Supplemental Table 6: Characteristics of included studies

Barrett 2011

Methods	**Study design**: parallel, open-label RCT **Unit of randomisation**: patient **Unit of analysis**: patient **Duration of study**: 24 months **Funding sources**: Canadian Institutes for Health Research; Kidney Foundation of Canada; Heart and Stroke Foundation of Canada; Canadian Diabetes Association; Amgen Canada; Ortho Biotech; Merck Frosst Canada
Participants	**Country**: Canada **Setting**:Multicentre (5 urban centres) **Inclusion criteria**:age 40 to 75 years; estimated GFR (eGFR) between 25 and 60 ml/min per 1.73 m^2. **Number**: intervention (238); control (236) **Mean age ± SD (years):**intervention NA; control NA **Sex (Male), n (%)**: intervention 107 (45); control 104 (44) **Ethnicity (white), n (%):** intervention 223 (94); control 224 (95) **Diabetes, n (%)**: intervention 73 (31); 76 (33) **Cardiovascular disease, n (%**): intervention 154 (55); control 141 (60) **Hypertension, n (%)**: intervention 182 (78); control 178 (77) **CKD stage, n (%):**intervention NA; control NA **Exclusion criteria**: likely to die within 6 months; Recently unstable/advanced cardiovascular disease; current treatment for malignancy; receiving immunotherapy for kidney disease; on dialysis or with an organ transplant either currently or likely within 6 months; already enrolled in a disease management program for kidney or cardiovascular disease or another interventional clinical trial; resident of a location too distant to attend study visits.
Interventions	**Level of care provided**: Regional (GP & nephrology clinics) **Location of care provided**: Outpatient (primary) care **Type of patients**: CKD stage 3-4 (estimated GFR (eGFR) between25 and 60 ml/min per 1.73 m^2) **Type of providers**: GP, nurse, nephrologist, dieticians, social workers, diabetes educators **Type of stakeholders**: NS **Description of intervention**: Study nurses and nephrologists worked with the patients' usual care providers to deliver care to patients in the intervention group. The nurse, together with the nephrologist, actively helped patients manage identifiable current or future health threats associated with progression of CKD and development of cardiovascular disease–related morbidity and mortality The nurse, as indicated by circumstances, initiated referral to dieticians, social workers, diabetes educators, and other professionals. In addition, the study nurse coordinated and communicated with other health care professionals interacting with the patient. The latter included the family doctor, specialist physicians (including the study nephrologist), other nurses (e.g., community nurses and diabetes educators), social workers, and other allied health professionals

	Type of targeted behaviour: Referrals **Type of IC intervention**: Case management **Implementation process**: NS **Comparison control:** Usual care **Description control**: Care delivered by a family doctor providing assessments and treatments for their patients as they saw fit. The family doctors could consult specialists or involve allied Health personnel if necessary.
Outcomes	**All-cause mortality**: Number of death reported at 24 months **Major/ fatal cardiovascular event**: NA **Hospitalization**: Number of hospital admissions reported at 24 months **Hospital-acquired infection rate**: NA **Quality of life***: Mean change in HUI (Health Utility Index 3) score from baseline to 24 months **Adverse events**: NA **Cost and resource utilization***: Cumulative total cost ($) reported at 12 and 24 months **Kidney function****: mean eGFR (ml/min per 1.73 m^2) reported at baseline, 12 and 24 months **Blood pressure**: Number of controlled BP ($\leq$ 130/80 mmHg) reported at baseline, 12 and 24 months **PTH levels**: NA **Serum phosphorus**: Number of serum phosphate ($<$ 1.8 mmg/L) reported at baseline, 12 and 24 months **Serum calcium**: NA **Serum beta macroglobulin**: NA **Haemoglobin**: Number of haemoglobin ($\geq$ 105 g/L) reported at baseline, 12 and 24 months **Nutrition status**: NA **Waiting list for kidney transplant**: NA **Process related outcomes**: NA
Notes	*Primary outcome. ** Received eGFR data after contacting lead author, and was normal distributed. Systolic BP was significant lower in the intervention group compared to control at baseline. Data reported is probably not normal distributed, as the authors report Median IQR.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Incomplete outcome data	Low risk	Loss to follow up 4.2% of patients
Blinding of outcome assessors' All outcomes	Unclear risk	Not stated

Other sources of bias	High risk	Sponsor on authorship. Grants received by Amgen, Ortho Biotech and Merck Frosst
Allocation concealment	Unclear risk	Not stated
Selective outcome reporting	Low risk	All the prespecified outcomes were reported
Blinding of participants and personnel All outcomes	High risk	Unblinded
Sequence generation	Unclear risk	Not stated

Blekeman 2014

Methods	**Study design**: parallel RCT **Unit of randomisation**: patient **Unit of analysis**: patient **Duration of study**: 6 months **Funding sources**: IHR Collaboration for Leadership in Applied Health Research and Care (CLAHRC) Greater & Care for Greater Manchester
Participants	**Country**: United Kingdom **Setting**:Multicentre (24 GP practices) **Inclusion criteria**:Patients with a clinical diagnosis of stage 3 CKD (both stages 3a and 3b, with and without proteinuria) **Number**: intervention (215); control (221) **Mean age ± SD (years):**intervention 72.4 (9.2); control 71.8 (9.0) **Sex (Male), n (%)**: intervention90 (41.9); control 91 (41.2) **Ethnicity (white), n (%):** intervention202 (98.1); control 213 (99.1) **Diabetes, n (%)**: intervention 49 (22.8); control 52 (23.5) **Cardiovascular disease, n (%**): intervention89 (41.4); control 93 (42.1) **Hypertension, n (%)**: intervention NA; control 163 (74.1) **CKD stage, n (%):** intervention Stage 3 215 (100); control Stage 3 221 (100) **Exclusion criteria**:unable to communicate in English; had reduced capacity to provide informed consent; were in receipt of palliative care; only one person per household was eligible to take part
Interventions	**Level of care provided**: Regional (GP practices) **Location of care provided**: Outpatient (primary) care **Type of patients**: CKD stage 3 **Type of providers**: GP, nurse and lay health worker

