement of quality of life tended to be greater in the intervention group than the usual care group, although this difference was not statistically significant.</p>
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Braun <i>et al.</i> 2005 Hawaii	Intervention = 69 Control = 52	Colorectal cancer (CRC) (screening)	<p>Fixed</p> <p>Social learning theory (SLT). A Native Hawaiian physician delivered the targeted educational presentation. A Native Hawaiian CRC survivor told his personal story, addressing myths and feelings of embarrassment related to CRC screening and communicating positive feelings associated with self-care and survivorship. Native Hawaiians chosen to deliver these messages were individuals about whom civic club members voiced strong approval and respect, and a goal of their presentation was to raise group expectations about the need for, the right to, and the benefit of CRC screening. Following this, free FOBT kits were distributed, and the Native Hawaiian physician provided instructions on testing and demonstrated how to use the FOBT kit to collect stool samples using a child's potty and Play-Doh stools. Between 4 and 16 weeks post-presentation, multiple telephone calls were placed to those who did not complete their FOBT to address and help problem solve screening-related barriers (e.g., fear, logistics). Replacement kits were mailed upon request.</p>	Doctor visiting Hawaiian civic clubs.	No information given.	The native Hawaiian physician provided instructions on testing and demonstrated how to use the FOBT kit to collect stool samples.	<p>CRC knowledge, attitudes towards CRC screening,</p> <p>opinions about the intervention and intent and self-efficacy measures.</p>	<p>Both groups realized significant improvements in CRC knowledge and attitudes toward CRC screening (no p value presented).</p> <p>Participants in the experimental arm were significantly more likely to agree that the speaker's ethnicity motivated them to participate and that they enjoyed the presentation, learned something new from it, found the brochure easy to understand, and felt the project was culturally appropriate (<math>P &lt; 0.05</math> for all).</p> <p>Significant increases were seen for both groups in per cent agreeing that people with colon polyps are at greater risk of CRC and in the per cent disagreeing that CRC causes symptoms and that only people with symptoms need CRC screening (no p value presented).</p> <p>Significant increases were seen in attitudes toward CRC screening, scores on the intent and self-efficacy measures as well (no p value presented).</p>
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Calvert <i>et al.</i> 2012  USA	Intervention = 71 Control = 72	Nonsurgical cardiac issues	<p>Unclear to which extent it is tailored.</p> <p>Standardized counselling from the on the importance of adherence to their cardiovascular medications and review of the purpose for each medication. Addressed identified barriers to medication adherence. A pocket medication card, a list of tips for remembering to take medications, and a pillbox were provided. Before hospital discharge, the study pharmacist contacted the patient's specified community pharmacy and discussed the identified barriers to medication adherence with the community pharmacist. The patient's discharge medication regimen, barriers to medication adherence, and contact information for the patient and the patient's physician(s) were faxed to the patient's pharmacy. The study pharmacist called each patient 1 to 2 weeks after hospital discharge to verify that the patient had filled all discharge prescriptions. Community pharmacists were reminded to verify the intervention patient's adherence to triple therapy immediately after discharge and at 6, 12, 18, and 24 weeks post-discharge.</p>	Study pharmacist at a university hospital, and community pharmacists.	Community pharmacies were instructed on the study procedure. No further information given.	The study pharmacist: providing standardized face to face counselling Providing a pocket medication card, a list of tips for remembering to take medications, and a pillbox. Another pharmacist did the follow-up calls. Community pharmacists: reporting patient adherence to the study pharmacist.	<p>Percentage of patients in each group who self-reported taking all prescribed components of triple therapy 6 months after discharge.</p> <p>Patient adherence decided by proportion of days covered (PDC) for <math>\beta</math>-blocker and statin from discharge to 180 days after discharge (with PDC<math>\geq</math>75% being adherent).</p>	<p>No statistically significant difference in overall adherence between the intervention and control arms (<math>P = 0.50</math>). Likewise, there was no statistically significant difference in Morisky Adherence Scale between the intervention and control groups (<math>P = 0.40</math>).</p> <p>Patients adherent by prescription records (PCD<math>\geq</math>75% for both <math>\beta</math>-blockers and statins) was 53% for the intervention group and 38% for the control group (<math>P = 0.11</math>) Using a PDC <math>\geq</math>80% to determine adherence, a larger proportion of patients was adherent in the intervention versus control groups to both <math>\beta</math>-blockers and statins (<math>P = 0.05</math>), to <math>\beta</math>-blockers alone (<math>P = 0.05</math>), and to statins alone (<math>P = 0.13</math>).</p> <p>The median PDCs were higher in the intervention versus control groups for combined <math>\beta</math>-blockers and statins (<math>P=0.08</math>), for <math>\beta</math>-blockers alone (<math>P=0.03</math>), and for statins alone (<math>P=0.30</math>).</p>
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Capoccia <i>et al.</i> 2004 USA	Intervention = 41 Control = 33	Depression	<p>Tailored.</p> <p>Collaborative care. Telephone follow-up calls for 12 months. The follow-up consisted of weekly telephone calls for the first four weeks, followed by phone contact every two weeks through week 12. During months 4–12, the subjects received a telephone call every other month. Subjects were encouraged to visit their PCP during weeks 4 and 12. At each contact, depressive symptoms and medication-related concerns were addressed by the pharmacist. The initial contacts focused on support and education, as well as medication dosage adjustment and the management of adverse effects. Medication refill authorizations were provided, and access to patient assistance programs was facilitated. Other interventions included change in time of dose administrations, change or discontinuation of antidepressants, and provision of additional pharmacotherapy for insomnia or sexual dysfunction, as needed. Appointments with mental health providers were also facilitated</p>	Clinical pharmacist or pharmacy resident, in conjunction with the PCP and study psychiatrist at a primary care clinic.	No information given.	Making follow-up calls every week the first 4 weeks, the every other week through week 12. Then every other month during month 4-12.	<p>Depression symptoms, patient satisfaction</p> <p>antidepressant medication adherence and</p> <p>health care visits</p>	<p>The overall difference between the groups during that follow-up period was not significant for: Mean SCL-20 score (<math>p = 0.92</math>), mean SF-12 mental health score (<math>p = 0.46</math>), diagnosis of major depression (<math>p = 0.32</math>), mean SF-12 physical health score (<math>p = 0.18</math>), satisfaction with depression care (<math>p = 0.19</math>), overall health care (<math>p = 0.48</math>) or in antidepressant medication adherence (<math>p = 0.91</math>) between groups.</p> <p>Significant difference in per cent with SCID (Structured Clinical Interview for Diagnostic and Statistical Manual, Fourth Edition) major depression between the groups at the end of the study (<math>P=0.04</math>).</p> <p>No significant difference in health care visits between the groups (<math>P&gt;0.05</math>).</p>
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<p>Carter <i>et al.</i> 2008</p> <p>USA</p>	<p>Intervention = 101</p> <p>Control = 78</p>	<p>Hypertension</p>	<p>Tailored.</p> <p>Collaborative care. Educating, counselling patients using written information from the National Heart, Lung, and Blood Institute, and/ or teaching home monitoring methods. Make recommendations, educate and give feedback to physician. Address suboptimal medication regimens. Recommend adherence aids if poor adherence is unintentional and negotiated a strategy to improve adherence if poor adherence appear to be intentional. All study visits with intervention pharmacists occurred in the medical office clinic. Pharmacists were encouraged to attend each clinic visit (2, 4, 6, and 8 months), and they were encouraged to initiate additional visits or telephone contact if needed.</p>	<p>Clinical pharmacists at 5 clinics operated by a university. 5 intervention clinical pharmacists, 4 of whom were faculty or clinical pharmacy residents in the university family medicine intervention site. The fifth was placed into the community-based intervention clinic that had never had a clinical pharmacist on staff before this study.</p>	<p>Intervention physicians and pharmacists underwent team-building exercises. The sessions explored strategies to investigate suboptimal treatment, poor medication adherence, potential adverse reactions, drug interactions, and other barriers to success. Two initial 90-minute training sessions were conducted to ensure that intervention pharmacists provided a consistent intervention. The sessions included the Joint National Committee guidelines, strategies to improve BP control and medication adherence and methods to optimize therapy.</p>	<p>Full intervention carried out by the pharmacist: face to face first interview, counselling and education. Making recommendations to physicians. Recommend adherence aids when appropriate. Address suboptimal medication regimens.</p>	<p>Clinic BP measurements</p> <p>24-hour BP results,</p> <p>medication adherence</p> <p>antihypertensive medications and</p> <p>adverse drug reactions.</p>	<p>Significant difference in percentage of patients with controlled BP at 9 months in the intervention group and compared to the control group (<math>P &lt; 0.001</math>).</p> <p>At baseline, medication adherence was significantly better in the control group compared with the intervention group (<math>P &lt; 0.001</math>). There was no apparent reason for this baseline difference. By the 9-month visit, there was no difference in medication adherence (<math>P = 0.369</math>).</p> <p>The mean number of antihypertensive medications was significantly higher (<math>P = 0.003</math>) by the end of the study in the intervention group compared with the control group.</p> <p>There was no difference in adverse effect scores between groups at 9 months (<math>P = 0.135</math>).</p>
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Chan <i>et al.</i> 2012  China	Intervention = 51 Control = 54	Type 2 diabetes	<p>Tailored.</p> <p>15 to 30 minutes of face-to-face interview with a pharmacist before each physician visit. At each visit, 5 main areas were addressed, namely, medication adherence, knowledge and beliefs, skills, perceived health as well as cognitive functions. The pharmacist recorded a complete medication history, including prescription drugs as well as over-the-counter drugs, vitamins, and herbal supplements. The pharmacist also evaluated the patients' medication adherence. The importance of drug adherence was reinforced and patient-specific, protocol-driven education about CVDs, and lifestyle modifications were provided. In order to reinforce the patient's drug knowledge, a colour-coding system was adopted. Colour stickers were placed on their pillboxes or drug bags to recall from their memories the class of medication and to identify what drugs they were taking. Frequency of visits not stated.</p>	Pharmacists at the diabetes clinic.	No information given.	Full intervention carried out by the pharmacist: face to face patient interviews prior patient visit to physician.	<p>The primary endpoint was the change in CHD risk after 9 months follow-up.</p> <p>Secondary outcomes were changes in stroke risk, blood pressure (BP), HbA1c, high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C), triglyceride (TG) level, and urinary albumin-to-creatinine ratio (ACR).</p> <p>Compliance and cost-effectiveness was also evaluated.</p>	<p>Patients in the intervention group had a statistically significant reduction in CHD risk scores compared with the control group (<math>P&lt;0.001</math>). The stroke risk was also significantly reduced in patients under the pharmacist's care (<math>P=0.002</math>). Both HbA1c and LDL-C were also greatly reduced in the intervention group compared with the control group (<math>P&lt;0.001</math> and <math>P=0.026</math>, respectively)</p> <p>There were no significant improvements in serum HDL-C, TG, total cholesterol, systolic blood pressure (SBP), and diastolic blood pressure (DBP), as well as improvements in the body mass index in the intervention group.</p> <p>Both groups showed an increase in urinary ACR, but there was no significant difference between the 2 groups.</p> <p>Patients in the intervention group had a greater improvement in compliance compared to those in control group (<math>P&lt;0.001</math>). The cost per CHD event avoided was US\$3902.4. The potential saving from this program was US\$5086.3 per patient.</p>
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Chisholm <i>et al.</i> 2001  Georgia, USA	Intervention = 12 Control = 12	Renal transplantation	<p>Tailored.</p> <p>Direct patient care clinical service. Obtaining medication histories, reviewing patients' medication therapy with an emphasis on optimizing medication therapy to achieve desired outcomes and minimizing adverse medication events, provide recommendations to the nephrologists, promote medication compliance by counselling and education on proper medication use. Medication counselling was provided verbally and/or in writing emphasizing the importance of medication compliance, stating instructions as to when and how to take medications, and the amount of medications to take. Patients were given the clinical pharmacist's contact number and encouraged to call if they had any questions or concerns. Patient understanding of medication therapy was assessed. Medication reviews and histories were performed at least monthly. The pharmacist employed the use of compliance enhancement principles. If a patient did not have a clinic visit in a 1-month time period, pharmacist-patient interaction occurred over the telephone.</p>	Clinical pharmacist at the Medical College of Georgia (MCG) Hospital and Clinics	No information given.	Full intervention carried out by the pharmacist: Counselling to promote medication adherence. Performed medication reviews and histories at least monthly.	Medication compliance (refill records),  proportion of patients reaching target serum concentrations.	<p>At the end of 1 year post-transplant, the mean compliance rate (CR) of 96.1±4.7% for patients who had clinical pharmacist intervention was statistically higher than the mean CR of 81.6±11.5% for patients who did not have clinical pharmacist involvement (<math>p&lt;0.001</math>). For 6 of the 12 months post-transplant (months 6–8 and 10–12 post-transplant) there were higher rates in the intervention group (<math>p&lt;0.05</math>).</p> <p>There was a significant difference in the duration of compliance between the groups (<math>p&lt;0.05</math>).</p> <p>Intervention patients had a greater achievement of 'target' serum concentrations than control patients (<math>p&lt;0.05</math>).</p>
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Choe <i>et al.</i> 2005  USA	Intervention = 41 Control = 39	Type 2 diabetes	<p>Tailored.</p> <p>Evaluation of patients' therapeutic regimens based on efficacy, safety, adverse effects, drug interactions, drug costs, and monitoring. Educating patients face to face regarding disease self-management skills. This included an emphasis on the importance of self-care, medications, and screening processes. Intervention patients had an initial clinic visit with the clinical pharmacist that lasted approximately 1 hour. All therapeutic recommendations were discussed with the primary care physicians before significant therapy alterations. The clinical pharmacist followed up on disease management and medication management protocols approved by the primary care physicians. Brief face-to-face consultations between the pharmacist and the primary care physicians, creating a team-based approach to management. Monthly telephone contact with patients. No further information given.</p>	Clinical pharmacist (researcher) at a university-affiliated primary care clinic.	No information given.	Full intervention carried out by the pharmacist: Evaluating of individual patients. Providing disease education. Conducting telephone follow up calls.	HbA1c levels,  glycemic control and  use of recommended screening procedures.	<p>Significant mean difference in decrease in HbA1c levels between the intervention and control groups (<math>P=0.03</math>), and the mean difference in final HbA1c values (<math>P=0.01</math>).</p> <p>Significant increase of low-density lipoprotein measurement (<math>P=0.02</math>), retinal examination within 2 years (<math>P=0.004</math>), and documented monofilament examination for neuropathy (<math>P=0.002</math>) in the intervention group compared with the control group.</p> <p>No significant difference in HbA1c rate measurements and microalbuminuria screenings.</p> <p>A strong statistical interaction between the intervention and baseline HbA1c levels (<math>P&lt;0.001</math>), suggesting that patients with higher HbA1c levels at enrolment had a greater improvement in glycemic control than those with more moderate elevations.</p>
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Clark <i>et al.</i> 2007  Turkey	Intervention = 56 Control = 58	Tuberculosis	Fixed  Standard oral and written education about patients' disease, based on educational tools found in U.S. Pharmacopeia Drug Information before discharge. The written material was in the form of an illustrated hand-out and prepared in a question-and-answer format to enhance readability. In addition, a drug fact sheet covering more detailed information about proper use, "points to watch out for," and adverse effects was prepared. After the patient education session, appointments were scheduled for follow-up visits during the first, second, and fourth months post-discharge to monitor progress and assess therapy adherence through the continuation phase. No further information given.	Clinical pharmacist who had completed clinical training and had a master's degree in clinical pharmacy, at a centre for chest diseases and thoracic surgery.	None given.	Full intervention carried out by the pharmacist: Oral and written face to face education Conducting follow up sessions	Adherence	<p>Significant changes between intervention versus control group comprised: Improvement in visit attendance (<math>p &lt; 0.05</math>).</p> <p>Number of patients who attended all scheduled visits (<math>p &lt; 0.01</math>).</p> <p>Number of patients who had positive test results for all of the isoniazid tests (<math>p &lt; 0.001</math>).</p> <p>However, there was no statistical significant difference in the mean <math>\pm</math> S.D. consumed medication percentage (though it was a little bit higher in the intervention group).</p>
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Clifford <i>et al.</i> 2006  England	Intervention = 255 Control = 237	First medicine prescribed for chronic conditions like stroke, cardiovascular disease, asthma, diabetes, or rheumatoid arthritis, as reported by the patient	Tailored.  Patients received a telephone call two weeks after being recruited. The interview was based on a semi-structured schedule. Addressing medicine-related problems and adherence. Giving information, advice or reassurance in response to the patients' expressed needs. No further information given.	Pharmacist at 40 Moss community pharmacies across England	Trained for half a day in theory regarding the types and causes of non- adherence, telephone communication skills, and the types of medicine-related problems and adherence issues that patients had experienced in a previous study	Full intervention carried out by the pharmacist: Making the telephone calls.	Self-reported adherence,  number of medicine- related problems and  beliefs about the medicine.	Of those still prescribed their medication at 4-week follow-up, non-adherence was less frequent in the intervention group compared to the control group (P=0.032). Similarly, the number of patients reporting problems at 4 weeks was fewer in the intervention group compared to the control group (P=0.021).  The difference between patients' beliefs about the necessity of their medicine and their concerns about taking it was significantly higher in the intervention group than the control group (P=0.007).
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Cordina <i>et al.</i> 2001  Malta	Intervention = 86 Control = 66	Asthma	<p>Tailored.</p> <p>Verbal patient education and patient monitoring, supported by written information and a short videotape for home viewing. The education addressed asthma pathology, including avoidance of triggering factors and use of inhaled drugs and peak flow meters. Patients were evaluated at their visits to the pharmacies. Patients were instructed to present their filled in diary card to their community pharmacist for review monthly. The community pharmacist got an update on patients' peak flow values, smoking history, other disease states, known drug allergies, and prescribed drugs. At each visit to the community pharmacy, the pharmacist inquired about asthma symptoms and problems encountered with treatment. Pharmacists reviewed patients' inhaler technique, educating and demonstrating correct usage. Giving treatment recommendations to the patients' physicians.</p>	Pharmacists at community pharmacies.	Pharmacists received a manual with asthma pathophysiology information, treatment and intervention instructions (patient education and monitoring). The manual was discussed in 2 evening sessions.	Full intervention carried out by the pharmacist: Face to face counselling and educating. Providing written information. Feedback to physicians.	<p>Health-related quality of life (QoL) assessed with SF-36, Living with Asthma Questionnaire (LWAQ) and Childhood Asthma Questionnaire (CAQ),</p> <p>PEF rate,</p> <p>inhaler technique and asthma control.</p>	<p>No significant difference in QoL, PEF, self-reported compliance with inhalers, self-reported visits to physicians, days from work/school or self-reported inhaler technique between the intervention group and control group (<math>P&gt;0.05</math>).</p> <p>However there was a significant difference between the groups for the score in the vitality dimension between the baseline and the 12-months follow-up (<math>P=0.001</math>).</p> <p>Significant decrease in PEF measurements in the control group between baseline and 12-months follow-up (<math>P=0.009</math>). No significant, within group difference in the intervention group.</p> <p>The difference between the 12-month inhaler technique assessment score and the baseline score was significantly higher in the intervention group than in the control group (<math>P=0.021</math>).</p> <p>Significantly lower self-reported hospitalization rate (<math>P=0.002</math>), and self-reported wheezing (<math>P=0.051</math>) in the intervention group when compared to the control group.</p> <p>Significantly lower satisfaction with provided information by pharmacists in the control group than in the intervention group (<math>P&lt;0.001</math>).</p> <p>At 12 months, more intervention patients found it easy to approach their pharmacist than the control patients (<math>P&lt;0.001</math>).</p>
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Criswell <i>et al.</i> 2010 USA	Intervention = 296 Control = 288	Hypertension	<p>Tailored.</p> <p>Post hoc analysis of two RCTs. Physician-pharmacist Collaborative care. Evaluating patient factors that might hinder achievement of goal blood pressure and compared the patients' current treatment with the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC-7) guideline recommendation. Counselling and making recommendations to patients' physicians. Conducting follow up sessions and/or telephone calls. In the 9-month intervention study the pharmacists were encouraged to see patients at each scheduled research visit as baseline and at 2, 4, 6 and 8 months, with added clinic visits or telephone follow-up as needed. In the 6-month study, the pharmacists were encouraged to assess drug therapy and BP at baseline and at 1 month, with telephone follow-up at 3 months. More frequently if needed to achieve controlled BP. Focus on intensification and individualisation of antihypertensive regimen.</p>	Pharmacists at university-affiliated primary care clinics.	No information given.	Full intervention carried out by the pharmacist: Patient face to face and telephone interview, evaluation and counselling.	<p>Medication adherence, blood pressure,</p> <p>self-efficacy</p> <p>social support and number of lifestyle change recommendations.</p>	<p>Significant lower BP in the intervention group than the control group (<math>P&lt;0.0001</math> for systolic, <math>P=0.032</math> for diastolic).</p> <p>No significant change in adherence (only within the control group, <math>P=0.0053</math>).</p> <p>Significant improvement in social support (<math>P&lt;0.04</math>) and self-efficacy (<math>P&lt;0.05</math>) in the intervention group, but not in the control group.</p> <p>At least one form of lifestyle modification was recommended 212 times in 68 % of the patients in the control group and 402 times in 71 % in the intervention group (<math>P=0.0131</math>).</p>
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De Tullio <i>et al.</i> 1987 USA	Intervention = 30 Control = 30	Chronic obstructive pulmonary disease (COPD)	Unclear to which extent it is tailored.  Counselling sessions (3-5 minutes) with patients after their visit to the physician, but prior presenting their prescription at the pharmacy. The sessions included comprehensive verbal instruction which stressed the importance of taking the medication as prescribed. This instruction included a discussion on how theophylline works and on the importance of maintaining blood levels in order to achieve a therapeutic effect. Patients were asked if they had any questions regarding what they had discussed or their medication. No further information given.	Clinical pharmacist at Pulmonary Clinic at a Veteran's Administration Medical Centre	No information given.	Full intervention carried out by the pharmacist: Counselling regarding their medication.	Medication compliance, theophylline serum levels	Counselled patients had higher actual serum levels than did patients in the control group (P= 0.0001).  The experimental group patients had significantly more actual serum levels within both $\pm 10\%$ and $\pm 20\%$ of predicted levels (P=0.006 and 0.04, respectively).  Compliance assessed by refill records showed that patients in the experimental group had significantly more refills than did those in the control group (P=0.05).
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Elliot <i>et al.</i> 2008  England	Intervention = 255 Control = 237	Chronic condition (patients 75 or older, or suffering from stroke, cardiovascular disease, asthma, diabetes, or rheumatoid arthritis, receiving new medicine)	Tailored.  The intervention group received a telephone call from one of two community pharmacists two weeks after being recruited. The intervention phone call was based on a semi structured interview schedule. The self-regulatory model (SRM) theory and the necessity concerns framework were used to guide development of the intervention as they recognise that adherence can be influenced by patients' beliefs about their illness and treatment. The pharmacist listened to the patient's problems and gave advice if needed. The pharmacist asked patients 'How are you getting on with your medicines?' enquired about any medicine- related problems, adherence to the new medicine and whether they required any further information. The pharmacist followed the flow of the patient's conversation, using the interview schedule as a checklist. The pharmacist gave information, advice or reassurance in response to the patients' expressed needs. No further information given.	Community pharmacists at the head office of the pharmacies.	Pharmacists were trained in The self- regulatory model (SRM) theory and the necessity- concerns framework (patients treatment and illness beliefs affects their medication adherence).	Full intervention carried out by the pharmacist: Conducting telephone interviews with patients regarding their treatment.	Self-reported non- adherence and  economic evaluation.	Significantly lower non-adherence in the intervention group compared to the control group (p<0.05).  Frequency of patient contact with the NHS was not significantly different between the control and intervention. However, once these data were combined with unit costs, the difference in costs was highly significant, suggesting that the intervention group had a significantly lower cost to the NHS (P<0.00001)
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Eussen <i>et al.</i> 2010 Netherlands	Intervention = 513 Control = 503	Dyslipidemia	<p>Tailored.</p> <p>Individual education and counselling. Five Individual counselling sessions, 10-15 minutes each. Counselling visits were scheduled at first prescription, at second prescription (after 15 days), and at subsequent refill dates at 3, 6, and 12 months after the start of statin therapy. Counselling at time of first prescription comprised structured education on indication, effects, and adverse effects of statin therapy; dosage; importance of medication adherence; and intended duration of treatment. Additionally, a drug information letter that summarized the verbal information was given to each patient. At the time of the second prescription, patients were asked about their experience with statin therapy, potential drug-related problems, and difficulties in adhering to the dosing regimen. In addition, medication adherence was assessed via unused pill counts, and the association between adherence and lipid levels was discussed to encourage patients to adhere to the prescribed dosing regimen.</p>	Community pharmacists from 40 community pharmacies	No information given.	Full intervention carried out by the pharmacist: Individual education and counselling. Providing written information.	<p>Adherence to statins (The primary endpoint was discontinuation of treatment assessed 1 year after the start of statin therapy, secondary endpoints were discontinuation rates 6 months after statin initiation, the medication possession ratio (MPR), and the relation between MPR and total cholesterol and LDL-C levels).</p> <p>Medication adherence assessed by pill counts during the counselling sessions was not regarded as an outcome of this study but was used solely to instantly address an individual's adherence at the counselling session.</p>	<p>A total of 47 (11%) patients in the pharmaceutical care group and 72 (16%) patients in the usual care group discontinued statins within 6 months after the initiation of treatment (p=0.026). The corresponding percentages at 1 year after the start of therapy were 23% and 26%, respectively, in the pharmaceutical care and usual care groups (p=0.21).</p> <p>Patients in the pharmaceutical care group were 34% less likely to discontinue treatment, or 1.52 (95% CI 1.04 to 2.17) times more likely to persist with treatment compared to patients in the usual care group. Twelve months after therapy was initiated, this difference in discontinuation rate was not statistically significant (HR 0.84, 95% CI 0.65 to 1.10).</p> <p>No significant difference in percentage median MPR between the groups (P&gt;0.05).</p> <p>Spearman's correlation showed a significant negative association between the MPR and total cholesterol (p=0.002) and a trend toward a negative association between the MPR and LDL-C level (p=0.08).</p>
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Evans <i>et al.</i> 2010  Canada	Intervention = 88 Control = 88	Coronary artery diseases	<p>Tailored.</p> <p>The pharmacist documented goals for blood pressure, lipid levels and A1c for patients with diabetes, in the intervention patients' charts. Follow up pharmacist meeting with consultation at least every 8 weeks either via telephone, mail, electronic mail or face to face appointments. These regular contacts were intended to provide ample opportunities for patients to ask questions, discuss laboratory results, or convey messages to the clinic staff. Information delivered during follow-up was patient specific and did not require that standard content to be covered. Emphasis was placed on conducting short follow-up contacts that reminded and reinforced the importance of drug adherence and clinical targets. All patients were followed for a minimum of 6 months. No further information given.</p>	Pharmacists at a large family medicine practice.	A review of cardiovascular risk factors, Framingham risk tools and risk reduction therapies discussed in Canadian guidelines.	Full intervention carried out by the pharmacist: Initial general counselling. Providing information booklet. Conducting follow up.	<p>Mean reduction in global cardiovascular risk status, individual modifiable cardiovascular disease risk factors (systolic and diastolic BP; total cholesterol, LDL, HDL, and triglyceride levels; total cholesterol:HDL ratio; and A1C values in those with diabetes), and</p> <p>statin utilization and adherence.</p>	<p>No significant difference in mean reduction in global cardiovascular risk status (P=0.098) or the individual modifiable cardiovascular disease risk factors.</p> <p>Significant more patients in the intervention group continued with their statin therapy (P=0.005) and got started on statins (P=0.013) than in the control group.</p>
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Farber and Oliviera 2004  USA	Intervention = 28 Control = 28	Asthma	<p>Tailored.</p> <p>Basic asthma education; instruction on use of a metered-dose inhaler with holding chamber; a written asthma self-management plan illustrated by zones coloured green, yellow, and red; a sample age-appropriate holding chamber; and prescriptions for medication needed to implement the plan. The importance of seeking urgent medical care in the red zone was emphasized. Three brief follow up phone calls were placed to patients in the intervention group at 1–2 weeks, 4–6 weeks, and 3 months after enrollment. The goal of the telephone calls was to reinforce asthma management skills, including use of the green/yellow/red zone plan and adherence to use of daily inhaled anti-inflammatory medication. Return to a pediatrician or asthma specialist was suggested when asthma control was poor.</p>	<p>Pediatric pulmonary physician (licensed physician is still undergoing pulmonary speciality training)</p> <p>Patients with emergency department admissions.</p>	No information given.	Conducting basic asthma education, instructing inhaler technique, making three brief follow up phone calls. Pulmonary physician provided patient education sessions either alone or together with a nurse.	<p>The functional severity of asthma,</p> <p>Asthma-related ED visits and hospital admissions,</p> <p>frequency of asthma controller dispensing and</p> <p>frequency of quick-reliever medication dispensing.</p>	<p>No significant change in the functional severity of asthma, (<math>p=0.10</math>) between the groups.</p> <p>No difference was seen in number of subjects who had an asthma-related, hospital-based event (hospitalization or ED visit) during the 6 months after study enrolment.</p> <p>Significant increase in frequency of asthma controller dispensing in the 6 months after enrolment (<math>p=0.004</math>) in the intervention group compared with the control group.</p> <p>No difference in frequency of quick-reliever medication dispensing between the intervention and control groups.</p>
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Faulkner <i>et al.</i> 2000 USA	Intervention = 15 Control = 15	Coronary heart issues (patients who have had cardiac surgery).	Fixed.  Standardized weekly telephone calls during 12 weeks, using a standardized set of questions. Emphasizing the importance of therapy in reducing risk of recurrent cardiac events. Asking about prescriptions (where and when the patients got them filled, and how they paid for it), side effects, overall well-being and reasons for non-compliance. No further information given.	Pharmacist at a coronary heart care unit.	No information given.	Full intervention carried out by the pharmacist: Conducting the telephone calls.	Compliance to therapy and lipid profiles.	Significant change in compliance, total cholesterol, LDL and triglyceride levels for the intervention group at both 1 and 2 year compared to the control group ( $P < 0.05$ ).  No significant change in HDL levels between the groups. ( $P = 0.51$ at 1 year, $P = 0.45$ at 2 years).
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Finley <i>et al.</i> 2003  USA	Intervention = 75 Control = 50	Depression	<p>Tailored.</p> <p>Collaborative care. Initial patient interview (about 30 minutes face to face) where the care managers assessed the severity of psychopathology, identifying potential stressors and other predisposing factors. Medical, psychiatric, and drug therapy histories were also recorded. This was followed by telephone follow up calls and face to face encounters (5-10 min) to assess drug adherence, therapeutic effects, adverse effects and other factors. Brief clinic visits to evaluate clinical progress. Patient education was an important component of both the initial interview and during the follow-up. Symptoms, etiology, and prognosis of depression were discussed, and a detailed explanation of the role of antidepressants was presented. The care managers were allowed to titrate antidepressant drugs. Brief clinic visits were also scheduled for weeks 6 and 24, evaluating clinical progress.</p>	<p>Clinical pharmacists, and other care managers, in primary care medical centre.</p> <p>The research investigators had obtained doctor of pharmacy degrees and had each accrued several years of direct patient care experience before study involvement. One of the investigators was board certified in psychiatric pharmacy, and served as a mentor for the other investigator during a 2-month training period.</p>	No information given.	Conducting follow up telephone calls with standardized questions Attending face to face follow up encounters.	<p>Adherence to antidepressant drug therapy,</p> <p>clinical and functional severity,</p> <p>patient satisfaction and resource utilization.</p>	<p>Significant higher adherence (measured from refill-records) in the intervention group compared to the control group (<math>P&lt;0.05</math>). No significant difference in Medication possession ratio (MPR) at 3 (<math>P=0.48</math>) and 6 (<math>P=0.26</math>) months.</p> <p>Significant greater satisfaction on some points in the intervention group compared to the control group (<math>P&lt;0.05</math>).</p> <p>No significant difference in number of primary care visits (<math>P=0.14</math>). Slightly higher, but not significant, resource utilization in the intervention group compared to the control group (<math>P=0.54</math>).</p> <p>No significant difference in clinical or functional outcomes between the groups.</p>
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Garcia-Cardenas <i>et al.</i> 2013  Spain	Intervention = 208 Control = 165	Asthma	<p>Tailored.</p> <p>Counselling and education regarding their illness, medication compliance and use. During the 6 months of follow-up, patients attended 3 scheduled visits to the pharmacy. Patient's demographic details were collected in the initial visit and an individualized patient needs analysis on asthma control, medication adherence and inhaler technique was conducted at every visit by the pharmacist. Patients were educated using verbal instructions, physical demonstration and written information about turbuhaler use. When appropriate the type of non-adherence (intentional or unintentional) and causes of intentional non-adherence were explored with the Beliefs about Medicines Questionnaire and Health Beliefs Model. Several aspects of asthma control were also covered in each visit. Finally pharmacist and patient jointly agreed goals for the next visit.</p>	Community pharmacists at community pharmacies.	One-day workshop including education on asthma control, medication adherence and inhaler technique by a respiratory physician and a pharmacist educator/ researcher. Training on the study protocol and documentation forms was also delivered.	Full intervention carried out by the pharmacist: Conducting 3 scheduled counselling and education sessions.	<p>Asthma control (assessed using the Asthma Control Questionnaire[ACQ]),</p> <p>inhaler technique (10-step turbuhaler checklist) and medication adherence (4-item Morisky Greene Levine scale).</p>	<p>Mean ACQ scores significantly decreased from the initial to the intermediate visit in both IG (<math>p&lt;0.001</math>) and CG (<math>p=0.017</math>)</p> <p>When compared with the CG, proportion of patients in the IG who performed steps 2, 4, 6, 7, 8, and 10 of the inhaler technique correctly was significantly higher at the final visit.</p> <p>Proportion of adherent patients at the end of the study was significantly higher in the IG (<math>p&lt;0.001</math>)</p>
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Garnett <i>et al.</i> 1981  USA	Intervention = 18, 18, 22 Control = 24	Regardless diagnosis, patients receiving a prescription for an oral dose of 250 mg or 500 mg of ampicillin, penicillin, tetracycline or erythromycin 4 times a day for 10-14 days were included	Unclear to which extent it is tailored.  Stepwise intervention. Follow up telephone calls with or without written and oral consultation based on guidelines from the American Society of Hospital Pharmacists. Dosing calendar to tailor and record the dosing to suit the patient's daily habits. The groups were then randomised again to receive a follow-up telephone call or not. The phone call was carried out at the fourth or fifth day after of therapy. The purpose of the telephone call was to reinforce the importance of taking medication as directed, encourage patients to continue therapy until completion, explain why this is important and determine if the patients were having any problems with the prescribed regimen. A standardized protocol was used to insure uniformity of the telephone calls. Data was collected on the ninth or tenth day of therapy.	Pharmacist at an outpatient clinic.	No information given.	Full intervention carried out by the pharmacist: Delivering oral and written patient consultation and making follow up telephone calls. Providing dosing calendars.	Medication adherence (doses consumed compared with doses prescribed) and  medication knowledge (from structured interview).	No significant difference in adherence between the intervention groups ( $P<0.05$ ).  Significant differences in adherence between the control group and each of the intervention groups ( $P=0.0295$ ).  Patients receiving written and oral consultation had a greater understanding of the special instructions, had more information about what to do if they missed a dose ( $P<0.002$ ) and had greater knowledge about side effects ( $P<0.002$ ) than the control group.