	Type of stakeholders: NS **Description of intervention**: the intervention entailed provision of a kidney information guidebook; a booklet and interactive website that tailored access to community resources; and telephone-guided help from a lay health worker **Type of targeted behaviour**: Professional-patient communication **Type of IC intervention**: Self-management support **Implementation process**: Monitoring of implementation process reported **Comparison control:** Usual care **Description control**: Participants in the control arm were sent the kidney information guidebook and the PLANS booklet with links to the website at the end of the trial period. Both arms had usual access to primary care.
Outcomes	**All-cause mortality**: NA **Major/ fatal cardiovascular event**: NA **Hospitalization**: NA **Hospital-acquired infection rate**: NA **Quality of life***: Mean health related quality of life (EQ-5D) reported at baseline and 6 months **Adverse events**: NA **Cost and resource utilization**: NA **Kidney function**: NA **Blood pressure***: Percentage controlled BP (<140/90 without proteinuria and < 130/80 with proteinuria mmHg) reported at baselineand 6 months **PTH levels**: NA **Serum phosphorus**: NA **Serum calcium**: NA **Serum beta macroglobulin**: NA **Haemoglobin**: NA **Nutrition status**: NA **Waiting list for kidney transplant**: NA **Process related outcomes**: NA
Notes	*Primary outcome.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Incomplete outcome data	Low risk	13.3%lost to follow-up in the active arm. 10.9% lost to follow-up in total. Multiple imputation used for missing data

Blinding of outcome assessors' All outcomes	Unclear risk	Not stated
Other sources of bias	Low risk	Funded by the NIHR Collaboration for Leadership in Applied Health Research (CLAHRC)
Allocation concealment	Low risk	Allocation through a central independent clinical trial unit, by telephone
Selective outcome reporting	Low risk	All the prespecified outcomes were reported
Blinding of participants and personnel All outcomes	High risk	Unblinded
Sequence generation	Low risk	Minimization algorithm

Chen 2011

Methods	**Study design**: parallel,open-label RCT **Unit of randomisation**: patient **Unit of analysis**: patient **Duration of study**: 12 months **Funding sources**: Chang Gung Memorial Hospital
Participants	**Country**: Taiwan **Setting**:Single centre (1 outpatient clinic) **Inclusion criteria**:incidental CKD (Stages III—V); age of 18–80 years; ability to communicate verbally and orally in Taiwanese and Mandarin **Number**: intervention (27); control (27) **Mean age ± SD (years):** intervention NA; control NA **Sex (Male), n (%)**: intervention 15 (55.6); control 15 (55.6) **Ethnicity (white), n (%):** intervention NA; control NA **Diabetes, n (%)**: intervention NA; control NA **Cardiovascular disease, n (%**): intervention NA; control NA **Hypertension, n (%)**: intervention 15 (55.6); control 15 (55.6) **CKD stage 3, n (%):** intervention11 (40.7); control 8 (29.6) **CKD stage 4, n (%)**: intervention 6 (22.2); control 9 (33.3) **CKD stage 5, n (%):** intervention 10 (37.0); control 10 (37.0) **Exclusion criteria**:cardiovascular disease (coronary artery disease, myocardial ischemia, cerebrovascular disease or peripheral artery disease) in the last 3 months; infections requiring admission in the previous 3 months; uncontrolled hypertension; serum albumin level of <2.5 g/dL; unwillingness to participate in the trial

Interventions	**Level of care provided**: Single centre (1 outpatient clinic) **Location of care provided**: Outpatient care **Type of patients**: CKD stage 3-5 **Type of providers**: Nephrologist, nurse, dieticians', peers and volunteers (social workers) **Type of stakeholders**: NS **Description of intervention**: the program included the provision of health information, patient education, telephone-based support and the aid of a support group. The health information and education comprised an integrated course involving individualized lectures on renal health, nutrition, lifestyle, nephrotoxic avoidance, dietary principles and pharmacological regimens. The lectures were delivered by the case-management nurse, according to guidelines in a standardized instruction booklet **Type of targeted behaviour**: Patient education/ advice; professional-patient education **Type of IC intervention**: Self-management support and education **Implementation process**: NS **Comparison control:** Usual care **Description control**: patients received customary care from the same group of nephrologists
Outcomes	**All-cause mortality**: Number of death reported at 12 months **Major/ fatal cardiovascular event**: NA **Hospitalization***: Number of hospitalization events reported at 12 months **Hospital-acquired infection rate**: NA **Quality of life**: NA **Adverse events**: NA **Cost and resource utilization**: NA **Kidney function***: Mean serum creatinine (mg/ dL) and eGFR (mL/min $1.73m^{-2}$) reported at baseline, 6 and 12 months; Number of ESRD demanding RRT reported at 12 months. **Blood pressure**: NA **PTH levels**: NA **Serum phosphorus**: NA **Serum calcium**: NA **Serum beta macroglobulin**: NA **Haemoglobin**: NA **Nutrition status**: NA **Waiting list for kidney transplant**: NA **Process related outcomes**: NA
Notes	*Primary outcome.

Risk of bias

Bias	Authors' judgement	Support for judgement
Incomplete outcome data	Low risk	All patients were followed up
Blinding of outcome assessors' All outcomes	Unclear risk	Not stated
Other sources of bias	High risk	Sponsor on authorship
Allocation concealment	Unclear risk	Not stated
Selective outcome reporting	Unclear risk	Protocol not available
Blinding of participants and personnel All outcomes	High risk	Open label
Sequence generation	Low risk	Random table