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Geurtz <i>et al.</i> 2010  Netherlands	Intervention = 250 Control = 271	Chronic conditions (patients with new medicines for chronic use).	Tailored.  Concordance form with questions to fill in at home after the first dispensing of the medicine. Open ended questions were used to ask for patients' opinion about their use of medicines. At the second dispensing, after 2 weeks, a pharmacy employee used the completed concordance form as a basis for a patient consultation to improve patient satisfaction and adherence. No further information given.	Pharmacist or pharmacy technician at community pharmacies.	No information given.	Full intervention carried out by the pharmacist: Providing concordance form, mainly face to face patient consulting based on the concordance form.	Patient medication satisfaction (questionnaire) and  medication adherence (rates of prescription refills).	The questions in the questionnaire were clustered into four groups: evaluation, attitude advantages, own effectiveness, and attitude disadvantages. There was no significant difference observed in the concordance model for the intervention group (P-value for each clustered group >0.2).  No significant difference in medication adherence (P=0.2).
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Grant <i>et al.</i> 2003  USA	Intervention = 118 Control = 114	Type 2 diabetes	Unclear to which extent it is tailored.  At the initial phone interview, the pharmacist administered a 13- item Questionnaire. Based on the findings from the detailed telephone interview, the pharmacist: 1. provided drug- specific patient education during the same telephone call (e.g., explanations of medication effects, advice about reducing adverse effects, instruction in how to reduce costs); 2. arranged for social services (for free care or other needs) or nutrition consultation as indicated; 3. sent an E-mail to the patient-identified primary care provider summarizing discrepancies and adherence barriers and offering to help arrange a follow-up appointment. The format of all E-mails was standardized. A copy of the E-mail sent to the primary care provider was also entered as a note in the EMR to be viewed at the next clinic appointment. Follow-up with the same questionnaire was carried out after 3 months.	Pharmacist at an academically affiliated community health centre.	No information given.	Full intervention carried out by the pharmacist: Conducting telephone calls.	Differences in adherence barriers and  medication adherence rates	No significant differences were found between the groups.
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Gymonpre <i>et al.</i> 2001 Canada	Intervention = 69 Control = 66	No specific disease (patients were 65 years or older, non-institutionalised and taking two or more prescribed or non-prescribed medications).	Unclear to which extent it is tailored.  A detailed home medication history (HMH) was conducted by trained staff or volunteers on all clients. Volunteers participated in a three hour training session and were supervised by a pharmacist consultant during the first interview. The HMH was reviewed by a pharmacist consultant (with a Bachelor of Science degree in pharmacy) on test clients to identify and document potential and actual drug-related issues. Intervention with test clients involved patient counselling in a private office or at their home supplemented with written information. The pharmacist met with test clients, as required, for follow-up to monitor specific therapeutic endpoints and to identify and resolve other issues as they arose. Six months after the intervention date the HMH was re-administered by blinded, trained volunteers. Frequency of follow-up was not stated.	Pharmacist within a community based inter-disciplinary health clinic targeting non-institutionalised elderly.	No information given.	Patient counselling and follow up meetings. Giving letter of recommendations to the physicians.	The use of prescribed and non-prescribed drugs, presence or absence of symptoms and medication adherence.	Significant changes between intervention versus control group was shown in the number of discontinued non-prescribed drugs (P=0.033).  No significant difference in medication adherence (P=0.895), symptoms reported (P=0.089) or purpose knowledge of prescribed drugs (P=0.397).
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Hamann <i>et al.</i> 2007 Germany	Intervention = ? Control = ?  Totally 107 patients enrolled.	Schizophrenia	Tailored.  Decision aid booklet regarding treatment. "Planning talks" to plan further treatment. Patients met with their physicians within 24 hours after having worked through the decision aid. The aim of these "planning talks" was to reach an agreement between patient and psychiatrist on further treatment according to the preferences indicated by the patient in the booklet. For a more detailed discussion, various charts with quasi-quantitative information on the most common antipsychotics and their side effects were available.	Doctors at a psychiatric state hospital.	No information given.	Conducting "planning talks" with patients, planning their further treatment.	Rehospitalisation due to schizophrenia, compliance, global functioning, severity of illness and change of main antipsychotic.	No significant changes between the groups.
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Hanlon <i>et al.</i> 1996  USA	Intervention = 88 Control = 84	No specific disease (patients were 65 years or older with polypharmacy, 5 or more prescribed medicines).	Tailored.  The clinical pharmacist intervention was based on the principles of pharmaceutical care. Prior to all scheduled GMC visits, the clinical pharmacist monitored drug therapy outcomes by reviewing each patient's medical record and medication list, ascertained current medication use, identified drug-related problems by meeting with patients and caregivers, and evaluated patients' medications. The clinical pharmacist then formulated prioritized written recommendations. The recommendations and their rationale, along with any general drug information, were presented both orally and in writing to the patients' primary physician. After the physician visit, the pharmacist educated the patient regarding any drug-related problems detected before the visit and any medication changes made during the visit to reinforce and amplify the primary physician's instructions. In addition, the clinical pharmacist encouraged patients' compliance with their medication regimens. Frequency of visits not stated.	Clinical pharmacist at General Medicine Clinic (GMC) at the Durham Veterans Affairs Medical Center (VAMC).	No information given.	Full intervention carried out by the pharmacist: Monitoring drug therapy outcomes, ascertain current medication use, identifying drug-related problems, and evaluated patients' medications.	Prescribing appropriateness,  health-related quality of life (HRQOL),  drug adverse events (ADE),  medication compliance and knowledge,  number of medications,  patient satisfaction, and  physician receptivity.	A 24% improvement in inappropriate prescribing was observed at 3 months in the intervention group compared with a 6% improvement in the control group (P = 0.0006).  We observed no between-group differences in SF-36 (HRQOL) change scores at closeout (P = 0.99).  No significant differences in ADE, medication compliance or knowledge, number of medications or patient satisfaction between the groups.  Written recommendations were enacted more frequently for the intervention group compared with the control group (P<0.001).
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Hawkins <i>et al.</i> 1979 USA	Intervention = 574 Control = 574	Hypertension and/or diabetes mellitus.	Unclear to which extent it is tailored.  Pharmacist care. No further information given.	Clinical pharmacist with a Pharm.D and 2 years of clinical training in general medicine, at a medical follow up clinic.	No information given.	Pharmaceutical care. No further information given.	Kept clinic-appointment rate,  rate of compliance with antihypertensive therapeutic regimens,  frequency of follow-up clinic visits,  frequency of emergency room walk-in visits,  referral clinic visits and hospital admissions,  blood pressure (BP) and  fasting blood sugar levels.	Significantly higher kept clinic-appointment rate ( $P<0.0005$ ), lower systolic BP ( $P\leq 0.02$ ) and more follow up clinic visits ( $P\leq 0.001$ ) in the intervention group compared to control and residual groups  No significant change in frequency of emergency room walk-in visits, referral clinic visits, hospital admissions, fasting blood sugar levels ( $P=0.058$ ) or change in compliance to single ( $P\leq 0.7$ ) or multiple ( $P\leq 0.2$ ) antihypertensive drug treatment between the groups.
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Hederos <i>et al.</i> 2005 Sweden	Intervention = 32 Control = 28	Asthma (in children 3 months to 6 years)	<p>Tailored.</p> <p>Group discussions including the parents to the child and physicians, nurses and psychologists where the parents were educated in asthma and its treatments. The sessions took place in the afternoon and lasted about 1.5 h. They had three weekly meetings soon after the child was diagnosed as asthmatic. Six months later, They had a follow-up meeting. The method applied was based on the concept of concordance, meaning that we tried to "speak the same language" as the parents and to reach an alliance with them on how to look upon asthma and its management. Three weekly meetings and a follow up meeting after 6 months together with the other clinicians. No further information given.</p>	Doctors (together with nurses and psychologists) at a clinic. No further information given.	No information given.	Attending meeting together with other clinicians. Not specified what the different clinicians contributed with.	<p>Days of hospitalization, number of times seeking emergency help due to asthma,</p> <p>medication adherence (estimated and verified) and</p> <p>VAS estimated asthma problems.</p> <p>also, a cost analysis was performed.</p>	<p>Significant changes between intervention versus control group comprised:</p> <p>Significant rating of very good adherence by the doctors' at 18 months (p=0.023).</p> <p>Significant lower verified poor adherence (p=0.015).</p> <p>Significant lower exacerbation rate during the third 6-month period (p=0.05).</p> <p>No significant difference in parents' estimation of their children's asthma problems between the groups after 6 months (P≥0.08), or in emergency visits or in verified mean adherence ( p=0.06).</p> <p>The gain for society was calculated to 42.5 working days.</p>
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Heisler <i>et al.</i> 2012 USA	Intervention = 2319 Control = 2303	Type 2 diabetes	<p>Tailored.</p> <p>A phone or in-person intake encounter was scheduled, and a welcome packet was mailed with educational materials, including instructions for home monitoring and documents to record BPs and action plans. Encounters took place at the clinics and by phone. Participants were encouraged to self-monitor and aided in obtaining home BP monitors. At the intake encounter, the pharmacist, assessed adherence to each prescribed BP, lipid, and antihyperglycemic medication, explored barriers to adherence, and discussed recent BP, hemoglobin A1c, and low-density lipoprotein levels. At in-person encounters, BP was measured by the pharmacist. The pharmacist then explored with the patient their goals and values and how taking medications affected these. If the patient faced barriers to adherence, the pharmacist worked with the patient to set a short-term action step. Follow-up encounters focused on assessing medication adherence, progress on previous action plans, additional action planning, and, when appropriate, intensification of medications. Frequency of encounters not stated.</p>	Pharmacists at outpatient primary care clinics.	Three-day MI training on patient-centred approaches to achieving health goals. Booster training was provided during biweekly webinars.	Full intervention carried out by the pharmacist: Activating patients to the intervention, assessing adherence, measuring blood pressure (BP), patient education, action planning and medication intensification when appropriate.	<p>Relative change in systolic BP (SBP),</p> <p>health care utilization,</p> <p>proportion of patients with medication changes,</p> <p>A1c and LDL levels.</p>	<p>Significantly lower SBP in the intervention group at 3 months compared to the control group (<math>P&lt;0.001</math>).</p> <p>Significantly more patients in the intervention group were likely to undergo medication changes (<math>P&lt;0.01</math>) compared to the control group.</p> <p>No differences SBP, in health care utilization, A1c levels or LDL between the groups at the end of the study period.</p>
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Holland <i>et al.</i> 2007  United Kingdom	Intervention = 169 Control = 170	Heart failure	<p>Unclear to which extent it is tailored.</p> <p>The pharmacist arranged the home visit, within two weeks of discharge, at a time when they could meet the patient and any carer(s). Where appropriate, pharmacists educated the patient/carer about heart failure and their drugs and gave basic exercise, dietary, and smoking cessation advice. They also encouraged completion of simple sign and symptom monitoring diary cards (including monitoring body weight), removed discontinued drugs (with the patient's consent), fed back recommendations to the general practitioner, and fed back to the local pharmacist any need for a drug adherence aid. A British Heart Foundation's booklet Living with Heart Failure was left at the patients' homes. One follow-up visit occurred at six to eight weeks after discharge to review progress and reinforce original advice. No further information given.</p>	Pharmacist. Home based intervention.	Pharmacists was provided with a detailed manual describing the expected components of their visit and asked them to deliver education in line with advice given in the British Heart Foundation's booklet Living with Heart Failure, which they left with patients after the first visit.	Full intervention carried out by the pharmacist: Pharmacist home visits. Review medication, counselling and education.	<p>The primary outcome was total emergency admissions to hospital over six months.</p> <p>Secondary outcomes included deaths and self-assessed quality of life.</p> <p>In addition, participants completed a questionnaire that measures drug adherence (MARS) and the European heart failure self-care behaviour scale.</p>	<p>Non-significant 15% increase in the intervention group's rate of readmission (P=0.28).</p> <p>Fewer deaths occurred in the control group than in the intervention group (P=0.54).</p> <p>No significant difference in QoL (P=0.08).</p> <p>Final adherence scores were marginally higher (better) in the intervention group (P=0.68).</p> <p>Heart failure behaviour scores improved in both groups, although the final scores were non-significantly lower (better) in the intervention group (P=0.29).</p>
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Hunt <i>et al.</i> 2008  USA	Intervention = 230 Control = 233	Hypertension	<p>Tailored.</p> <p>Pharmacist-physician collaborative care. Subjects allocated to the intervention were scheduled for an appointment in their primary care clinic with any one of five Network-employed pharmacy practitioners. The pharmacists reviewed subjects' medications and lifestyle habits, assessed vital signs, screened for adverse drug reactions, identified barriers to adherence, provided education, optimized the antihypertensive regimen, and scheduled follow-up appointments as judged necessary. Frequency of visits not stated. No further information given.</p>	<p>Pharmacist.</p> <p>Providence Primary Care Research Network. All Network community-based primary care clinics were included with the exception of academic teaching clinics.</p> <p>Each pharmacist had a post-baccalaureate doctor of pharmacy degree, 1 to 2 years of ambulatory medicine residency training, and was board certified in pharmacotherapy.</p>	No additional training was provided in preparation for this study.	Full intervention carried out by the pharmacist: Reviewing medications, educating and assessing patients, optimizing the antihypertensive regimen and schedule follow up sessions.	<p>The primary outcome was the difference in mean systolic and diastolic blood pressures.</p> <p>Other outcomes measured were patient self-management knowledge and behaviour,</p> <p>medication adherence,</p> <p>healthcare utilization,</p> <p>quality of life (QoL) and</p> <p>patient satisfaction.</p>	<p>Significant differences in mean systolic (<math>\Delta=6</math> mmHg, <math>p=0.007</math>) and diastolic (<math>\Delta= 3</math> mmHg, <math>p=0.003</math>) blood pressures between intervention and control groups.</p> <p>There was no difference in hypertension-related knowledge scores between study arms with a mean score of 7.5 (SD=1.86) in the control arm and 7.9 (SD=1.65) in the intervention arm (<math>p=0.27</math>).</p> <p>There was no difference between groups at study end in the proportion of subjects reporting high medication adherence (67% intervention vs. 69% control, <math>p=0.77</math>).</p> <p>The total number of clinic visits (physician + pharmacist) was significantly higher in the intervention arm as compared to control.</p> <p>There were no significant differences between groups with respect to subjects' quality of life at follow-up with the exception of the general health domain (<math>p=0.01</math>), or in patient satisfaction (<math>p=0.75</math>).</p>
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Iram <i>et al.</i> 2010  India	Intervention = 53 Control = 45	Diabetes mellitus	Unclear to which extent it is tailored.  Counselling and patient information leaflet (PIL). Patients were educated about diabetes mellitus, its management, complications, lifestyle modifications, importance of medication adherence, frequent monitoring of blood glucose levels, emphasis was given on diet and physical activities with the help of one to one interview and information leaflet which contained tips about the disease, regarding the diet, exercise and other life- style modifications to be followed. No further information given.	Clinical pharmacist at an out-patient medicine department.	No information given.	Full intervention carried out by the pharmacist: Recruiting patients, educating patients on diabetes mellitus, management, complications, medication adherence, self- monitoring and life- style modifications.	Fasting and post prandial blood sugar levels,  HbA1c levels  quality of life (QoL) and  KAP (knowledge and attitude to diabetes)	Significant improvement in fasting and post prandial blood sugar levels, HbA1c levels, QoL and KAP in the intervention group compared to the control group ( $P < 0.05$ for all).