Cooney 2015

Methods	**Study design**: parallel RCT **Unit of randomisation**: patient **Unit of analysis**: patient **Duration of study**: 12 months **Funding sources**: Cleveland VA MedicalResearch & Education Foundation; Career Development Award from the NationalInstitute of Diabetes and Digestive and Kidney Disease.
Participants	**Country**: USA **Setting**:Multicentre (13 community outpatient clinics) **Inclusion criteria**: moderate to severe CKD defined by a most recent estimated glomerular filtration rate (eGFR), calculated using the 4-variable MDRD equation, less tan 45 mL/min/1.73 m^2) a GFR less than 60 mL/min/1.73 m^2 between 90 days; years prior to the index GFR to ensure the presence of chronic kidney disease; at least one primary care visit in the year prior to study initiation **Number**: intervention (1070); control (1129) **Mean age ± SD (years):** intervention NA; control NA **Sex (Male), n (%)**: intervention 1054 (98.5); control 1106 (98.0) **Ethnicity (white), n (%):** intervention NA; control NA **Diabetes, n (%)**: intervention 545 (50.9); control 539 (47.7) **Cardiovascular disease, n (%**): intervention197 (18,4); control 212 (18,8) **Hypertension, n (%)**: intervention 925 (86.4); control 958 (84.9) **CKD stage 3, n (%):** intervention 807 (75.8); control880 (78.2) **Exclusion criteria**:patients who had end-stage renal disease (ESRD); were ever referred for hospice

	care; older than 85 years or younger than 18 years
Interventions	**Level of care provided**: Regional (11 community outpatient clinics) **Location of care provided**: Outpatient (primary) care **Type of patients**: CKD 3-5 **Type of providers**:GP, pharmacist **Type of stakeholders**: NS **Description of intervention**: The intervention included delivery system redesign which involved engaging pharmacists to interact with patients and collaborate electronically with primary care physicians; self-management support for patients in the form of an informational pamphlet regarding CKD; and a CKD registry **Type of targeted behaviour**: Professional education; professional-patient education **Type of IC intervention**: Multidisciplinary care team; case management **Implementation process**: NS **Comparison control:** Usual care **Description control**: Participants assigned to the control arm received usualcare from their primary care providers.
Outcomes	**All-cause mortality**: Number of death reported at 12 months **Major/ fatal cardiovascular event**: NA **Hospitalization**: NA **Hospital-acquired infection rate**: NA **Quality of life**: Mean kidney disease quality of life (KDQOL; effect and burden); and mean health related quality of life (SF-12; PCS & MCS) reported at baseline and 12 months **Adverse events**: NA **Cost and resource utilization**: NA **Kidney function**: Number of urine albumin/creatinine ratio measurements reported at baseline and 12 months **Blood pressure***: Number uncontrolled BP (systolic BP among participants with >130/80 mmHg at baseline) reported at 12 months **PTH levels**: NA **Serum phosphorus**: NA **Serum calcium**: NA **Serum beta macroglobulin**: NA **Haemoglobin**: NA **Nutrition status**: NA **Waiting list for kidney transplant**: NA **Process related outcomes***: Number of PTH measurements; and number of phosphorus measurements at baseline and 12 months (used as guideline adherence measures)

Notes	*Primary outcome KDQOL, SF-12 and medication adherence was assessed using a phone survey.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Incomplete outcome data	Low risk	Intention to treat
Blinding of outcome assessors' All outcomes	Low risk	Blinded
Other sources of bias	Low risk	Funded by Cleveland VA Medical Research and Education Foundation and through a career development award by the National Institute of Diabetes and Digestive and Kidney Diseases
Allocation concealment	Unclear risk	Not stated
Selective outcome reporting	Low risk	All the pre-specified outcomeswere reported
Blinding of participants and personnel All outcomes	Unclear risk	Not stated
Sequence generation	Low risk	Computer random number generator

Elios Russo 2013

Methods	**Study design**: parallel RCT **Unit of randomisation**: patient **Unit of analysis**: patient **Duration of study**: 24months **Funding sources**: NS
Participants	**Country**: Italy **Setting**:Single-centre (Peritoneal dialysis unit 1 hospital) **Inclusion criteria**: NS **Number**: intervention (20); control (20) **Mean age ± SD (years):** intervention57 (NR); control 63 (NR) **Sex (Male), n (%)**: intervention12 (60); control 11 (55) **Ethnicity (white), n (%):** intervention NA; control NA **Diabetes, n (%)**: intervention NA; control NA

	Cardiovascular disease, n (%): intervention NA; control NA **Hypertension, n (%)**: intervention NA; control NA **CKD stage 5, n (%):** intervention20 (100); control20 (100) **Exclusion criteria**:NS
Interventions	**Level of care provided**: Single-centre **Location of care provided**: Inpatient care **Type of patients**: CKD 5D (PD) **Type of providers**:cardiologist, gastroenterologist, radiologist, nurse, psychologist, social worker, nephrologist **Type of stakeholders**: NS **Description of intervention**: At least three evaluation meetings were performed with each patient in Group B with the psychologist referred by UOS: the first during the enrolment to the study, the second with the delivery of the evaluation test and the third when these were returned. Psychological support was provided at the patients request with variable frequency. Each session had an average duration of 50 minutes. Topics related to the patients' acceptance and understanding of their medical condition, the ability to be autonomous both in regular daily life activities, and practice of dialysis therapy were frequently touched upon during sessions. The social worker intervened in cases of patients who were not self – sufficient or who needed home care in the absence of family support. Consultations from different nephrologists were required according to the patients' clinical needs **Type of targeted behaviour**: NS **Type of IC intervention**: Multidisciplinary care team **Implementation process**: NS **Comparison control:** Usual care **Description control**: Routine team
Outcomes	**All-cause mortality**: NA **Major/ fatal cardiovascular event**: NA **Hospitalization**: Number of hospitalisation days at 24 months **Hospital-acquired infection rate**: NA **Quality of life***: NA **Adverse events**: NA **Cost and resource utilization**: NA **Kidney function**: NA **Blood pressure**: NA **PTH levels**: NA **Serum phosphorus**: NA **Serum calcium**: NA **Serum beta macroglobulin**: NA **Haemoglobin**: NA

	Nutrition status: NA **Waiting list for kidney transplant**: NA **Process related outcomes**: NA
Notes	*Primary outcome No data reported in article. Contacted author and requested for primary data.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Incomplete outcome data	Unclear risk	Not stated
Blinding of outcome assessors' All outcomes	Unclear risk	Not stated
Other sources of bias	Unclear risk	Funding not stated
Allocation concealment	Unclear risk	Not stated
Selective outcome reporting	Unclear risk	Protocol not available
Blinding of participants and personnel All outcomes	Unclear risk	Not stated
Sequence generation	Unclear risk	Not stated

Harris 1998

Methods	**Study design**: parallel cluster-RCT **Unit of randomisation**: practice **Unit of analysis**: patient **Duration of study**: 60 months (intervention 24 months) **Funding sources**: The Indianapolis Health Foundation; The Indianapolis Foundation; The Picker-Commonwealth Program for Patient-Centered Care; The Agency for Health Care Policy and Research.
Participants	**Country**: USA **Setting**: Multicentre (4 general medicine practices) **Inclusion criteria**: primary care in the general medicine practice with at least one physician visit in the past year; two serum creatinine levels at least 6 months apart with estimated creatinine clearances of 50 mL per minute at both times, calculated using the Cockroft and Gault equation corrected for body surface area; most recent serum creatinine concentration before enrolment 1.4 mg/dL **Number**: intervention (206); control (231) **Mean age ± SD (years):** intervention68 (11); control 69 (11) **Sex (Male), n (%)**: intervention66 (32); control 83 (36)

	Ethnicity (white), n (%): intervention NA; control NA **Diabetes, n (%)**: intervention NA; control NA **Cardiovascular disease, n (%**): intervention NA; control NA **Hypertension, n (%)**: intervention 202 (98); control229 (99) **CKD stage, n (%):** intervention NA; control NA **Exclusion criteria**:NS
Interventions	**Level of care provided**: Regional (4 general medicine practices) **Location of care provided**: Outpatient care **Type of patients**: CKD 3-5 **Type of providers**:Nephrologist; renal nurse; renal dietician; social worker; GP **Type of stakeholders**: NS **Description of intervention**: Nephrology case management: 1) review of drugs list; 2)Letter to primary care provider; direct intervention by nephrologist; 3) Medication review by nephrologist; compliance assessment and education by study nurse; 4)Letter to primary care provider; direct intervention by nephrologist; 5) Review of drug list; surveillance of patients admitted to the hospitalor visiting the emergency room; 6)Letter to primary care provider; 7)Dietary counselling by renal dietician; 8)Social service interview; 9)Direct intervention by social worker; letter to primary-care provider **Type of targeted behaviour**: Professional education; patient-professional communication **Type of IC intervention**: Case management; Multidisciplinary care team **Implementation process**: NS **Comparison control:** Usual care **Description control**: Primary care from their usual physicians
Outcomes	**All-cause mortality**: Cumulative mortality reported at 12, 24 and 60 months **Major/ fatal cardiovascular event**: NA **Hospitalization**: Mean hospitalizations reported at 12, 24 and 36 months **Hospital-acquired infection rate**: NA **Quality of life**: NA **Adverse events**: NA **Cost and resource utilization***: NA **Kidney function***: Mean serum creatinine level (mg/dL) reported at baseline, 12, 24 and 36 months **Blood pressure**: Mean systolic and diastolic BP (mm Hg) reported at baseline, 12, 24 and 36 months **PTH levels**: NA **Serum phosphorus**: NA **Serum calcium**: NA **Serum beta macroglobulin**: NA

	Haemoglobin: NA **Nutrition status**: NA **Waiting list for kidney transplant**: NA **Process related outcomes**: NA
Notes	*Primary outcome. Patients in the intervention had significant higher pulse (beats/ min) compared to control; and patients in the intervention had significant shorter stature (cm) compared to control. Not adjustment for clustering. In addition, ICC was not provided.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Incomplete outcome data	Low risk	All analyses done by intention-to-treat
Blinding of outcome assessors' All outcomes	Unclear risk	Not stated
Other sources of bias	Unclear risk	Funded in part by grants from The Indianapolis Health Foundation (FCL), The Indianapolis Foundation (LEH, WMT), The Picker-Commonwealth Program for Patient-Centered Care (LEH), and The Agency for Health Care Policy and Research. The other funded part is not stated
Allocation concealment	Unclear risk	Not stated
Selective outcome reporting	Unclear risk	Protocol not available
Blinding of participants and personnel All outcomes	Unclear risk	Not stated
Sequence generation	Unclear risk	Not stated

Hotu 2010

Methods	**Study design**: parallel RCT **Unit of randomisation**: patient **Unit of analysis**: patient **Duration of study**: 12months **Funding sources**:Auckland District Health Board; Health Research Council of New Zealand; Eli Lilly.
Participants	**Country**: New Zealand **Setting**: Multicentre (hospital diabetes and renal clinics as well as GP practices. Number of clinics NS) **Inclusion criteria**: Māori and Pacific patients; with type 2 diabetes; aged 40–75 years; with diabetic nephropathy (>0.5 g proteinuria/24-h and serum creatinine 130 300 μmol/l) BP >130/80 mmHg. **Number**: intervention (33); control (32)

	Mean age ± SD (years): intervention63 (6.6); control 60 (7.1) **Sex (Male), n (%)**: intervention18 (54.5); control17 (53.1) **Ethnicity (white), n (%):** intervention NA; control NA **Diabetes, n (%)**: intervention 33 (100); control 32 (100) **Cardiovascular disease, n (%**): intervention NA; control NA **Hypertension, n (%)**: intervention NA; control NA **CKD stage, n (%):** intervention NA; control NA **Exclusion criteria**:insulin dependence within 12 months of diagnosis of diabetes; evidence of non-diabetic renal disease; severe chronic illness including malignancy, heart failure, respiratory failure, psychiatric disorder and cognitive impairment.
Interventions	**Level of care provided**: NS **Location of care provided**: Outpatient (community) care **Type of patients**: Diabetic nephropatic **Type of providers**:Home care assistant; GP; nurse; **Type of stakeholders**: NS **Description of intervention**: Usual care plus intervention, which consisted of: 1) monthly visits by the healthcare assistant, including BP measurement, compliance with medication, exercise, smoking cessation, dietary modification and educational session in the first visit; 2) transport to local pharmacy if needed to collect medications; 3) transport to lab if needed for blood and urine tests **Type of targeted behaviour**: Clinical prevention services **Type of IC intervention**: Case management **Implementation process**: NS **Comparison control:** Usual care **Description control**: Routine family doctor and renal/diabetes hospital
Outcomes	**All-cause mortality**: Number of death reported at 12 months **Major/ fatal cardiovascular event**: Number of cardiovascular events reported at 12 months **Hospitalization**: NA **Hospital-acquired infection rate**: NA **Quality of life**: NA **Adverse events**: NA **Cost and resource utilization**: NA **Kidney function**: Mean eGFR (ml/min/1.73m^2); and median 24-hour protein (g/day) reported at 12 months **Blood pressure***: Mean systolic and diastolic BP (mmHg) reported at baseline and 12 months **PTH levels**: NA **Serum phosphorus**: NA