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Jacobs <i>et al.</i> 2012  USA	Intervention = 195 Control = 201	Type 2 diabetes	<p>Unclear to which extent it is tailored.</p> <p>Pharmacist-patient clinic visits included obtaining a comprehensive medication review, performing targeted physical assessment including weight, height, blood pressure, pulse and foot exam, educating on diabetes pathophysiology and importance of control, ordering laboratory tests, reviewing, modifying and monitoring patients' medication therapy and providing detailed counselling on all therapies, facilitating self-monitoring of blood glucose and providing reinforcement of dietary guidelines and exercise. Referrals to other clinicians when indicated. Frequency of visits not stated. No further information given.</p>	Clinical pharmacists at an ambulatory general internal medicine setting.	PharmD degree and, at minimum, post-graduate residency training with emphasis in ambulatory care practice and experience in directly caring for patients with chronic diseases.	Full intervention carried out by the pharmacist: Reviewing medication, patient educating and counselling. Making medication recommendations to clinicians.	<p>A1c levels,</p> <p>LDL levels,</p> <p>blood pressure (BP) and percentage of patients reaching target values for these parameters.</p> <p>Medication use and</p> <p>microvascular screening parameters.</p>	<p>Significant greater percentage change in A1c levels (<math>P=0.03</math>) in the intervention group compared to the control group, and a greater percentage of intervention patients reached A1c and LDL goal.</p> <p>Significant difference in diastolic BP (<math>P=0.001</math>) in the intervention group compared to the control group.</p> <p>No significant difference in medication use between the groups.</p> <p>Significant more patients obtained microvascular screening parameters in the intervention group compared to the control group (<math>P=0.001</math>).</p>
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Jarab <i>et al.</i> 2012  Jordan	Intervention = 66 Control = 67	Chronic obstructive pulmonary disease (COPD)	<p>Unclear to which extent it is tailored.</p> <p>A structured patient education about COPD and management of its symptoms was delivered for the intervention patients in a separate room. The pharmacist also completed a medication table designed specifically to discuss types, indications, doses, frequency of administration, and possible side effects for each prescribed medication.</p> <p>The importance of simple exercises, symptoms control and the technique for expectoration were discussed. A booklet on these techniques was prepared to assist in the education session and the patients were given a copy to take home with them. The clinical pharmacist used the motivational interviewing technique with the aim of improving adherence. Patients who still smoked were referred to a special smoking cessation programme within the hospital. Follow-up after 6 months. No further information given.</p>	Clinical pharmacist at outpatient clinic.	No information given.	<p>Full intervention carried out by the pharmacist: Conducting the education and counselling using the motivational interviewing technique with the aim of improving adherence. Providing booklet.</p>	<p>The primary outcome measure was quality of life (QoL) improvement.</p> <p>Secondary outcome measures included healthcare utilization, COPD knowledge and medication adherence.</p>	<p>No significant difference in QoL, BMI, total number of prescribed medications, lung function or health utilization between the groups.</p> <p>COPD knowledge was significant improved in the intervention group, compared to the control group after 6 months.</p> <p>Significant decrease in the proportion of non-adherent patients in the intervention group when compared with the control group at the 6 month assessment (<math>P &lt; 0.05</math>)</p>
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Jarab <i>et al.</i> 2012  Jordan	Intervention = 85 Control = 86	Type 2 diabetes	<p>Tailored.</p> <p>The clinical pharmacist ensured that intervention patients were receiving evidence-based antidiabetic therapy and adjunct therapy, including treatment for dyslipidemia and hypertension. Clinical pharmacist recommendations were discussed with the physician when necessary. Structured patient education and discussion about type 2 diabetes, risks for and types of complications from diabetes, prescribed drug therapy, proper dosage, possible side effects, and the importance of medication adherence. Patients were encouraged to (a) change unhealthy dietary habits that adversely influence blood glucose, blood pressure, and lipid levels; (b) perform regular physical activity that fits with their daily schedule; and (c) monitor and record their blood glucose levels. An information booklet was prepared, and given to the patients. Finally, 8 weekly telephone calls (20 min) were made to each intervention patient to discuss and review the prescribed therapy, emphasize the importance of adherence, and answer questions or address concerns.</p>	Clinical pharmacist at an outpatient diabetes clinic at the 762-bed hospital	No information given.	Full intervention carried out by the pharmacist: Structured patient education and discussion. Follow up calls. Providing information booklet. Making recommendations to physicians.	<p>HbA1c levels,</p> <p>systolic and diastolic blood pressure,</p> <p>lipid values,</p> <p>body mass index (BMI),</p> <p>adherence (Morisky scale),</p> <p>diabetes self-care activities</p>	<p>Statistically significant differences in mean reduction of A1c (<math>P=0.019</math>), and in both systolic (<math>P = 0.035</math>) and diastolic (<math>P = 0.026</math>) blood pressure, were found between the 2 groups.</p> <p>Significantly greater proportion of patients in the intervention group achieved the LDL-C target (<math>P = 0.018</math>) when compared to the control group.</p> <p>No significant difference in BMI or the usage of key medications or HDL-C levels between the groups, except for the significant increase in statin prescriptions in the intervention group patients at the 6-month assessment (<math>P = 0.038</math>).</p> <p>Significantly lower proportion of non-adherent patients in the intervention group (28.6%) compared with the usual care group (64.6%) at the 6-month assessment (<math>P = 0.003</math>)</p> <p>Except for the foot care and smoking domains, the intervention group patients reported significantly better self-care activities, including diet (<math>P = 0.041</math>), exercise (<math>P = 0.025</math>), and self-monitoring of blood glucose (<math>P = 0.007</math>), compared with the usual care group at 6 months follow-up.</p>
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Kelly <i>et al.</i> 1988  USA	Intervention = 20 Control = 18	Angina pectoris	Fixed.  Demonstration dose of sublingual nitroglycerin (NTG) at the physician visit, with the aim to increase patient compliance. The dose was given with the patient seated and any side effects were recorded. No further information given.	Doctors at an out-patient clinic.	No information given.	Full intervention carried out by the physician: Attending when patient takes demonstration dose of sublingual NTG.	Patients' likeliness to use sublingual NTG at least once before their return visit.	Significantly more patients in the intervention group were likely to use sublingual NTG at least once before their return visit, than patients in the control group.
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Klein <i>et al.</i> 2009  Germany	Intervention = 26 Control = 24	Liver transplantation (patients on immune-suppressive drugs)	Unclear to which extent it is tailored.  The pharmaceutical care often started about a week before discharge from the transplant surgery unit. The pharmacist met with the patient 3-4 times and educated him on different issues regarding immunosuppressive medication. On discharge, the pharmacist handed out and explained written information, including discharge medication plan, information regarding the immunosuppressive therapy, and a diary for documenting vital signs and laboratory data. During the first year after transplantation, the patient met the pharmacist at least once per quarter year and at maximum once per month. During these meetings the pharmacist discussed with the patient changes in medication, laboratory values, and drug-related problems. In addition, the hospital pharmacist reviewed the patients' drug therapy, to minimize drug-related problems, and simplify drug regimens.	Hospital pharmacist at a University Hospital.	No information given.	Full intervention carried out by the pharmacist: Individual education and counselling regarding medications. Conducting follow up meetings.	The primary outcome parameter was patients' compliance with the immunosuppressive therapy, measured in dosing compliance (DC), pill counts, serum concentrations, with the Morisky score and self-reported missed doses.	<p>Significant increase in compliance with the immunosuppressive therapy during the first year after transplantation. The mean dosing compliance (DC) in the intervention group was 90.2%<math>\pm</math>6.2% (77.3%–100.0%) compared with 80.8%<math>\pm</math>12.4% (57.3%–99.1%) in the control group (P=0.015).</p> <p>The median compliance rate (pill counts) of the intervention group was 101.1%<math>\pm</math>2.6% (94.6%–108.5%) and of the control group 97.2%<math>\pm</math>13.6% (74.4%–148.0%) (P=0.030).</p> <p>Ninety-eight of 125 (78%) serum concentrations in the intervention group and 62 of 121 (51%) serum concentrations in the control group were classified as "target" (P&lt;0.001).</p> <p>Six months after transplantation, 87% of the intervention group patients and 62% of the control group patients answered "no" to all four questions on the Morisky scale (P=0.083).</p>
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Kumar <i>et al.</i> 2009  India	Intervention = 52 Control = 54	Asthma	Unclear to which extent it is tailored.  Both verbal and printed structured asthma education. Patient education included the disease, medications, management, life-style modifications and inhaler technique through counselling aids and prepared patient information leaflets. Education was provided at baseline and at every follow-up (no timeframe given). No further information given.	Community pharmacist at an out-patient department of pulmonology.	No information given.	Full intervention carried out by the pharmacist: Face to face patient educating regarding asthma, medication, life-style modifications and inhaler technique. Providing prepared patient information leaflets.	Lung function, medication adherence, inhaler technique, knowledge and attitude.	Significant improvement in inhaler technique, medication adherence and lung function in the intervention group at the end of the study when compared to the control group (P<0.001 for all).  A higher percentage of patients in the intervention group improved their knowledge compared to the control group (no p-value given).
Lai <i>et al.</i> 2011  Malaysia	Intervention = 100 Control = 98	Osteoporosis	Unclear to which extent it is tailored.  All participants were dispensed 3 months' supply of bisphosphonate and instructed on how to take their medications. 'Counselling package' consisting of an explanation on osteoporosis, risk factors, lifestyle modifications, goals of osteoporosis therapy, side effects and the importance of medication adherence. Verbal counselling was reinforced with an osteoporosis booklet. Monthly follow-up via telephone calls for the first 6 months, then every 3 months until month 12. No further information given.	Pharmacists at osteoporosis, orthopaedic and menopause clinics in a university medical centre.	No information given.	Full intervention carried out by the pharmacist: Delivering the counselling package and reviewing participant's medications and conducting monthly follow-up telephone calls.	Medication adherence, bone turnover markers (BTMs) and persistence.	In the present study, when medication adherence was assessed by direct-reporting, no significant difference was found between the control and intervention group.  When adherence was assessed by pill count, the intervention group showed a significantly higher adherence at month 6 (P=0.028).  When adherence was assessed using self-recording by the participants, adherence at month 6 and 12 was also significantly higher in the intervention group compared with the control group (P = 0.015 and P = 0.047 respectively).  There was no difference in serum CTX-I and serum OC reduction between the control and intervention group at months 3 and 6.  Persistence at 1 year was high and was similar between the control and intervention group.

Lantz <i>et al.</i> 1995 USA	Intervention = 337 Control = 322	Breast and cervical cancer (screening).	Fixed.  Women in the intervention group received a two-part intervention. First, each woman received a reminder letter from her primary care physician (or the medical director of the community health centre if a primary physician could not be identified) based on which screening test(s) she needed. Second, women received a follow-up telephone call from a health educator (i.e., a nurse or social work intern) within 7 to 10 days after the letter was mailed; the purpose of the call was to offer barriers counselling and/or assistance with appointment scheduling.	Doctors at a community health centre.	No information given.	Sending reminder letters to eligible women.  Nurses made the telephone calls (second reminder).	Pap test and mammogram use.	Difference in outcomes, compared between intervention group and control group: Pap test only, OR 6.9 CI 1.9-25.6.  Mammogram only, OR 4.5, CI 2.3-8.6.  Pap test and mammogram, OR 3.1, CI 1.4- 6.9)  Women in the intervention group were significantly more likely to receive all needed cancer screening tests during the follow-up period than women in the control group, OR 4.0 CI 2.6-6.2.
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Lee <i>et al.</i> 1999  USA	Intervention = 62 Control = 63	Peptic ulcer disease or dyspepsia ( <i>H. pylori</i> caused)	Unclear to which extent it is tailored  Initial counselling by the pharmacist, which typically lasted 10 to 15 minutes and included discussion of BMT triple therapy and <i>H. pylori</i> infection. Written information on <i>H. pylori</i> infection and the importance of compliance with the regimen was also provided. The pharmacist also taught the patient to check off on a pocket-sized medication calendar every dose of medication taken, and taught the patient to put the correct daily doses in a pocket- sized pillbox. Follow up telephone calls were made by the pharmacist at least 3 days after the initiation of therapy to ensure that the patient were tolerating the medications and was taking it appropriately. Additional counselling was given over the telephone when needed.	Pharmacist at ambulatory health centres of Harvard Pilgrim Health Care.	No information given.	Full intervention carried out by the pharmacist: Met with patients and counselled them about their disease and stressed the importance of adherence. Conducted a follow up telephone call assessing patient adherence.	Medication adherence (by pill count)	In the intervention group, 89% of the patients achieved a 90% level of compliance, compared to 67% of patients in the control group ( $P<0.01$ ).
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Lee <i>et al.</i> 2004  China	Intervention = 31 Control = 28	Hyperlipidemia	<p>Tailored.</p> <p>Intense counselling and follow-up of cholesterol levels. Every patient in the individualized group, together with his or her family members (if they attended the visit with the patient), was told about the functions of cholesterol and the potential cardiovascular risks of having hyperlipidemia. Assessment of patients' 10-year Coronary heart disease (CHD) risk, increasing their understanding of the disease. The use of lipid-lowering drugs, the dose, the time of administration, and adverse effects were explained to the patients, and emphasizing the importance of treatment compliance. Giving individualized advice on therapeutic lifestyle changes. Education booklet about management of hyperlipidemia and a card that contained information about cholesterol contents in food was provided. The second visit focused on further education, reinforcement, and assessment of compliance, as well as discussion on barriers to compliance. It was scheduled 1 month after the first visit.</p>	Pharmacist at private hospital providing primary and secondary health care.	No information given.	Full intervention carried out by the pharmacist: Assessing patients' 10-year CHD risk, increasing their understanding, and emphasizing the importance of compliance. Giving individualized advice. Providing booklet.	<p>Level of compliance, percentage of lipid reduction, and</p> <p>percentage attainment of ATP III LDL-C goals.</p>	<p>Significant improvement in compliance (<math>P&lt;0.05</math>) and more compliers (<math>P&lt;0.01</math>) in the intervention group compared to the control group. Compliant meaning taking <math>&gt;75\%</math> of prescribed lipid-lowering drugs.</p> <p>Significant reduction in total cholesterol (<math>P&lt;0.001</math>), LDL (<math>P&lt;0.01</math>) and triglycerides (<math>P&lt;0.01</math>) in the intervention group compared to the control group.</p> <p>Significant more patients achieved the ATP III LDL-C goals by the end of 3 months, in the intervention group compared with the control group (<math>P&lt;0.05</math>).</p>
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Lim <i>et al.</i> 2004  Singapore	Intervention = 64 Control = 62	Not specified	Unclear to which extent it is tailored.  Consultation sessions, 10-30 minutes. Each patient was evaluated for medication-related problems by reviewing the medical records, the medication list and by interviewing the patient and caregiver. The relevant recommendations were then discussed with the patient's primary physician. The pharmacist also provided counselling on medication knowledge and proper administration and addressed issues related to disease management, such as ADRs, diet and use of non-prescription medications. No further information given.	Pharmacist with experience in outpatient care at a geriatric medicine outpatient clinic.	No information given.	Full intervention carried out by the pharmacist: Conducting consultation sessions, and evaluate medial-related problems. Making recommendations to physicians.	Medication knowledge, patient's perception, residual ADRs at month 2, cost avoidance, difference in number of medications and clinical status.  Secondary outcomes were medication compliance and factors affecting compliance.	Significant improvement in knowledge in the intervention group compared to control (DFI score P=0.06, I score P=0.03, and DF score 0.4 in ANOVA.  No significant difference in change of perception between the groups in regards to severity of illness (P=0.8), usefulness of medications (ANOVA P=0.7, H-test P=0.9) and number of medications (H-test P=0.7).  The residual ADR complaints decreased in the intervention group compared to the control group (30.7% vs. 50%)  Improved clinical status in intervention group, but not statistically significant (P=0.23).  After adjusting for ADL status, the intervention group showed a significant improvement in compliance (OR=2.52 90% CI, 1.09 to 5.83), unadjusted it did not reach significance (OR 1.5, 90% CI, 0.73 to 3.08).