	Serum calcium: NA **Serum beta macroglobulin**: NA **Haemoglobin**: NA **Nutrition status**: NA **Waiting list for kidney transplant**: NA **Process related outcomes**: NA
Notes	*Primary outcome.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Incomplete outcome data	High risk	Loss to follow up 6.2% of patients. 12.5% of patients' loss to follow up in the control group. None lost in the intervention group
Blinding of outcome assessors' All outcomes	Unclear risk	Not stated
Other sources of bias	High risk	Funded partly by the private industry
Allocation concealment	Low risk	web based central allocation
Selective outcome reporting	High risk	Not reported systematically (Cerebral vascular accident, New onset of symptoms of peripheral vascular disease, Amputation, Vascular procedure , Hospitalisation)
Blinding of participants and personnel All outcomes	High risk	Unblinded
Sequence generation	Low risk	Computer random number generator

Mokrzycki 2006

Methods	**Study design**: parallel cluster-RCT **Unit of randomisation**: clinic **Unit of analysis**: patient **Duration of study**: 24 months **Funding sources**:Aetna Foundation
Participants	**Country**: USA **Setting**:Multicentre (7 outpatient HD centres) **Inclusion criteria**:Haemodialysis patient who presented with bacteremic episodes **Number**: intervention (111); control (55)

	Mean age ± SD (years): intervention 59.4 (15); control 54 (16) **Sex (Male), n (%)**: intervention 56 (50); control 33 (59) **Ethnicity (white), n (%):** intervention 26 (23); control 8 (15) **Diabetes, n (%)**: intervention 60 (54); control 29.7 (54) **Cardiovascular disease, n (%**): intervention NA; control NA **Hypertension, n (%)**: intervention NA; control NA **CKD stage 5, n (%):** intervention 111 (100); control 55 (100) **Exclusion criteria**:If non-TCC source identified; If not initial episode
Interventions	**Level of care provided**:Regional (Haemodialysis units) **Location of care provided**: Inpatient care (Haemodialysis unit) **Type of patients**: CKD 5D (HD) **Type of providers**:infection manager (registered nurse); nephrologists **Type of stakeholders**: NS **Description of intervention**: in close collaboration with the nephrologist, the infection manager (registered nurse) made recommendations regarding antibiotic adjustment, antibiotic duration and TCC (Tunnelled Cuffed Catheter) management **Type of targeted behaviour**: Professional education **Type of IC intervention**: Multidisciplinary care team **Implementation process**: NS **Comparison control:** Usual care **Description control**: NS
Outcomes	**All-cause mortality**: Number of death reported at 3 months **Major/ fatal cardiovascular event**: NA **Hospitalization**: Percentage of hospitalisation for initial episode of tunnelled catheter at 3 months **Hospital-acquired infection rate**: Percentage of Infectious complication in episodes of TCC bacteria at 3 months **Quality of life**: NA **Adverse events**: NA **Cost and resource utilization**: NA **Kidney function**: NA **Blood pressure**: NA **PTH levels**: NA **Serum phosphorus**: NA **Serum calcium**: NA

	Serum beta macroglobulin: NA **Haemoglobin**: NA **Nutrition status**: NA **Waiting list for kidney transplant**: NA **Process related outcomes**: NA
Notes	Intervention group had significant lower temperature compared with control group; and transferrin saturation was significant higher in intervention group compared to control group at baseline. No adjustment for clustering. In addition, no ICC provided.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Incomplete outcome data	Low risk	Intention-to-treat
Blinding of outcome assessors' All outcomes	Unclear risk	Not stated
Other sources of bias	Unclear risk	Funding: not stated
Allocation concealment	Unclear risk	Not stated
Selective outcome reporting	Unclear risk	Protocol not available
Blinding of participants and personnel All outcomes	Low risk	Blinding of nephrologists
Sequence generation	Unclear risk	Not stated

Raiesifar 2014

Methods	**Study design**: parallel RCT **Unit of randomisation**: patient **Unit of analysis**: patient **Duration of study**: 3months **Funding sources**:NS (Master Thesis)
Participants	**Country**: Iran **Setting**:Multicentre (4 transplant centres) **Inclusion criteria**:18 years of age and above; no history of any QOL-affecting disease or condition; Persian as the first language; patients who were admitted the first time for transplant in 4 selected transplant centres in Tehran

	Number: intervention (45); control (45) **Mean age ± SD (years):** intervention NA; control NA **Sex (Male), n (%)**: intervention NA; control NA **Ethnicity (white), n (%):** intervention NA; control NA **Diabetes, n (%)**: intervention NA; control NA **Cardiovascular disease, n (%**): intervention NA; control NA **Hypertension, n (%)**: intervention NA; control NA **CKD stage 5, n (%):** intervention 45 (100); control 45 (100) **Exclusion criteria**:patients who had failed transplantation or rehospitalisation; Patients who did not wish to continue the study
Interventions	**Level of care provided**:Regional (4 transplant centres) **Location of care provided**: NS **Type of patients**: CKD 5T **Type of providers**:nurse; nutritionist; nephrologist **Type of stakeholders**: NS **Description of intervention**: Continuous care model:1)Sensitization - Familiarization and sensitization of patients towards the disease2)Orientation3)Control4)Evaluation: repeated phone calls and regular visits to evaluate the process and quality of care **Type of targeted behaviour**: Patient education/ advice; Professional-patient communication **Type of IC intervention**: Self-management support **Implementation process**: NS **Comparison control:** Usual care **Description control**: Routine care, which also included patient education about medications, nutrition, alarming symptoms, laboratory tests, and time of next nephrology visit
Outcomes	**All-cause mortality**: NA **Major/ fatal cardiovascular event**: NA **Hospitalization**: NA **Hospital-acquired infection rate**: NA **Quality of life***: Mean kidney disease quality of life (KTQ-25) reported at baseline (1 month), 2 and 3 months **Adverse events**: Mean fatigue score (KTQ-25) reported at baseline (1 month), 2 and 3 months **Cost and resource utilization**: NA **Kidney function**: NA **Blood pressure**: NA **PTH levels**: NA

	Serum phosphorus: NA **Serum calcium**: NA **Serum beta macroglobulin**: NA **Haemoglobin**: NA **Nutrition status**: NA **Waiting list for kidney transplant**: NA **Process related outcomes**: NA
Notes	*Primary outcome.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Incomplete outcome data	High risk	Loss to follow up 13.3% of patients
Blinding of outcome assessors' All outcomes	Unclear risk	Not stated
Other sources of bias	Unclear risk	Funding: not stated
Allocation concealment	Unclear risk	Not stated
Selective outcome reporting	Unclear risk	Protocol not available
Blinding of participants and personnel All outcomes	Unclear risk	Not stated
Sequence generation	Unclear risk	Not stated

Santchi 2011

Methods	**Study design**: parallel cluster-RCT **Unit of randomisation**: practice **Unit of analysis**: patient **Duration of study**: 6months **Funding sources**:Pfizer Canada and Bourse du Cercle du Doyen (Faculty ofPharmacy, Université de Montréal); Merck Frosst Canada & Co; AmgenCanada; Bristol-Myers Squibb/Sanofi-Synthelabo; Pro DocLtée; LEO Pharma; Sabex; Hoffmann-LaRoche Limitée; Shire BioChem; Pharmaceutical Partners of Canada
Participants	**Country**: Canada **Setting**: Multicentre (22 community pharmacies) **Inclusion criteria**:community pharmacies were eligible to take part if they were willing; to attend a workshop if assigned to the ProFiL group; to give researchers copies of the written recommendations they sent to physicians and of the pharmacy´s records Adult CKD outpatients were identified at Laval predialysis clinic and invited to participate if they met the following criteria: (1) they had an estimated

	CrCl 60 ml/min, (2) they were followed at a community pharmacy participating in the ProFiL study and agreed to use the same pharmacy's services for the duration of the study, (3) they were covered by the Quebec government drug plan for 6 months prior to the study and throughout the duration of the study(4) they spoke and wrote French. **Number**: intervention (48); control (41) **Mean age ± SD (years):** intervention 71.9 (10.4); control 73.3 (7.7) **Sex (Male), n (%)**: intervention 30 (62.5); control 25 (60.9) **Ethnicity (white), n (%):** intervention NA; control NA **Diabetes (type I and II), n (%)**: intervention 27 (56); control 24 (59) **Cardiovascular disease, n (%**): intervention 20 (42); control 22 (54) **Hypertension, n (%)**: intervention 48 (100); control 41 (100) **CKD stage 3, n (%):** intervention 15 (31); control 17 (41) **CKD stage 4-5, n (%):** intervention 33 (69); control 24 (59) **Exclusion criteria**:NS
Interventions	**Level of care provided**:Regional (22 community pharmacies) **Location of care provided**:Community based care **Type of patients**: CKD 3-5 **Type of providers**:nurses; dieticians; community pharmacists; nephrologist; hospital pharmacist; **Type of stakeholders**: NS **Description of intervention**: 3h training workshop for community pharmacists; communication network to facilitate the transfer of clinical information; a pharmaceutical consultation service by hospital pharmacists **Type of targeted behaviour**: Professional education **Type of IC intervention**: Multidisciplinary care team (multidisciplinary guidelines and protocols/ Patient registry) **Implementation process**: NS **Comparison control:** Usual care **Description control**: 20 community pharmacies consisting of: nephrologists, hospital pharmacists, nurses and dieticians'
Outcomes	**All-cause mortality**: Number of death reported at 6 months **Major/ fatal cardiovascular event**: NA **Hospitalization**: NA **Hospital-acquired infection rate**: NA **Quality of life**: NA **Adverse events**: NA **Cost and resource utilization**: NA

	Kidney function: NA **Blood pressure***: Mean systolic and diastolic BP (mmHg); number of controlled PB (< 130/80 mmHg) reported at baseline and 6 months **PTH levels**: NA **Serum phosphorus**: NA **Serum calcium**: NA **Serum beta macroglobulin**: NA **Haemoglobin**: NA **Nutrition status**: NA **Waiting list for kidney transplant**: NA **Process related outcomes**: NA
Notes	*Primary outcome. Not all outcome variables are adjusted for clustering. In addition, ICC is not provided.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Incomplete outcome data	Low risk	Intention-to-treat
Blinding of outcome assessors' All outcomes	Unclear risk	Not stated
Other sources of bias	High risk	Sponsor on authorship (Sanofi / Pfizer)
Allocation concealment	Low risk	Sealed envelopes
Selective outcome reporting	Unclear risk	Protocol not available
Blinding of participants and personnel All outcomes	High risk	Unblinded
Sequence generation	Low risk	Computer generated random number

Scherpbier de Haan 2013

Methods	**Study design**: parallel cluster-RCT **Unit of randomisation**:practice **Unit of analysis**: patient **Duration of study**: 12months **Funding sources**:The Dutch Kidney Foundation