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Lipton <i>et al.</i> 1994  USA	Intervention = 350 Control = 356	Not specified. Hospitalized geriatric patients	Unclear to which extent it is tailored.  After reviewing the records to determine an experimental patient's clinical condition and to assess the appropriateness of prescribing, the pharmacists conducted a face-to- face consultation with every experimental patient before hospital discharge to discuss the purpose and use of their medications and potential drug- related problems. Follow-up consultations were conducted with these patients following hospital discharge at 1 week, 2-4 weeks, 2 months, and 3 months post-discharge. The post-discharge consultations generally were about 15 minutes in duration. When significant prescribing problems were detected, consultations were provided with the patient's physician. Also, because multiple medications and complex regimens may be implicated in patient non- compliance, the pharmacists promoted the use of fewer medications and simplified regimens where appropriate.	Clinical pharmacists at a 450-bed nonteaching community hospital	No information given.	Full intervention carried out by the pharmacist: Reviewing patients' medical records, face-to-face counseling patients and providing booklet.	Medical care utilization,  patient compliance,  knowledge,  regularity,  frequency,  dosage,  missed doses and  polypharmacy	<p>The intervention failed to have an impact on subsequent medical care utilization and expenditures.</p> <p>Overall compliance scores for the experimental patients were significantly higher than those of controls whether (P=0.027) or not (P&lt;0.001) knowledge of the purpose of the medication was included in the compliance index.</p> <p>At the second assessment, 92% of experimental patients compared to 77% of control patients had not missed any dose of their analyzed medications (p&lt;0.001).</p> <p>At the time of the second compliance assessment, patients in the intervention group were taking significantly fewer medications than controls (p&lt;0.001). There also were significant differences in total daily doses of all medications combined (p&lt;0.001).</p> <p>Significant increase in medication purpose knowledge in the intervention group at the second assessment, when compared to the score at the first assessment (P&lt;0.001)</p>
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<p>Lopez Cabezas <i>et al.</i> 2006</p> <p>Spain</p>	<p>Intervention = 70 Control = 64</p>	<p>Heart failure</p>	<p>Tailored.</p> <p>The program activities focused two different issues:</p> <p>1. Information: —Information on the disease: individualised education supported by audiovisual and written educational material, the main characteristics of heart failure. —Diet education: explaining the need for reducing the sodium supply of diet, and giving information on food that should be avoided or its consumption reduced. —Information on drug therapy: explain to the patient the value of the prescribed drugs and the need for following the prescribed regimen.</p> <p>2. Telephone strengthening: —Contact telephone: advising patients, to contact the pharmacist if they had any doubt or questions regarding the treatment or the disease. —Monthly during the first 6 months of follow-up, and subsequently, every 2 months, a telephone call was made to the patient, as a strengthen to the intervention and to solve any doubts or problems that could have arisen.</p>	<p>Research pharmacist at a hospital.</p>	<p>No information given.</p>	<p>Full intervention carried out by the pharmacist: Delivering the active information program. Educating and counselling the patient.</p>	<p>Time to the first re-admission for heart failure, treatment compliance, quality of life, patient satisfaction with the care received and death during the follow-up.</p>	<p>The patients in the intervention group had a greater compliance degree than the patients in the control group; specifically, compliance was 88.2 vs. 60.5% at 2 months (<math>P=0.02</math>), 91.1 vs. 69.0% at 6 months (<math>P=0.015</math>) and 85.0 vs. 73.9% at the end of the follow-up time (NS).</p> <p>The patients in the intervention group were re-admitted less than those in the control group; specifically, a reduction of 54% is seen at 2 months, of 42.4% at 6 months of follow up and of 32% at 12 months.</p> <p>No significant differences were seen between the two groups with regard to the measurement of quality of life throughout the follow-up, though the satisfaction with the care and the information received was greater in the patients of the intervention group (<math>p = 0.026</math> at visit 2).</p> <p>The number of deaths was significantly higher in the control group. At 12 months of follow-up the percentage of deaths in the control group was 29.7 vs. 12.9% in the intervention group (<math>p &lt; 0.05</math>).</p>
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Ma <i>et al.</i> 2010  USA	Intervention = 351 Control = 338	Coronary heart disease (CHD)	<p>Tailored.</p> <p>Patients in the PI condition were seen by one of the study pharmacists prior to discharge. This allowed the pharmacist to establish a relationship with the patient, explain the pharmacist's role in the study, provide education about all discharge medications including a medication card which listed all medications and their manner of use, and set the framework for the follow-up telephone calls. The pharmacist-delivered telephone counselling calls took place at two weeks, and at 1, 3, 6, and 9 months following discharge. During these calls, pharmacists helped patients develop a medication adherence plan. In addition, the pharmacist facilitated scheduling of repeat blood draws for lipid measurement and provided information, guidelines; and prompts to the patient and to the patient's physician or nurse practitioner with regard to LDL-C management. Patients were also provided an educational packet, a dietary goal booklet, and a pillbox, and were sent updated medication cards if their medication regime had changed.</p>	Study pharmacist at a tertiary care hospital.	Trained in the delivery of patient-centred counselling and followed patient-centred protocols for the in-patient and telephone contacts. The training included a 4-hour meeting that presented pharmacists with an orientation to the study, the theoretical framework for the intervention, patient-centred counselling protocols and role-playing. An additional one-hour role-playing session was completed.	Full intervention carried out by the pharmacist: Providing discharge education regarding discharge medication. Conducting follow up counselling telephone calls. Helping patients develop an adherence plan. Providing the educational packet and updated medication cards.	<p>The primary outcome evaluated at one year included percentage of patients with a serum low-density lipoprotein cholesterol (LDL-C) level &lt;100 mg/dl.</p> <p>The secondary outcome included the proportion of prescribed statin medication taken by patients as measured by a continuous multiple-interval (CMA) based on pharmacy records.</p> <p>Other secondary outcomes evaluated at one year included the proportion of patients' prescribed ACE inhibitor and beta-blocker medication. Adherence to these medications was also measured by continuous multiple-interval (CMA. The CMA is the ratio of days supply obtained to total days between refill records, for example, CMA=0.88 is referring to the patient being 88% adherent to their statins medication).</p>	<p>No significant difference in percentage of patients achieving LDL-C goal levels.</p> <p>No significant difference in CMA between the groups (P=0.51)</p> <p>No statistical differences in adherence to, or the use of beta-blockers and ACE inhibitors in the two groups.</p>
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McLean <i>et al.</i> 2003  Canada	Intervention = 121 Control = 121	Asthma	Unclear to which extent it is tailored.  Patient self-management education based on the HOP Asthma Care Module. This involved instruction on the basic concepts of the disease, the medications being used and trigger identification and avoidance, as well as the development of the asthma action plan. Instructing use of peak flow meters, providing calendars/diaries. Appointments lasted for approximately 1 hour and were scheduled for every two or three weeks for at least three appointments, and then follow-up appointments at every three months for the remainder of the study. No further information given.	Pharmacists at community pharmacies.	Specially trained and certified in asthma care.	Full intervention carried out by the pharmacist: Face to face patient education on the disease and its treatment. Providing medication calendars or diaries.	Symptoms, knowledge, drug utilization, quality of life (QoL), days off school/work, emergency visits, hospitalisations and medical visits.	Significant change in symptoms (P=0.000), knowledge (P=0.000), use of beta-agonists (P=0.0082), QoL (P=0.0001) and medical visits in previous month (P=0.0445) in favour of the intervention group when compared to the control group.  No significant difference in use of corticosteroids (P=0.6309), days off school/work in previous month (P=0.5688), emergency visits in previous month (P=0.4757) or hospitalisations in previous month (P=0.9396) between the groups.
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Mehos <i>et al.</i> 2000  USA	Intervention = 20 Control = 21	Hypertension	Fixed.  Patients were given a blood pressure (BP) measuring device to take home. They were educated on how and when to use it and were given a predated diary in which they documented two morning values, changes in antihypertensive drug therapy and missed doses. They were told to measure their blood pressure (BP) each morning, before food, coffee, or drugs, after a 5-minutes rest in a seated position and again after 2-5 minutes. The patients were contacted by a clinical pharmacist by telephone after 1 month to evaluate BP. No further information given.	Pharmacists at a family medicine residency training clinic.	No information given.	Full intervention carried out by the pharmacist: Providing BP measuring device and educating patients.	BP,  medication compliance (calculated by dividing the number of pills/capsules refilled by the amount prescribed during the study) and  SF-36 results.	Significant reduction in diastolic BP (P=0.022) and mean arterial pressure (MAP) (P=0.010) in the intervention group compared to the control group.  No significant reduction in systolic BP (P=0.069), mean compliance to antihypertensive drugs (P=0.29) or SF-36 results (P>0.1) between the groups.
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Mehuys <i>et al.</i> 2011 Belgium	Intervention = 153 Control = 135	Type 2 diabetes	<p>Unclear to which extent it is tailored.</p> <p>Protocol-defined intervention. The intervention consisted of several elements: (i) education about type 2 diabetes and its complications; (ii) education about the correct use of oral hypoglycaemic agents (timing in relation to food); (iii) facilitation of medication adherence (by counselling); (iv) healthy lifestyle education (diet, physical exercise and smoking cessation); and (v) reminders about annual eye and foot examinations. These elements were implemented by the pharmacist on each visit of the patient during the 6-month intervention period. No further information given.</p>	Pharmacists at community Pharmacies.	Before the start of the study, the intervention pharmacists underwent a training session on the pathophysiology of type 2 diabetes and its non-pharmacological and pharmacological management according to current treatment guidelines, and the study protocol. The control pharmacists only received training on the study protocol.	Full intervention carried out by the pharmacist: Counselling and education regarding diabetes, medication and life-style.	<p>Fasting plasma glucose, HbA1c levels,</p> <p>Adherence to oral hypoglycaemic agents (prescription refill rates and self-report),</p> <p>knowledge about diabetes,</p> <p>self-management and sustainability of study results.</p>	<p>Reduction of fasting plasma glucose in both arms but the reduction in the intervention arm was not significantly larger than the reduction in the control arm (P=0.193).</p> <p>The proportion of patients having FPG within target was increased in both study groups, with a significantly higher increase in the intervention arm vs. the control arm (P=0.002).</p> <p>Significant difference in per cent HbA1c (P=0.009) and per cent of patients with HbA1c &lt;8% (P=0.011) between the groups in favour to the intervention group. No significant difference in per cent of patients with HbA1c &lt;7% between the groups (P=0.187).</p> <p>Significant increase in knowledge in the intervention group when compared to the control group (P&lt;0.001)</p> <p>After 18 months, fasting plasma glucose did still differ between the groups (P=0.046) but HbA1c levels did not (P=</p> <p>Adherence data were considered unsuitable for further analysis. With respect to the self-reported adherence, both study groups declared themselves to be very adherent to their diabetes medication.</p> <p>There was a significant between-study group difference regarding the domains 'physical exercise' (P=0.045) and 'foot care' (P&lt;0.001). The between-group difference on 'specific diet' was non-significant.</p>
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Mehuys <i>et al.</i> 2008  Belgium	Intervention = 107 Control = 94	Asthma	<p>Unclear to which extent it is tailored.</p> <p>The study had a 2-week run-in period, followed by 6 months of randomised treatment. There were five scheduled visits to the pharmacy as follows: at the start of the run-in period, at randomisation and at 1, 3 and 6 months after randomisation. Patients in the intervention group received a protocol-defined intervention at the start of the study and at the 1- and 3-month follow-up visits. Asthma diaries were provided to the patients. No further information given.</p>	Pharmacist in a community setting.	Training session about asthma (pathophysiology), its non-pharmacological and pharmacological treatment (GINA guidelines) and about the use of the study protocol.	Full intervention carried out by the pharmacist	<p>Asthma control (measured with Asthma Control Test [ACT]),</p> <p>diary data,</p> <p>asthma exacerbations,</p> <p>adherence to controller medicine,</p> <p>Asthma Quality of Life,</p> <p>knowledge about asthma and treatment,</p> <p>inhalation technique.</p>	<p>A pre-defined subgroup analysis of patients having insufficiently controlled asthma at baseline showed that the intervention had significantly increased the ACT score after 6 months compared with usual care (<math>p=0.038</math>), otherwise no significant difference.</p> <p>The present study found no differences between the control and intervention groups in the occurrence of severe exacerbations</p> <p>Adherence to controller medication during the course of the study, was higher in the intervention group compared with the control group (<math>p=0.016</math>).</p> <p>There was no significant difference in Asthma Quality of Life Questionnaire (AQLQ) score between both study groups.</p> <p>Significant improvement in inhaler technique in the intervention group compared to the control group (<math>P=0.004</math>).</p>
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<p>Mohammadi <i>et al.</i> 2006</p> <p>Iran</p>	<p>Intervention = 75</p> <p>Control = 75</p>	<p>Hypertension</p>	<p>Tailored.</p> <p>Educational, collaborative meetings. In the first phase, four educational partnership meetings were held in the rural health centres weekly for each group which contained 5–7 patients, a nurse and a physician. The first meeting covered the topics encompassed the nature, causes and complications of hypertension. In the second meeting, non-drug therapy was covered and in the third meeting, drug therapy was discussed. In the final meeting, the importance of continuous measurement and recording of BP was discussed. In the second phase, 11 follow-up partnership meetings were done in the rural health centres monthly for 1 year. The goal of these meetings was to encourage and evaluate patient's compliance and participation during the care and therapeutically process. In each meeting, BP measurement, patient educational programme, prescription and evaluation of previous medical care interventions were carried out for 40–45 min. The patient educational programme was designed according to the patient needs.</p>	<p>Doctors, and nurses, at rural health centres.</p>	<p>No information given.</p>	<p>Attending meetings and contributing to discussions. Motivating and readying the patients. Stressing importance of continuous BP measurement and recording. Evaluating patients' compliance.</p>	<p>BP, compliance, mortality rates, body mass index (BMI) and quality of life (QoL).</p>	<p>Significant difference among average systolic BP (<math>P&lt;0.001</math>) and diastolic BP (<math>P&lt;0.05</math>) of patients in the two groups.</p> <p>Significantly higher proportion of patients in the intervention group achieved controlled systolic and diastolic BP than in the control group (<math>P&lt;0.005</math>).</p> <p>Significant lower mortality rates in the intervention group compared to the control group (<math>P&lt;0.05</math>).</p> <p>No significant difference in BMI or QoL between the groups (<math>P&gt;0.05</math>).</p> <p>Significant difference in compliance rates between the groups (<math>P=0.001</math>).</p>
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Morgado <i>et al.</i> 2011  Portugal	Intervention = 98 Control = 99	Hypertension	<p>Unclear to which extent it is tailored.</p> <p>The pharmaceutical care provided to the IG by a clinical pharmacist consisted in the baseline visit (lasting approximately 30 min) and the follow-up visits (lasting approximately 20 min) conducted with each intervention patient at 3 and 6 months. The clinical pharmacist could also schedule additional optional visits between scheduled visits at his discretion. At each visit, the clinical pharmacist conducted a thorough interview of the patient, identified problems leading to poor BP control, provided patient education (hypertension education, BP self-monitoring recommendation, goal BP to achieve, lifestyle education and counselling, medication education and counselling tips to enhance adherence), and presented recommendations to the physician regarding changes in drug therapy. The recommended lifestyle changes for BP control were in accordance with the JNC 7 guidelines. Written educational material about hypertension and possible complications, as well as healthy lifestyle practices.</p>	Clinical pharmacists at ambulatory secondary care.	No information given.	Full intervention carried out by the pharmacist: Conducting patient interviews, identifying problems, and presenting recommendations to the physician regarding changes in drug therapy.	<p>Proportion of patients Achieving blood pressure (BP) control and reduction in baseline systolic BP (SBP) and diastolic BP (DBP),</p> <p>antihypertensive medication adherence (using a validated five-item adherence scale),</p> <p>patients' knowledge of BP and its risks.</p>	<p>At the end of the study, BP was controlled among significantly more patients in the IG than in the CG (P =0.0008).</p> <p>Significant improvement in medication adherence (P=0.0017), knowledge of risks (P=0.03) and knowledge of BP target values (P=0.05) between the groups.</p> <p>Significant difference in patients' knowledge of BP and its risks at the end of the study (P&lt;0.05).</p>
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Murray <i>et al.</i> 2009  USA	Intervention = 232, 134 Control = 303, 131	Heart failure and/or hypertension	Unclear to which extent it is tailored.  Participants were provided medications in containers that enabled electronic monitoring of adherence to the prescribed cardiovascular medications and medication information designed for persons with low health literacy. The intervention pharmacist used a study computer that was integrated into the electronic medical record system for the purpose of monitoring prescription and non- prescription medications, tracking materials provided to patients, and documenting communications with patients, nurses, and physicians. No further information given.	Pharmacists at outpatient practices.	Specifically trained and equipped pharmacists. No further information given.	Full intervention carried out by the pharmacist: Giving oral and written information about medications and monitoring patients through the electronic medical record system.	Adverse drug events (ADEs) and medication errors (MEs)	<p>The overall mean (SD) number of events per participant in the complicated stratum was 0.37 (0.9) for the control group and 0.28 (0.8) for the intervention group (P=0.04), and insignificant in the uncomplicated stratum.</p> <p>In the complicated control group, the mean (SD) number of ADEs per participant was 0.36 (0.9) compared with 0.28 (0.8) in the intervention group (P=.04). No significant difference in the uncomplicated group.</p>
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Murray <i>et al.</i> 2007 USA	Intervention = 122 Control = 192	Heart failure	<p>Tailored.</p> <p>Verbal and written information and medication instructions. When medications were dispensed, the pharmacist provided patient-centred verbal instructions and written materials about the medications. Each medication category was assigned an icon (for example, the icon for ACE inhibitors was a red ace of hearts). The same icon appeared on the container label and lid and on the written patient instructions. Written instructions were aimed at patients with low health literacy and contained an easy-to-follow timeline to remind patients when to take their medications.</p> <p>The pharmacist monitored patients' medication use, health care encounters, body weight, and other relevant data by using a study database. Information about patients was communicated as needed to clinic nurses and primary care physicians by face-to-face visits, telephone, paging, and e-mail. No more information given.</p>	Pharmacist at a university-affiliated, inner-city, ambulatory care practice.	An interdisciplinary team trained the intervention pharmacist. The intervention pharmacist also studied guidelines for treating heart failure, key concepts in the pharmaceutical care of older adults, communication techniques, and the pharmacotherapy of the cardiovascular drugs for heart failure.	Full intervention carried out by the pharmacist: Providing patient-centred verbal instructions and written materials about the medications. Monitoring patients' medication use.	<p>Medication adherence (using MEMS),</p> <p>exacerbations,</p> <p>health-related quality of life (QoL),</p> <p>satisfaction with pharmacy services,</p> <p>total direct health care costs,</p> <p>adverse drug events (ADEs) and</p> <p>medication errors (MEs).</p>	<p>Compared with the usual care group, the intervention group had statistically greater overall refill adherence (<math>P=0.007</math>) and had increased refill adherence for <math>\beta</math>-blockers (<math>P=0.002</math>), digoxin (<math>P=0.039</math>), ACE inhibitors (<math>P=0.018</math>), and loop diuretics (<math>P=0.027</math>).</p> <p>No significant difference in self-reported adherence (<math>P=0.48</math>), QoL (<math>P=0.21</math>) or in number of ADEs and MEs between groups.</p> <p>The intervention group had 19.4% fewer exacerbations on the combined end point of hospital admission or emergency department visit (incidence risk ratio, 0.82 [CI, 0.70 to 0.95]). Fewer hospital admissions occurred in the intervention group for the various reasons for admission.</p> <p>No cost comparisons between groups were statistically significant because of the large variability in costs.</p>
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Nazareth <i>et al.</i> 2001 England	Intervention = 181 Control = 181	Not specified. Patients over 75 years, taking 4 or more medicines at discharge.	<p>Tailored.</p> <p>The hospital pharmacist intervention included an assessment of the patients' medication, rationalization of their drug treatment, assessment of patients' ability to manage their medication, provision of information on their current drugs and liaison with carers and community professionals when appropriate. A copy of the discharge plan was given to the patient, the patient's chosen community pharmacist and general practitioner and any other professionals or carers involved. Between 7 and 14 days after discharge, the community pharmacist visited the patients at home. This allowed the pharmacist to check for discrepancies between the medications the patient was taking and those prescribed on discharge. The pharmacist assessed the patient's understanding of and adherence to the medication regimen and intervened when appropriate. Interventions included counselling patients or carers on the medication, disposing of excess medicines and liaising with general practitioners.</p>	Hospital and community pharmacists at hospitals and community pharmacies.	The main pharmacist involved, trained the hospital and community pharmacist on all aspects of the care plan. A detailed manual was also given to each of the pharmacist and this served as a guide through the various stages of the care plan.	Full intervention carried out by the pharmacists: Hospital pharmacists were providing hospital discharge service. Community pharmacists were conducting home-visits (assessing and educating patients).	<p>Re-admissions to hospital,</p> <p>number of deaths,</p> <p>attendances at hospital outpatient clinics and general practice,</p> <p>days in hospital,</p> <p>patient well-being,</p> <p>satisfaction,</p> <p>adherence and</p> <p>knowledge.</p>	Only significant difference between the groups at the end of the study period was in patient knowledge (no p-value given).