Participants	**Country**: The Netherlands **Setting**: Multicentre (9 GP practices) **Inclusion criteria**:adult patients (aged >18 years); treated for hypertension or type 2 diabetes mellitus by their GP; with an estimated glomerular filtration rate (eGFR) measurement of <60ml/min/1.73m^2 **Number**: intervention (90); control (74) **Mean age ± SD (years):** intervention 73.9 (8.0); control 72.4 (8.2) **Sex (Male), n (%)**: intervention 34 (37.8); control 39 (52.7) **Ethnicity (white), n (%):** intervention NA; control NA **Diabetes, n (%)**: intervention 31 (34); control 19 (26) **Cardiovascular disease, n (%**): intervention NA; control NA **Hypertension, n (%)**: intervention 73 (81); control 51 (69) **CKD stage, n (%):** intervention NA; control NA **Exclusion criteria**:serious medical or psychiatric conditions; drug or alcohol abuse; specialist CKD care in the last year; inability to understand Dutch (including cognitive disorders); and participation in another intervention trial.
Interventions	**Level of care provided**:Regional (5 GP practices) **Location of care provided**:Outpatient (primary) care **Type of patients**: CKD 3-5 **Type of providers**:GP; nurse practitioner; nephrology team **Type of stakeholders**: NS **Description of intervention**: shared care model: 1) training of professionals, 2) structured care by nurse practitioners', 3) opportunity to ask advice from a nephrology team. **Type of targeted behaviour**: Professional education; professional-patient education **Type of IC intervention**: Multidisciplinary care team **Implementation process**: NS **Comparison control:** Usual care **Description control**: Four GP practices consisting of a GP and nurse
Outcomes	**All-cause mortality**: Number of death reported at 12 months **Major/ fatal cardiovascular event**: NA **Hospitalization**: NA **Hospital-acquired infection rate**: NA **Quality of life**: Mean functional health status (WONCA: overall health) reported at baseline and 12 months **Adverse events**: NA **Cost and resource utilization**: NA

	Kidney function: Mean eGFR (ml/min/1.73m^2); creatinine (μmol/l) and albumin (g/L) reported at baseline and 12 months **Blood pressure***: Mean systolic and diastolic BP (mmHg) reported at baseline and 12 months **PTH levels**: Mean parathyroid hormone (pmol/l) reported at baseline and 12 months **Serum phosphorus**: Mean phosphate (mmol/l) reported at baseline and 12 months **Serum calcium**: Mean calcium (mmol/l) reported at baseline and 12 months **Serum beta macroglobulin**: NA **Haemoglobin**: Mean haemoglobin (mmol/l) reported at baseline and 12 months **Nutrition status**: Mean serum albumin (g/l) reported at baseline and 12 months **Waiting list for kidney transplant**: NA **Process related outcomes**: NA
Notes	*Primary outcome. Only blood pressure is adjusted for clustering. In addition, ICC for other outcomes is not provided

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Incomplete outcome data	Low risk	Loss to follow up 6.3% of patients. 9% on intervention arm
Blinding of outcome assessors' All outcomes	Unclear risk	Not stated
Other sources of bias	Low risk	Funded by the Dutch Kidney Foundation
Allocation concealment	Unclear risk	Not stated
Selective outcome reporting	Unclear risk	Protocol not available
Blinding of participants and personnel All outcomes	Unclear risk	Not stated
Sequence generation	Unclear risk	Not stated

Weber 2012

Methods	**Study design**: parallel RCT **Unit of randomisation**: patient **Unit of analysis**: patient **Duration of study**: 12months

	Funding sources:Merck pharmaceutical company
Participants	**Country**: Canada **Setting**:Multicentre (4 clinics) **Inclusion criteria**:Attending Kidney Care Clinic and either a heart failure or Diabetic clinic. **Number**: intervention (70); control (69) **Mean age ± SD (years):** intervention 63 (13); control 70 (9) **Sex (Male), n (%)**: intervention 52 (74); control 53 (77) **Ethnicity (white), n (%):** intervention 43 (62); control 41 (59) **Diabetes, n (%)**: intervention 63 (90); control 59 (86) **Cardiovascular disease, n (%**): intervention 44 (63); control 41 (60) **Hypertension, n (%)**: intervention NA; control NA **CKD stage, n (%):** intervention NA; control NA **Exclusion criteria**:Nor reported
Interventions	**Level of care provided**:Regional (combined clinic) **Location of care provided**: Outpatient care **Type of patients**: CKD-CVD-DM **Type of providers**:diabetes, cardiac or renal nurse, dietician, pharmacists, nephrologist, cardiologist, a/o endocrinologist **Type of stakeholders**: NS **Description of intervention**: individuals attended one integrated multidisciplinary clinic - seen by diabetes, cardiac or renal nurse, dietician, pharmacists, nephrologist, cardiologist, a/o endocrinologist at each clinic visit. **Type of targeted behaviour**: Financial-resource use; **Type of IC intervention**: Disease management (combined clinics); Multidisciplinary care team **Implementation process**: NS **Comparison control:** Usual care **Description control**: in the multiple clinic (MC) arm, study subjects continued to attend each separate multidisciplinary clinic (including the KCC) and received bloodwork, investigations and follow-up as per usual clinical practice of these areas
Outcomes	**All-cause mortality**: Number of death reported at 12 months **Major/ fatal cardiovascular event**: NA **Hospitalization***: Percentage hospital admissions reported at 12 months **Hospital-acquired infection rate**: NA **Quality of life**: NA

	Adverse events: NA **Cost and resource utilization**: Cumulative total cost ($) reported at 12 months **Kidney function**: Number of RRT reported at 12 months **Blood pressure**: NA **PTH levels**: NA **Serum phosphorus**: NA **Serum calcium**: NA **Serum beta macroglobulin**: NA **Haemoglobin**: NA **Nutrition status**: NA **Waiting list for kidney transplant**: NA **Process related outcomes**: NA
Notes	*Primary outcome. Mean age was significant higher in the intervention group compared to control at baseline.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Incomplete outcome data	Low risk	Intention-to-treat analysis was used
Blinding of outcome assessors' All outcomes	Low risk	Outcomes assessors blinded
Other sources of bias	High risk	Funding by Merck pharmaceutical company (unrestricted educational grant)
Allocation concealment	Low risk	Sequentially numbered sealed envelopes
Selective outcome reporting	Unclear risk	Protocol not available
Blinding of participants and personnel All outcomes	High risk	Blinding not possible
Sequence generation	Low risk	Random number table

Weisbord 2013

Methods	**Study design**: parallel cluster-RCT **Unit of randomisation**: clinic **Unit of analysis**: patient **Duration of study**: 12months

	Funding sources:Department of Veterans Affairs Health Services Research and Development Merit Review award
Participants	**Country**: USA **Setting**:Multicentre (9 outpatient dialysis units) **Inclusion criteria**:Receiving thrice-weekly (outpatient) haemodialysis; Age > 18 years; Presence of ESRD **Number**: intervention (100); control (120) **Mean age ± SD (years):** intervention 62.6 (14.3); control 63.9 (12.0) **Sex (Male), n (%)**: intervention 56 (56); control 65 (54.2) **Ethnicity (white), n (%):** intervention NA; control NA **Diabetes, n (%)**: intervention 51 (51); control 61 (52.1) **Cardiovascular disease, n (%**): intervention NA; control NA **Hypertension, n (%)**: intervention NA; control NA **CKD stage 5, n (%):** intervention 100 (100); control 120 (100) **Exclusion criteria**:patients with cognitive impairment based on Mini-Cog scores <3; non-English speakers; prisoners; patients participating in other clinical trials5)individuals considering transfer to peritoneal dialysis and/or undergoing evaluation for living-donor kidney transplantation
Interventions	**Level of care provided**:Regional (9 outpatient dialysis units) **Location of care provided**: Outpatient care **Type of patients**: CKD 5D (HD) **Type of providers**:Two non-dialysis nurses **Type of stakeholders**: NS **Description of intervention**: two non-dialysis nurses reviewed patient´s monthly symptom questionnaires, examined patients, formulated pharmacologic or non pharmacologic treatment recommendations based on clinical algorithms, and discussed recommendations with the patients (and renal providers, where applicable) **Type of targeted behaviour**:General management of problem (pharmacological vs. non pharmacological treatment) **Type of IC intervention**: case management **Implementation process**: Monitoring of the implementation process **Comparison control:**Feedback from research team to renal provider **Description control**: Mail of a standardized letter to the renal provider describing the presence and severity of their patient´s symptoms, along with evidence-based treatment algorithms for each relevant symptom of interest.
Outcomes	**All-cause mortality**: Number of death reported at 12 months **Major/ fatal cardiovascular event**: NA **Hospitalization**: NA

	Hospital-acquired infection rate: NA **Quality of life**: NA **Adverse events***: mean change from baseline for pain (SF-MPQ) **Cost and resource utilization**: NA **Kidney function**: Number of RRT reported at 6 months **Blood pressure**: NA **PTH levels**: NA **Serum phosphorus**: NA **Serum calcium**: NA **Serum beta macroglobulin**: NA **Haemoglobin**: NA **Nutrition status**: NA **Waiting list for kidney transplant**: NA **Process related outcomes**: Change in number of implemented nurse treatment advices from baseline
Notes	*Primary outcome. The study uses an observation phase that lased 2-12 months which was followed by a 12-month intervention phase. Not all outcome variables are adjusted for clustering. In addition, ICC is not provided.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Incomplete outcome data	High risk	Loss to follow up 15.5% of patients
Blinding of outcome assessors' All outcomes	Unclear risk	Not stated
Other sources of bias	High risk	Partly privately funded (DaVita, Dialysis Clinic Inc.; Liberty dialysis, LLC)
Allocation concealment	Unclear risk	Not stated
Selective outcome reporting	Low risk	All the prespecified outcomeswere reported
Blinding of participants and personnel All outcomes	High risk	Unblinded
Sequence generation	High risk	Based on dialysis schedule (Mo, Wed, Fri vs Tue, Thu, Sat)

Wong 2010

Methods	**Study design**: parallel RCT
	Unit of randomisation: patient
	Unit of analysis: patient
	Duration of study: 13weeks
	Funding sources:Research GrantsCouncil of Hong Kong
Participants	**Country**: China
	Setting:Multicentre (2 renal centres)
	Inclusion criteria:communicable; alert and oriented; could be contacted by telephone at home; lived in the hospital service area
	Number: intervention (60); control (60)
	Mean age ± SD (years): intervention NA; control NA
	Sex (Male), n (%): intervention NA; control NA
	Ethnicity (white), n (%): intervention NA; control NA
	Diabetes, n (%): intervention NA; control NA
	Cardiovascular disease, n (%): intervention NA; control NA
	Hypertension, n (%): intervention NA; control NA
	CKD stage 5, n (%): intervention 60 (100); control 60 (100)
	Exclusion criteria:On intermittent peritoneal dialysis or haemodialysis; old-age home residents
Interventions	**Level of care provided**:Regional (2 renal units)
	Location of care provided:Mixed (in- outpatient care)
	Type of patients: CKD 5D (PD)
	Type of providers:Renal nurse; General nurse; renal physician; renal nurse manager
	Type of stakeholders: NS
	Description of intervention: A renal nurse acting as a case manager to initiate and closet the case - Initial assessment, identify problem and set mutual goals. They were also available for consultation at any time for the general nurse. General nurses doing subsequent Health advice and reinforcement of Health behaviours
	Type of targeted behaviour:Professional-patient education
	Type of IC intervention: Case management
	Implementation process: NS
	Comparison control: Usual care
	Description control: Instructions on medication and basic health advice
Outcomes	**All-cause mortality**: Number of death reported at 13 weeks
	Major/ fatal cardiovascular event: NA

	Hospitalization*: Percentage hospital admissions reported at 7 and 13 weeks **Hospital-acquired infection rate**: NA **Quality of life***: Mean kidney disease quality of life (KDQOL; burden, effect and overall health) reported at baseline, 7 and 13 weeks **Adverse events**: mean fatigue and pain (KDQOL) reported at baseline, 7 and 13 weeks **Cost and resource utilization**: NA **Kidney function**: NA **Blood pressure**: NA **PTH levels**: NA **Serum phosphorus**: NA **Serum calcium**: NA **Serum beta macroglobulin**: NA **Haemoglobin**: NA **Nutrition status**: NA **Waiting list for kidney transplant**: NA **Process related outcomes***: mean non-adherence (DDFQ; diet, fluid and capd); and mean patient satisfaction (KDQOL) reported at baseline, 7 and 13 weeks
Notes	*Primary outcome.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Incomplete outcome data	High risk	Loss to follow 18.3% of patients
Blinding of outcome assessors' All outcomes	Low risk	Outcome assessor was blinded
Other sources of bias	Low risk	Funded by the Council of Hong King
Allocation concealment	Unclear risk	Not stated
Selective outcome reporting	Unclear risk	Protocol not available
Blinding of participants and personnel All outcomes	Unclear risk	Not stated
Sequence generation	Low risk	Computer random number generator

NA: not available; NS: not stated