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Noureldin <i>et al.</i> 2012 USA	Intervention = 122 Control = 192	Heart failure	<p>Tailored.</p> <p>Both verbal instructions and written education material. A tailored, patient-centred strategy was developed to improve adherence. One-page calendar-type drug-taking matrix. Literacy adjusted materials. The intervention consisted of three main components: patient education, therapeutic monitoring and communication with primary care providers. Patient education included providing verbal instructions and written materials to promote patients' understanding of their prescriptions and rationale of use, as well as encouraging drug adherence. Written materials included drug therapy sheets and were aimed at individuals with low health literacy levels. Patients were also given a one-page calendar-type drug-taking matrix to improve adherence. Therapeutic monitoring allowed the study pharmacist to identify any barriers to drug adherence and follow-up with any medically related issues. The study pharmacist communicated relevant patient information to physicians and nurses through face-to-face visits and telephone calls.</p>	Study pharmacist at inner-city ambulatory care practice affiliated with an academic medical centre.	No information given.	Full intervention carried out by the pharmacists: Providing verbal instructions, written education material and one-page calendar-type drug-taking matrix. Communicating with physicians and nurses.	Medication adherence for patients with both adequate and inadequate health literacy.	<p>Multivariate regression analyses indicated that health literacy level was an independent predictor of drug adherence and explained variation in both taking (<math>P=&lt;0.0001</math>) and scheduling (<math>P=0.001</math>) adherence.</p> <p>Compared to the control group, the intervention group generally increased taking and scheduling adherence.</p> <p>For patients with adequate health literacy the intervention increased taking adherence at a statistically significant level when compared to the control group (<math>P=0.03</math>).</p> <p>For patients with inadequate health literacy the intervention increased refill adherence at a statistically significant level when compared to the control group (<math>P=0.04</math>).</p> <p>The proportion of adequate health literacy patients receiving 80-120% of their refills, was greater in the control group than in the intervention group (<math>P&lt;0.001</math>).</p> <p>Other differences did not reach statistical significance.</p>
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Peterson <i>et al.</i> 2004  Australia	Intervention = 46 Control = 48	Cardiovascular problems (Patients with established cardiovascular disease and an acute cardiovascular / cerebrovascular-related admission)	Unclear to which extent it is tailored.  Patient education and counselling, life-style recommendations. Patient monitoring. Patients in the intervention group were educated on the goals and proven benefits of lipid-lowering drug therapy, and appropriate lifestyle modifications. Dietary and lifestyle recommendations were obtained from various sources. Patients were also assessed for any drug-related problems. These visits were repeated on a monthly basis for a period of 6 months. No further information given.	Pharmacists at acute care teaching hospital	No information given.	Full intervention carried out by the pharmacists: Educating patients on the goals and proven benefits of lipid-lowering drug therapy, and appropriate lifestyle modifications. Providing dietary and lifestyle recommendations.	Lipid levels and self-reported medication adherence.	No significant difference in total cholesterol ( $P=0.24$ ) or self-reported patient compliance ( $P>0.3$ ) between the groups.  No statistical significant difference in total cholesterol levels between the groups ( $P=0.06$ ).  Self-reported patient compliance with medication did not change over the course of the study, and total cholesterol levels were not significantly related to self-reported patient compliance either at the baseline ( $P>0.50$ ) or at follow-up ( $P>0.30$ ).
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Phumipamon <i>et al.</i> 2008 Thailand	Intervention = 67 Control = 68	Type 2 diabetes	Unclear to which extent it is tailored.  Each patient of the study group had a scheduled meeting with the research pharmacist for four consecutive visits at 2-month intervals. At each visit, the research pharmacist refilled prescriptions, discussed the uses of medication and checked the pill count. Education on diabetes which included appropriate lifestyles and correct diet was also provided apart from a companion diabetic pamphlet which covered the diabetic complications, the targets of treating diabetes, lifestyle change, and anti-diabetic medications. No further information given.	Research pharmacist at a community hospital.	No information given.	Full intervention carried out by the pharmacists: Discussing use of medication, face to face educating patient about diabetes treatment and life-style modifications, providing diabetic pamphlet with information.	HbA1c levels, medication adherence (pill count), diabetes knowledge and lipid levels.	Significant change in HbA1c in both groups, but no between group difference was shown (P = 0.56).  Significant increase in medication adherence (P=0.004) and diabetic knowledge (P=0.002) in the intervention group compared to the control group.  Significantly lower total cholesterol (P=0.000) and LDL levels (P=0.002) was achieved in the intervention group when compared to the control group.  No significant change in triglyceride (P=0.23), HDL (P=0.06) and non-HDL levels (P=0.18) between the groups.
Pierce <i>et al.</i> 1989 England	Intervention = 140, 142 Control = 134	Cervical cancer (screening)	Fixed.  Letters were written to the women in group 1 asking them to have a smear test. The notes of the women in group 2 were tagged with a partially completed request form for a cervical smear test that reminded the doctors to ask about cervical cytology screening at any consultation. No further information given	Doctors at a group general practice.	No information given.	Advising women to have a smear test when the noted were tagged.	Completion of smear tests and reason for doing it.	No significant difference between the two intervention groups, but both interventions was more effective than the control (P<0.01).

Pladevall et al. 2010 Spain	Intervention = 489 Control = 446	Hypertension	<p>Fixed.</p> <p>The intervention to improve adherence in the treatment group lasted 6 months and consisted of 3 main components: (1) The counting of pills during physician visits, (2) designation of a family member to support adherence behaviour, and (3) provision of an information sheet to patients at the start of the intervention. The information sheet included information on each BP medication dose and frequency, potential medication side effects, what to do if a dose was missed, what to do when the medication was running low, and how different types of antihypertensive medication could be taken together. Patients were encouraged to measure their BP every other week, and they were given calendars to mark the day that they took their medication.</p>	Doctors from hospital-based hypertension clinics and primary care centres.	All intervention physicians underwent an initial 2-hour session on motivational interviewing techniques to promote patient adherence. Physicians were advised to avoid confrontation and to respect patients' autonomy. Case vignettes representing confrontational and motivational interviewing scenarios were used during the training.	Full intervention carried out by the doctors: Counting pills during, emphasize the importance of adherence and providing an information sheet to patients at the start of the intervention.	<p>Systolic blood pressure (SBP) and diastolic blood pressure (DBP) control at the end of the first 6 months of follow-up.</p> <p>Medication adherence (MEMS) over 6 months of follow-up.</p> <p>A composite end point of all-cause mortality and admission to a hospital for any cardiovascular event at 5 years of follow-up.</p>	<p>At 6 months, intervention patients had significantly lower mean SBP (<math>P=0.008</math>) and lower mean DBP (<math>P=0.013</math>) than control patients.</p> <p>Moreover, intervention patients were less likely to have an uncontrolled SBP than control patients (OR 0.62, 95% CI 0.50 to 0.78). On the other hand, intervention patients were not less likely to have an uncontrolled DBP than control patients (OR 0.94, 95% CI 0.73 to 1.20). Differences of <math>\approx 2</math> mm Hg in SBP between groups persisted over the 5 years of follow-up, whereas differences in DBP between groups were <math>&lt;1</math> mm Hg after 18 months of follow-up. Only a few of the SBP differences after the 6-month visit were statistically significant.</p> <p>Patients in the intervention group also appeared to be more adherent over the 6 months of the intervention, because they took their correct dose on a greater proportion of days than patients in the control group (<math>P=0.002</math>).</p> <p>For the other adherence measures, intervention patients were also more likely to achieve an adherence value of <math>\geq 80\%</math> over the 6-month period (<math>P&lt;0.01</math>)</p> <p>No statistical difference in cardiovascular events between the groups.</p>
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Polack <i>et al.</i> 2008  Canada	Intervention = 4, 5 Control = 5	Myocardial infarction	Fixed.  Patients randomized to the pre-discharge pharmacist education group received additional education from a hospital pharmacist prior to discharge to specifically discuss the benefits and risks of the cardiovascular risk reduction medications. Patients randomized to the post-discharge pharmacist education group received the same additional education from the same hospital pharmacist approximately 1 to 2 weeks post-discharge in a community-based primary health care clinic. An identical standardized process and patient education tool were used by the hospital pharmacist in both the pre- and post-discharge education groups. The tool was used to guide the education session and explained the benefits of taking the post-MI medications both numerically and pictorially. Any problems were documented and reported to patient and appropriate health care professionals.	Hospital pharmacist at a hospital or at a community-based primary health care clinic.	No information given.	Full intervention carried out by the pharmacists: Providing pre- and post-discharge medication-related education, using identical tools for both. The tools addressed the benefits of taking the post-MI medications both numerically and pictorially.	Medication adherence and knowledge,  patients' beliefs and  drug-related problems.	No statistical significant difference in medication adherence or beliefs between the groups ( $P>0.05$ for both).  The post-discharge education group was more likely to answer questions regarding understanding correctly compared to both pre-discharge education groups ( $P<0.05$ ).
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Qureshi <i>et al.</i> 2007  Pakistan	Intervention = 100 Control = 100	Hypertension	<p>Unclear to which extent it is tailored.</p> <p>Education of general practitioners on hypertension, to provide special care to intervention group. Components of the course included non-pharmacological (diet, exercise, weight loss, smoking cessation) and pharmacological interventions; prescribing low cost and appropriate generic drugs; preferential use of single dose drug regimens; scheduled follow-up visits; stepped care approach for titration of drugs to achieve target blood pressure levels; and satisfactory consultation sessions for patients, with explanations of treatment and use of appropriate communication strategies.</p>	<p>Doctors.</p> <p>Home-based patients.</p>	<p>One-day intensive training session on hypertension using case scenarios. Blood pressure treatment manuals and easy to read mountable treatment charts was provided. All general practitioners took pre- and post-training examinations.</p>	<p>Providing special care based on the seventh report of the Joint National Committee (JNC VII) and the report of the Fourth Working Party of the British Hypertension Society modified for the Indo-Asian population.</p>	<p>Medication adherence (MEMS, "correct dosing of drugs")</p>	<p>Patients randomised to special care took a greater percentage of the prescribed drugs than those randomised to usual care (P=0.048).</p>
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Ramanath <i>et al.</i> 2012  India	Intervention = 26 Control = 26	Hypertension	Unclear to which extent it is tailored.  Patient counselling and Patient Information Leaflets (PILs). The intervention group patients were counselled on various aspects such as, drugs, lifestyle changes, and their disease management, and told them to inform if any unwanted and unintended effects of drugs occurs at any follow-ups. In each follow-up and baseline the patient's blood pressure values were noted/measured. At the end of the second follow-up, diary cards were collected back. No further information given	Clinical pharmacist at a hospital (both in- and outpatients).	No information given.	Full intervention carried out by the pharmacists: Counselling patients on drugs, lifestyle changes, and their disease.	Blood pressure (BP), medication adherence and quality of life (QoL) by using standard questionnaires.	No significant differences in BP at follow up between the groups.  Significant difference in medication adherence both measured with Morisky medication adherence scale (P<0.001) and Medication Adherence Report Scale (P=0.000).  Highly significant changes in QoL-scores between the groups.
Ramanath <i>et al.</i> 2013  India	Intervention = 45 Control = 45	Hypertension	Unclear to which extent it is tailored.  Patient counselling and Patient Information Leaflets (PILs) on disease and drugs. Intervention patients were counselled (verbal and non-verbal/written) on various aspects like disease, drugs, life-style modification (e.g., low salt intake, exercise/walking, etc.) and their management during all the three follow-ups. No further information given.	Clinical pharmacist at a tertiary care hospital.	No information given.	Full intervention carried out by the pharmacists: Counselling patients on the drugs and disease, and providing PILs.	Blood pressure (BP), medication adherence (measured with Brief Medication Questionnaire), KAP (knowledge, attitude and practice) and quality of life (QoL).	Significant drop in systolic BP (P=0.021) but not in diastolic BP (P=0.604) in the intervention group when compared to the control group.  Significant improvement in medication adherence in the intervention group in recall screen at first (P=0.001) and second (P=0.030) follow up, and in access screen at first (P=0.018) and third (P=0.004) follow up, when compared to the control group.  Suggestive and highly significant differences in KAP scores at first (P=0.06), second (P=0.001) and third (P<0.001) follow up between the groups.  Significant change in many of the QoL parameters (physical function, P<0.001; role function, P=0.036; body pain, P<0.001; general health, P=0.004; mental health, P=0.002) in the intervention group when compared to the control group.

Rathbun <i>et al.</i> 2005 USA	Intervention = 22 Control = 21	HIV	<p>Tailored.</p> <p>The adherence intervention for the adherence clinic group consisted of education about appropriate HAART administration, food restrictions, and adverse-event management strategies, and also included monitoring of patient progress after therapy initiation. Information provided to patients was tailored to the individual. Visual aids developed by the pharmaceutical industry and reminder devices were used to reinforce optimal administration timing. Patients were seen for a 1.0-to 1.5-hour visit at the initiation of HAART and a 30-minute follow-up visit after 2 weeks to assess adverse events and medication scheduling. Phone follow-up was typically conducted within 1 week of the baseline visit to identify early problems. Additional visits and phone follow-up were conducted through week 12 for patients who required more assistance.</p>	Study-designated clinical pharmacist at an indigent-care HIV clinic.	No information given.	Full intervention carried out by the pharmacists: Conducting patient education sessions, making telephone follow up calls to detect potential early problems and face to face follow up sessions to assess adverse events and medication scheduling.	Medication adherence (by electronic monitoring) and virologic response.	<p>No statistically significant differences in adherence were shown between the groups, although numerically higher adherence rates were observed in the intervention group than the control group.</p> <p>Significant mean dose precision in the intervention group when compared to the control group after 28 weeks (P=0.046).</p> <p>Statistically significant more patients achieving HIV-1 RNA &lt;400 copies/mL at week 16 in the intervention group when compared to the control group (P = 0.04).</p> <p>No statistical significant difference in the proportion of patients with HIV-1 RNA&lt;50 copies/mL between the groups throughout the study period.</p>
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Rickles <i>et al.</i> 2006 USA	Intervention = 31 Control = 32	Depression	Unclear to which extent it is tailored.  Telephone follow-up calls. Pharmacist-guided education and monitoring (PGEM). Phone calls included assessing patients' knowledge about their disease, its treatment and potential adverse effects. Assessing patients' medication use and treatment beliefs. The monitoring tool also directed the pharmacists to clarify, probe and explain issues that were not understood by the patients. Giving recommendations to patients if needed. No further information given.	Community pharmacists at community pharmacies.	Pharmacists were trained on how to use a two-page monitoring tool.	Full intervention carried out by the pharmacists: Conducting telephone follow-up calls. Giving recommendations to patients if needed.	Frequency of patient feedback to the pharmacist,  patient antidepressant knowledge and beliefs, medication adherence, depression symptoms and perceptions of progress.	Significantly higher feedback score in the intervention group when compared to the control group ( $P \leq 0.001$ ).  The intervention was the only significant predictor of the frequency that patient fed back to pharmacists ( $P \leq 0.001$ ).  Significantly better antidepressant knowledge ( $P \leq 0.05$ ), positive beliefs ( $P \leq 0.05$ ) and positive perceptions ( $P \leq 0.001$ ) in patients who gave more feedback, when compared to those who didn't.  Patient feedback to pharmacist was unrelated to medication adherence and symptoms scores.
Rickles <i>et al.</i> 2005 USA	Intervention = 31 Control = 32	Depression	Unclear to which extent it is tailored.  The patients received 3 monthly telephone follow-up calls. Pharmacist-guided education and monitoring (PGEM). Phone calls included assessing patients' knowledge about their disease, its treatment and potential adverse effects. Assessing patients' medication use and treatment beliefs. The monitoring tool also directed the pharmacists to clarify, probe and explain issues that were not understood by the patients. Giving recommendations to patients if needed. No further information given.	Community pharmacists at community pharmacies.	A 90-minutes training session on how to recruit patients and the use of the monitoring tool used during the telephone calls.	Full intervention carried out by the pharmacists: Conducting telephone follow-up calls. Giving recommendations to patients if needed.	Frequency of patient feedback to the pharmacist,  medication adherence, antidepressant knowledge, beliefs and orientation toward treatment progress (OTTP), and depression symptoms.	Significantly higher feedback score in the intervention group when compared to the control group ( $P \leq 0.001$ ).  Significant change in percentage omitted doses in the intervention group at 6 months, when compared to the control group ( $P \leq 0.05$ ).  Significant change in antidepressant knowledge ( $P \leq 0.05$ ), antidepressant beliefs ( $P \leq 0.01$ ) and OTTP ( $P \leq 0.001$ ).  No significant difference in self-reported adherence or depression symptoms between the groups.

<p>Sadik <i>et al.</i> 2005</p> <p>United Arab Emirates</p>	<p>Intervention = 109 Control = 112</p>	<p>Heart failure</p>	<p>Unclear to which extent it is tailored.</p> <p>The research pharmacist discussed with the patients physicians regarding their drug therapy. Intervention patients were also educated (in a structured fashion) on HF, their prescribed medication and the management of HF symptoms by the research pharmacist. A printed booklet developed for this type of education programme was used and each patient was given a copy to take home. The booklet contained information on HF, its symptoms, the aims of treatment, the types of medication used and their possible side-effects, diet and lifestyle changes, advice to stick to one brand of digoxin (it having a narrow therapeutic index) and information on the action to take if doses of medication were missed. Intervention group patients were also instructed on a self-monitoring programme (signs and symptoms of HF; compliance with prescribed medication) in which they were asked to become involved; a monitoring diary card (covering 1 month) was used for this purpose.</p>	<p>Research pharmacist at a 450-bed hospital. Patients from general medical wards and from cardiology and medical outpatient clinics.</p>	<p>No information given.</p>	<p>Full intervention carried out by the pharmacists: Recruiting patients. Conducting initial interviews to obtain demographic data. Discussing treatment with patients' physicians. Educating patients face to face about HF, their medications and disease management. Providing information booklet and monitoring diary cards.</p>	<p>Medication knowledge and adherence (self-reported),</p> <p>2-minute walk test, forced vital capacity (FVC),</p> <p>blood pressure (BP) and quality of life (QoL).</p>	<p>Statistical significant on the 2 minute walk test scores in intervention group at the 6-month, 9-month and 12-month follow-up periods when compared to the control group (P &lt;0.05).</p> <p>Statistically significant improvements in FVC in the intervention group when compared with control patients at 6, 9 and 12 months (P&lt;0.05).</p> <p>Significant improvement in medication adherence, medication knowledge and QoL scores for patients in the intervention group when compared to the control group (P&lt;0.05).</p> <p>No significant change in BP between the groups.</p>
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Sathvik <i>et al.</i> 2013  India	Intervention = 75 Control = 75	Hypertension	Unclear to which extent it is tailored.  Intervention patient group received pharmacist education regarding his/her prescribed medications at baseline, 15th, 30th, 45th day. The patients were interviewed and educated by the study pharmacist in patients in-house settings. The education time was limited to 20-25 minutes/ follow-up. Verbal education along with printed materials such as patient information leaflets (PILs) and a medication chart was provided to each patient of the intervention group. No further information given.	Study pharmacist in patients' in-house settings.	No information given.	Full intervention carried out by the pharmacists: Conducting patient education session and follow ups (20-25 minutes per follow-up). Providing PILs and medication chart.	Medication adherence (measured with Brief Medication Questionnaire [BMQ]).	Significant difference ( $P<0.05$ ) in the belief ( $P=0.03$ ) and recall BMQ screen scores ( $P=0.05$ ) of intervention and control group patients at final follow-up. But, there was no significant difference in the regimen ( $P=0.09$ ) and access screen scores ( $P=0.06$ ) of intervention and control group patients at final-follow-up.
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Shah <i>et al.</i> 2012  USA	Intervention = 65 Control = 65	Type 2 diabetes	<p>Unclear to which extent it is tailored.</p> <p>Counselling prior to usual care and discharge with emphasis on diabetes medications dosing, side effects, clinical benefits, refills, and the importance of adherence to medication regimens and physician visits. Patients were educated on the symptoms of hyper- and hypoglycemia, healthy eating, exercise, and reducing risks of complications using guidelines set forth by the AADE. Counselling emphasized the 7 AADE self-care behaviours, specifically focusing on taking medications and monitoring. Counselling sessions usually ranged from 30 to 45 minutes and occurred once prior to discharge. Most were individual counselling sessions unless families were available for group family counselling sessions. Furthermore, all patients were scheduled for a follow-up visit with their primary care provider and were referred to the outpatient multidisciplinary diabetes clinic for further follow-up and education if they chose to attend. No further intervention was provided by the study pharmacist.</p>	Pharmacist in a public hospital and health care system.	No information given.	Full intervention carried out by the pharmacists: Face to face patient counselling regarding diabetes and its management and treatment.	Medication adherence, differences in A1C, BP, and lipid levels.	<p>Significantly higher overall medication rate in the intervention group (<math>P=0.004</math>) and for each time interval except for the 30 days following completion of the 30-day discharge medications.</p> <p>Significant lower mean A1C at follow-up in the intervention group (<math>P=0.003</math>).</p> <p>Significant greater decrease in low-density lipoprotein (LDL) in the intervention (<math>P=0.001</math>).</p> <p>No significant change in BP between the groups.</p>
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Sookaneknun <i>et al.</i> 2004  Thailand	Intervention = 118 Control = 117	Hypertension	<p>Tailored.</p> <p>Counselling and education. Assessing the patient's understanding of the medications, counselling on medication use, assessing adherence and lifestyle habits, looking for adverse events, and discussing factors associated with uncontrolled BP and disease state control. Drug-related problems were identified, resolved, and prevented. The pharmacist's recommendations for medication regimen changes after detecting drug-related problems were made to physicians. Educational leaflets and a diary to record lifestyle. The research pharmacist also adopted a non-pharmacologic approach in providing relevant information and advice for each patient. This covered exercise, fatty diet, salty diet, smoking, alcohol, and weight reduction. No further information given.</p>	Pharmacists at a community pharmacy and two primary care units.	No information given.	<p>Full intervention carried out by the pharmacists:</p> <p>Conducting a 30–50 minute face-to-face patient interview. Assessing patients' understanding. Providing leaflets and diary. Making treatment recommendations to patients' physician.</p>	Blood pressure (BP) and medication and exercise adherence.	<p>Significant reduction in systolic BP (<math>P=0.037</math>) and diastolic BP (<math>P=0.027</math>) in the intervention group when compared to the control group.</p> <p>Significant increase in participation in regular exercise after the 6-month follow-up in the intervention group when compared to the control group (<math>P=0.012</math>).</p> <p>Significant increase in medication adherence in the intervention group when compared to the control group (<math>P=0.014</math>).</p>
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Stevens <i>et al.</i> 2002  USA	Intervention = 147 Control = 149	<i>H. pylori</i> caused dyspepsia	Unclear to which extent it is tailored.  Participants assigned to the special intervention received a 15-minute counselling session with the pharmacist, including a detailed review of possible side effects, emphasis on the importance of completing the entire drug regimen, discussion about possible barriers to adherence and coping strategies, and encouragement to call the pharmacist in the event of any problems. In addition to this extended counselling session, the pharmacist also scheduled a follow-up telephone call with the patient 2 to 3 days after the start of therapy to check on adherence to the drug regimen.	Pharmacist at a non-profit group-practice health maintenance organization	A 4-hour training session in counselling techniques.	Full intervention carried out by the pharmacists: Conducting a 15- minute counselling session, including a detailed review of possible side effects, stressing importance compliance and discussing possible barriers to adherence. Conducting follow- up telephone call.	Medication adherence, eradication rate,  patient satisfaction and  dyspeptic symptoms.	No significant difference in medication adherence between the groups.  No significant difference in eradication rate between the groups (P=0.98).  Significantly higher satisfaction with the pharmacy service in the intervention group when compared to the control group (P<0.001).  No significant difference in dyspeptic symptoms between the groups.
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Sturgess <i>et al.</i> 2003  Northern Ireland	Intervention = 110 Control = 81	Not specified.	<p>Tailored.</p> <p>During the pharmaceutical care programme, intervention pharmacists assessed patients individually to identify actual and potential drug-related problems. A number of information sources were utilised by intervention pharmacists during this assessment procedure including: the patient (via informal questioning), the patient's GP, study questionnaires (used to collect data throughout the study) and computerised medication records. During the assessment, pharmacists were asked to document any identified drug-related problems and formulate (as necessary) an intervention and monitoring plan for each individual patient e.g. education, implementation of compliance- improving strategies. Pharmacists visited patients at home to assess storage of medicines where problems were identified. Frequency and timing of visits not specified.</p>	Community pharmacists at community pharmacies.	An extensive study manual. A study day organised by the research centre, with training on provision of pharmaceutical care and implementation of the study, Four further training sessions were provided by a consultant geriatrician, a GP, a clinical pharmacologist and project facilitators.	Full intervention carried out by the pharmacist: Individual patient assessment, monitoring and counselling.	<p>Health-related quality of life (QoL),</p> <p>number of hospitalisations,</p> <p>sign and symptom control,</p> <p>patient knowledge of medicines,</p> <p>drug use,</p> <p>number of changes in medicines,</p> <p>problems with medicines,</p> <p>compliance with dosage regimens, and</p> <p>number of contacts with health care professionals.</p>	<p>Significant change between groups in physical functioning and vitality scores (<math>P&lt;0.05</math>), but no significant change in the other QoL parameters.</p> <p>In response to a question relating to control of medical conditions a significant proportion of intervention patients agreed that they controlled their medical condition better during the study than before participation in the project (6 months 87.8%, 12 months 85.1%, 18 months 83.1%).</p> <p>Significantly higher compliance in the intervention group when compared to the control group both measured in self-report (<math>P&lt;0.05</math>) and assessed with refill compliance rates (<math>P&lt;0.02</math>).</p> <p>Intervention patients reported higher numbers of contacts with their GP during the first and second six month periods than control patients (<math>P&lt;0.05</math>). In addition, intervention patients reported more contact with a specialist during the second and third six-monthly periods compared to control patients (<math>P&lt;0.05</math>).</p> <p>No significant differences between control and intervention patients during the first 12 months of the study (<math>P&gt;0.05</math>), however, during the last 6 months, intervention patients reported significantly fewer problems with their medicines compared to control patients <math>P&lt;0.05</math>).</p> <p>No significant difference in hospitalisation, medication knowledge or in medication use between the groups at the end of the study (<math>P&gt;0.05</math>).</p>
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Thompson <i>et al.</i> 1986  USA	Intervention = 50x9  Control = 50	Colorectal cancer (CRC) (screening)	Fixed.  Presence or absence of 1) a 3-5-minute physician talk, describing the importance, the purpose, and the procedure of the Hemoccult test 2) A nurse talk identical to the physician talk 3) postcard reminder mailed 2 days after the test been ordered, 4) phone reminder to those who failed to return the test within 10 days. All of these in different combinations. The 3-5 minute talk personalized the risk by tying in symptoms where appropriate, and was interactive and participatory in the style to bring patient concerns or questions to the surface. In also included discussion of special diet and a review of the instructions. Patients not receiving such a talk were given printed instructions and Hemoccult slides.	Doctors in primary care practice.	No information given.	Having a 3-5 minute talk describing the importance, purpose and procedure of the Hemoccult test.	Completed Hemoccult tests.	Significant higher screening compliance for phone call, reminder card, reminder card plus physician talk, phone call plus physician talk, phone call and reminder card, phone call plus reminder card and nurse talk, phone call plus reminder card and physician talk when compared to the control group (P<0.05 for all).  No significant difference for nurse talk, physician talk or phone call alone when compared to the control group (P>0.05).
Turner <i>et al.</i> 1994  Scotland	Intervention = 234 Control = 231	Breast cancer (screening)	Fixed.  Second reminder to breast cancer screening in form of a written letter from the patient's physician. The letter did not give a specific appointment time but requested the recipient to contact the screening centre to arrange a suitable time. No further information given.	Doctors at practices at a health centre.	No information given.	Signing the reminder letter that was to be sent to the first invitation non-attenders.	Screening acceptance rate	Significant higher acceptance rate in the intervention group when compared to the control group (P<0.01).

Varma <i>et al.</i> 1999  Northern Ireland	Intervention = 42 Control = 41	Congestive heart failure (CHF)	Unclear to which extent it is tailored.  Patients were educated in a structured fashion about CHF, prescribed drugs (including written information), and management of CHF symptoms. A printed booklet was developed, and patients were given a copy to take home. It contained information on CHF, its symptoms, aims of treatment, types of drugs and their side effects, diet and lifestyle changes, and information on action to take if a dose was missed. The patients were also instructed on self-monitoring (signs and symptoms of CHF, compliance with drugs) in which they were asked to become more involved in their own care. It also included 1-month monitoring diary cards. These were meant to be handed in to the physician and community pharmacist when completed. Patients were also encouraged to record their weight daily on the diary cards, and to take an extra dose of diuretic if their weight increased with half a stone over 48 hours, or experienced shortness of breath, ankle swelling etc.	Research pharmacist at hospitals (both in- and outpatients).	No information given.	Full intervention carried out by the pharmacist: Conducting patient face to face consultation and education. Giving instructions on self-monitoring. Providing information booklet and monitoring dairy card. Discussing alterations with physicians.	Two-minute walk test, blood pressure (BP), pulse, forced vital capacity (FVC), body mass index (BMI), quality of life (QoL), medication knowledge and compliance and hospital admissions and emergency visits.	Only significant difference in the walk test between the groups was the greater distance in less time performed by the intervention group at 6 months (P=0.03).  No significant differences in BMI, pulse, FVC, role-physical, bodily pain, general health, role-emotional, emergency visits medication compliance or in knowledge of their OCT medications between the groups.  Significant improvement in QoL (P=0.04) and physical functioning (P=0.009) and mental health (P=0.014) at 9 months, in the intervention group when compared to the control group.  Significant improvement in physical functioning (P=0.03), social functioning (P=0.015), mental health (P=0.014) and knowledge of CHF prescribed drugs (P=0.0026) at 12 months in the intervention group when compared to the control group.  Significant decrease in hospital admissions in the intervention group when compared to the control group (P=0.006).
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Vivian <i>et al.</i> 2002  USA	Intervention = 27 Control = 29	Hypertension	Unclear to which extent it is tailored.  Patients were scheduled to see the clinical pharmacist once/month at the pharmacist-managed hypertension clinic. The pharmacist made appropriate drug therapy changes for blood pressure control in accordance with JNC VI guidelines. Drug counselling, consisting of a thorough discussion about side effects, recommended lifestyle changes, and an assessment of compliance, was provided at each visit. No further information given.	Clinical pharmacist at a pharmacist-managed hypertension clinic.	No information given.	Full intervention carried out by the pharmacist: Face to face patient counselling regarding drugs, its side effects and recommended life-style changes. Assessing patient compliance.	Blood pressure (BP),  medication compliance,  patient satisfaction and  quality of life (QoL).	Significantly more patients in the intervention group reached BP goals than in the control group (P=0.001).  Significant changes in systolic BP (P=0.01) and in diastolic BP (P=0.001) in the intervention group when compared with the control group.  No significant difference in medication compliance (P>0.25), patient satisfaction (P=0.098) or QoL (P>0.2) between the groups.
Volume <i>et al.</i> 2001  Canada	Intervention = 159 Control = 204	Not specified. Ambulatory elderly patients >65, taking three or more medications.	Unclear to which extent it is tailored.  Pharmaceutical care using the Pharmacist's Management of Drug-Related Problems (PMDRP) instrument to summarize the collected information, and the subjective, objective, assessment, and plan record to document actions and follow-up. Intervention pharmacists conducted an initial interview and frequent follow-up communication with the patient. Frequency of visits not stated. No further information given.	Community pharmacists at community pharmacies.	Participated in an intensive education program to give them skill sets to provide care to patients using a nine-step pharmaceutical process.	Full intervention carried out by the pharmacist: Conducted patient interview and created an action plan based on the interview. Documenting drug-related problems (DRPs).	Medication adherence,  patient expectations and satisfaction, and  health-related quality of life (HRQOL).	No significant difference in medication adherence or HRQOL between the groups.  Higher expectations held in the intervention group compared to the control group for 2 out of 12 questions asked (P<0.05).  Significant between group difference in satisfaction regarding evaluation and goal setting at time 2 and 3, trust in all three time periods and in communication with the doctors at time 3 (P<0.05 for all).

Vuong <i>et al.</i> 2008  Australia	Intervention = 152 Control = 164	Not specified.	<p>Unclear to which extent it is tailored.</p> <p>The intervention, in addition to standard care, included a home consultation visit from the CLP within 5 days after discharge if they resided within a 20-km radius of the hospital. Patients' compliance, knowledge and satisfaction were assessed. The questions related to name, strength, dosage, frequency, indication and possible side effects. The pharmacist monitored techniques with administration devices, assessed medication supplies and their storage and ensured that medications were taken in concordance with the medication regimen prescribed at discharge. Between 8 and 12 weeks after discharge, all patients were contacted by telephone to assess the impact of the patient intervention. No further information given.</p>	Community liaison pharmacist (CLP) at hospitals.	Had a Bachelor of Pharmacy degree and Postgraduate Diploma in Clinical Pharmacy, but no additional training mentioned.	<p>Full intervention carried out by the CLP:</p> <p>Conducted home consultations with patients. Assessing patients' medication knowledge, adherence and management.</p> <p>Monitoring techniques with administration devices, assessing medication supplies and their storage.</p>	Medication knowledge and adherence.	Significant improvement in medication knowledge ( $P<0.001$ ) and adherence ( $P<0.028$ ) for patients in the intervention group when compared to the control group.
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Wandless <i>et al.</i> 1981 England	Intervention = 30 Control = 23	Not specified.	Unclear to which extent it is tailored.  Conducting face to face patient counselling and education. Assessing patients' medication knowledge and adherence. Reporting any problems with patients; medication management to hospital staff. No further information given.	Pharmacist at a geriatric day hospital.	No information given.	Full intervention carried out by the pharmacist: Individual counselling and education regarding patients' medicines and understanding.	Number of medication errors and medication compliance.	Significant difference in number of errors between the groups at baseline ( $P<0.001$ ), at 2-week follow up ( $P<0.001$ ) and at 4-week follow up ( $P<0.01$ ).  No significant change in medication compliance.
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Wang <i>et al.</i> 2010  Taiwan	Intervention = 34, 35 Control = 35	Asthma	<p>Unclear to which extent it is tailored.</p> <p>The asthma education program (nurse-led, with or without pharmacist consultation vs. control) covered four topics taught in sequence in three 1-h sessions offered during monthly clinic visits. Topics covered were: (1) definition, etiology, diagnosis, disease progress, and complications of asthma; (2) monitoring instructions use of the peak expiratory flow (PEF) meter and recording of symptoms in a diary; (3) introduction on medications for asthma therapy, including protocol of a stepwise treatment plan, pharmacology of leading asthma drugs and correct inhaler techniques; and (4) guidelines for self-management, including understanding potential environmental triggers and irritant factors, environmental control and standard procedure for coping with asthma attacks. Pharmacist counselling covered information related to the action and side effects of asthma medications, treatment plans for individualized medication, and modification of medications in response to progressive asthma.</p>	Pharmacist at a pulmonary medicine outpatient clinic.	No information given.	Counselling on the action and side effects of asthma medications, treatment plans for individualized medication, and modification of medications in response to progressive asthma.	Medication knowledge and adherence, and health-related quality of life (HRQOL).	<p>Significant increase in medication knowledge in the pharmacist intervention group when compared to the control group (<math>P=0.0167</math>).</p> <p>No significant differences in adherence (<math>P=0.718</math>) or in any of the HRQOL parameters between the groups.</p>
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Weinberger <i>et al.</i> 2002  USA	Intervention = 185, 262 Control = 130, 138, 233, 165	Reactive airway disease (asthma or chronic obstructive pulmonary disease [COPD]).	Tailored.  Pharmaceutical care vs. peak flow meter monitoring control and control for both asthma and COPD. Pharmaceutical care included tailored patient disease education and patient monitoring. Stressing importance of compliance to prescribed regimen, and demonstrating correct use of peak flow meter at each visit. No further information given.	Pharmacists at drugstores.	They were presented with an overview of pharmaceutical care and its application to reactive airways disease, an orientation to the study computer and available patient-specific data, explanation for interpreting and using these data, techniques for measuring PEFR, study materials, resources and hand-outs when interacting with patients and strategies to implement the program.	Full intervention carried out by the pharmacist: Educating patients on their breathing problem and stressing the importance of compliance with the prescribed treatment regimen.	Peak expiratory flow rate (PEFR),  health-related quality of life (HRQOL),  medication compliance,  breathing-related emergency department (ED) or hospital visits and  patient satisfaction.	<p>Significant difference in PEFR between all three study groups (<math>P=0.006</math>). Pharmaceutical care had higher PEFR than the usual care group (<math>P=0.02</math>) but did not differ from the peak flow meter monitor control group (<math>P=0.28</math>).</p> <p>No significant change in HRQOL in either the asthma intervention group (<math>P=0.23</math>) or in the COPD intervention group (<math>P=0.31</math>) when compared to the controls by themselves or combined (<math>P=0.12</math>).</p> <p>No significant difference in compliance scores between the groups either using the proportion non-compliant (<math>P=0.22</math>) or the 4-item scale (<math>P=0.57</math>).</p> <p>No significant difference between the COPD study groups in ED or hospital visits (<math>P=0.34</math>).</p> <p>Significantly more ED or hospital visits in the asthma pharmaceutical care group when compared to the usual care control group (<math>P&lt;0.001</math>).</p> <p>Significantly higher satisfaction with the pharmacist in the intervention groups compared to both usual care groups (<math>P=0.02</math>) and peak flow monitoring control group (<math>P=0.001</math>). Other satisfaction parameters did not differ between the groups.</p>
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Williford <i>et al.</i> 1995  USA	Intervention = 36 Control = 35	Not specified.	Unclear to which extent it is tailored.  Verbal information and counselling (average 15 minutes per patient) regarding drugs and its use at discharge, and information including the patients' drugs, its use, some common side effects and the regimen as indicated by the physicians. Patient assessment regarding their understanding. Stressing importance of medication compliance. The time spent counselling varied but averaged around 15 minutes. No further information given.	Study pharmacist at a medical centre.	No information given.	Full intervention carried out by the pharmacist: Providing face to face information Assessing patients' understanding, stressing medication compliance.	Medication compliance and knowledge.	No significant difference in knowledge-compliance score between the groups when comparing all patients.  When classified in age groups, counselling had a greater impact on the knowledge-compliance score in patients between the ages 40-65 years, than the other groups.  Significant higher knowledge-compliance score in counselled patients discharge from the acute-care facility, and the other discharge sites (P=0.02).
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Wong <i>et al.</i> 2013  China	Intervention = 113 Control = 161 .	Hypertension	<p>Tailored.</p> <p>Participants received both usual care followed by community-based medication counselling service immediately after physician consultation. Consultation included (1) addressing participants' concern and uncertainties in taking medications; (2) reinforcing relevant knowledge on the chronic diseases they are suffering from; (3) education on the proper methods to take their medications, including drug taking dosage, frequency and special precautions if applicable; and (4) provision of medication knives and pill boxes as judged necessary by the pharmacist. Most of the sessions lasted for 15–20 minutes, and all interventions were tailored made to the specific needs of each patient. Information pamphlets summarizing the content of medication counselling and were motivated to enhance compliance to antihypertensive agents.</p>	Community pharmacists at a public, primary care clinic.	No information given.	Full intervention carried out by the pharmacist: Patient counselling. Addressing participants' concern and uncertainties. Providing information pamphlets.	Blood pressure (BP) and medication adherence	<p>Significant difference in systolic BP at 3 months follow up in the intervention group when compared to the control group (P=0.046).</p> <p>No significant differences in any of the other outcomes.</p>
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Wu <i>et al.</i> 2006  China	Intervention = 219 Control = 223	Not specified. Stable patients with five or more prescribed medications.	Unclear to which extent it is tailored.  Telephone-based intervention. Counselling and reminder telephone calls between the clinic visits. Clarifying any misconceptions, explaining the nature of any side effects, reminding patients of their next clinic appointment and reinforcing the importance of compliance with treatment and relevant aspects of self-care, such as diet, exercise, and self-monitoring. No further information given.	Pharmacist at specialist medical clinics.	No information given.	Full intervention carried out by the pharmacist: Telephone-based counselling and reminder telephone calls between the clinic visits.	Time from randomisation to death of any cause,  rate of admission to hospital,  number of emergency room visits,  hospital stay in the two years before and after the screening visit and  changes in compliance.	Significant lower rate of deaths in the intervention group when compared to the control (P=0.039). The intervention was associated with a 41% reduction in the relative risk of all-cause mortality.  Significantly fewer patients in the intervention group who were non-compliant at enrolment remained non-compliant at the end of the study when compared to the control group (P<0.001).  Significantly more patients in the intervention group who turned compliant at enrolment remained compliant than in the control group (P=0.038).  Significant greater increase in the use of healthcare resources in the control group than in the intervention group (P=0.018).  No significant difference in number of emergency room visits each year differ between groups (P=0.203).
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Young <i>et al.</i> 2012 USA	Intervention = 49 Control = 49	Asthma	<p>Unclear to which extent it is tailored.</p> <p>Patients received three telephone consultations from trained pharmacists regarding asthma self-management and medication use over a 3-month period (approximately one call per month). Following a standardized communication guide, pharmacists evaluated and addressed participants' barriers to managing their asthma medications. Pharmacists collaborated with participants to identify root cause(s) of and implement solutions to asthma-related problems. Pharmacists also reviewed participants' electronic health records, and if necessary contacted the patient's health care provider. Pharmacists assessed whether participants needed additional education regarding inhaler technique.</p>	Pharmacists at a family health centre.	A patient-provider communication expert educated study pharmacists about the components of the interaction protocol (i.e., communication guide). An established asthma educator and researcher provided an overview of asthma management.	Full intervention carried out by the pharmacist Conducting three telephone consultations over a 3-month period. Evaluating and addressing participants' barriers to managing their asthma medications.	<p>Asthma control (The Asthma Control Test [ACT]),</p> <p>patient activation (Patient Activation Measure [PAM]), and</p> <p>use of long-term controller (LTC) medications.</p>	<p>No significant difference in ACT scores between the groups.</p> <p>Significant difference in PAM scores between the groups (<math>P&lt;0.05</math>).</p> <p>A trend, yet not significant, that a smaller proportion of the intervention group indicated low adherence to LTC when compared to the control group (<math>P=0.07</math>).</p>
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<p>Zerafa <i>et al.</i> 2011</p> <p>Malta</p>	<p>Intervention = 40 Control = 40</p> <p>86 patients consented to the study</p>	<p>Cardiac surgical patients.</p>	<p>Unclear to which extent it is tailored.</p> <p>During the pharmacist intervention session (approximately 15 minutes per patient), identification of medication, medication doses, dosage interval and instructions were slowly and clearly explained with the aid of medication photographs and the discharge medication chart. The pharmacist made sure that every patient understood the pictorial symbols representing the time of day and discussed the regimen of the first two medications on the discharge medication chart and then it was left to the patient to interpret the dosage regimen of the other medications. In addition, the importance of compliance to oral analgesia and exercise training was stressed together with the importance of avoiding alcohol and smoking during the recovery period.</p>	<p>Undergraduate pharmacist at a cardiac surgical ward and an outpatient clinic.</p>	<p>No information given.</p>	<p>Full intervention carried out by the pharmacist: Face to face counselling and education Stressing the importance of compliance to oral analgesia and exercise training and avoidance of alcohol and smoking during the recovery period.</p>	<p>Treatment adherence.</p>	<p>Significant differences in mean percentage compliance (<math>P &lt; 0.001</math>), rate of missed doses (<math>P = 0.032</math>) and the number of patients taking medications at the prescribed times (<math>P = 0.009</math>) in favour to the intervention group when compared to the control group.</p> <p>The mean percentage compliance of intervention patients was higher than control patients for all levels of education (<math>p = 0.033</math>).</p> <p>No significant difference in number of patients abruptly stopping medications between the groups (<math>P = 0.146</math>).</p> <p>No statistically significant differences between the two groups were observed in compliance to oral analgesia, exercise, avoidance of alcohol and smoking during the post-operative phase.</p>
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Zhang <i>et al.</i> 2012 China	Intervention = 80 Control = 80	Pediatric patients with nerve system disease, respiratory system disease, or digestive system disease.	<p>Tailored.</p> <p>Pharmacists made rounds together with doctors in charge and provided interventions, which included an assessment of the patients' medication, diagnosis, experimental index and drug treatment. Additionally, they gave advice on drug selections in view of therapeutic guidelines, the national essential medicine list and national basic insurance medicine catalogues, provided pharmacokinetic consultations and drug information for physicians and nurses, checked prescriptions and communicated with physicians about any medication errors, reviewed the indications, directions for use, and possible adverse effects of each discharge medication and gave discharge education to patients. The protocol planned that patients were interviewed 3 or 4 days after discharge. But the compliance rate is connected with whether the drug courses have finished. Therefore, time of follow-up was determined by how long the discharge drugs were used. Patients were usually interviewed on phone when discharge drugs were half finished.</p>	Clinical pharmacist at a university hospital.	No information given.	Full intervention carried out by the pharmacist: Assessing patients. Giving advice for physicians and nurses, checking prescriptions and communicating with physicians about any medication errors, and giving discharge education to patients.	<p>Interventions by clinical pharmacists,</p> <p>number of adverse drug reactions (ADR),</p> <p>length of stay (LOS),</p> <p>cost of drugs,</p> <p>cost of hospitalization,</p> <p>compliance rate and</p> <p>readmission rate.</p>	<p>Clinical pharmacists provided 107 interventions. These included 47 questions asked by physicians or nurses, 31 suggestions of treatment and the prevention of 31 medication errors.</p> <p>Five ADRs were identified in the study, with three in the experimental group and two in the control group.</p> <p>Significant difference in LOS (<math>P=0.02</math>), compliance rate (<math>P=0.005</math>) between the groups.</p> <p>No significant difference in cost of drugs (<math>P=0.945</math>), cost of hospitalisation (<math>P=0.125</math>) or readmission rate (<math>P=0.726</math>).</p>
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